



THERMEC'2016

**International Conference on
PROCESSING & MANUFACTURING OF ADVANCED MATERIALS**
Processing, Fabrication, Properties, Applications



May 29 - June 3, 2016
GRAZ, AUSTRIA

CONFERENCE PROGRAMME

THERMEC'2016

International Conference

On

PROCESSING & MANUFACTURING OF ADVANCED MATERIALS

Processing, Fabrication, Properties, Applications

May 29 - June 3, 2016

GRAZ, AUSTRIA

THEMEC'2016 Proceedings

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General Information

Identification Badge

Participants and accompanying persons are kindly requested to wear their personal name badge during all Conference events including Conference Dinner on June 1, 2016 due to strict security reasons at MESSE GRAZ.

Plenary Lectures

Plenary Lecture by Prof. Dr. E. Arzt will take place on Monday, May 30th 2016 in STADTHALLE Ground Floor at MESSE GRAZ.

Location of Parallel Sessions

Eleven parallel sessions will take place concurrently in 11 rooms at Messe Graz. The location of the lecture rooms are given in the floor plan included in this book.

Message Board

Personal Messages and Program changes will be announced on the message board in the registration desk area. We strongly suggest that you check the message board every day.

Lunches and Coffees

Lunches are served in STADTHALLE Ground Floor on May 30, 31, June 1 and June 2 from 12.30 pm to 2.30 pm. For admission to the dining hall please show your Conference identification badge. Coffee breaks will take place from May 30 to June 2 in the mid-morning and mid-afternoon. On June 3, Friday there is coffee break in the mid-morning only.

Company Exhibition

Organizations exhibiting at THERMEC'2016:

- Dynamic Systems Inc. USA
- Edmund Bühler GmbH
- MatCalc
- Thermo-Calc Software
- JEOL Germany
- PULSTEC Industrial

The FOYER mcs is used as exhibitor's space for companies exhibiting at THERMEC2016. The mid-morning/afternoon coffee breaks will also take place there from May 30 to June 3, in addition to the other locations near the session rooms.

Preview Centre

Room 8 can be used for internet and previewing your presentation. A few computers may be available in the room for this purpose.

THERMEC'2016 Proceedings Your Manuscript Inclusion

The papers will be included in the conference proceedings and in the periodical after the manuscripts are reviewed by the Program Committee. The review process is over but a considerable number of authors have not returned their revised manuscripts to us yet which is causing a delay in the publication of the proceedings. Due to unavoidable circumstances, the conference proceedings is now expected to be ready by October 2016 and Trans Tech Publishers will mail you the copy of the proceedings once ready.

Proceedings Form

Kindly complete the proceedings form included in this program book and drop it in the box provided near the registration desk. You must give complete mailing address including City, Post Code, Country etc. along with your current email address in order for the Trans Tech Publishers to send you the proceedings by courier.

Registration Desk

All delegates and companions should register for the conference and collect their name badges and papers at the Registration Desk, which is situated in the Conference Foyer at the Messe Graz.

Sunday May 29, 2016

Registration Desk will be opened from 4.00 pm to 6.00 pm in the Foyer Ground Floor. We strongly recommended that you please try to register on this day.

Monday-May 31 to Friday-June 3, 2016

Registration Desk will be opened from 7.30 am to 6.00 pm during the conference period, except on June 3, 2016 when it will be opened until 2:00 pm.

Parallel Sessions

Following are 11 parallel sessions (A to K) which will run concurrently in the eleven separate rooms at the Messe Graz and room numbers are given below. Please check your paper presentation time and session/date/room location carefully. The rooms location can be found in the floor plan included in this book.

The sessions are held in the following rooms:

- Session A: Hall 1a
- Session B: Hall 12a
- Session C: Hall 12b
- Session D: Gallery A
- Session E: Hall 11b
- Session F: Gallery C
- Session G: Gallery B
- Session H: Hall 1b
- Session I: Hall 11a
- Session J: Hall 10
- Session K: Hall 3

Session Chairpersons and Speakers

Chairpersons are requested to meet speakers of their sessions in the allotted session rooms at least 15 minutes prior to the commencement of the session. Speakers are requested to load their power point presentation files on the computer provided in the respective session room with the help of the session monitor. See your session monitor at least 15 mins before the start of the session. Due to the tight schedule, the use of personal computer is not encouraged.

Session Chairpersons

The Program Committee would like to thank each Chairperson for their time and effort in chairing sessions at THERMEC'2016. If, due to unavoidable circumstances, the Chairperson listed is not able to chair the allotted session, please contact Professor E. Kozeschnik, Prof. R. Srinivasan, Prof. C. Sommitsch or Prof. M. Ionescu at the registration desk at least 24 hours prior to the start of your session, so that we can find an alternative arrangement. A list of Chairpersons together with their allocated sessions and duty dates to chair is included in the Final Program book under Session Chairpersons and also on the Conference website.

Social Programme

Welcome Reception

Sunday, May 29, 2016 - 4:00 pm to 6:00 pm – Conference Foyer MESSE GRAZ

It is strongly recommended that you pre-register on May 29th from 4:00 pm to 6:00 pm. Pre-registration is to be held in the Conference Foyer of the Messe Graz. All registered delegates and registered spouses are cordially invited for drinks by the governor of Styria Hermann Schützenhöfer and socialising with delegates from other countries. Drink coupons will be provided with your registration papers on Sunday May 29, 2016.

From 5 pm to 6 pm the Welcome Reception will be accompanied by music from the „Musikverein der Graz Linien“.

THERMEC Conference Awards Dinner and Music Performance

Wednesday, June 1, 2016 - 7.30 pm to 10.30 pm - STADTHALLE ground floor MESSE GRAZ

The Conference dinner will be held at the MESSE GRAZ in STADTHALLE Ground Floor together with the distinguished THERMEC award ceremony, which will take place from 9:00 pm to 9:30 pm, to honour our peers from various countries. The dinner is accompanied by a grand MUSIC CONCERT by a grand group « Neue Hofkapelle Graz », a baroque orchestra, with the star singer Marie Friederike Schöder. VOESTALPINE AG is sponsoring the tonight's event and Dr. Franz Androsch, Head of R&D and Innovation, voestalpine AG, is invited to welcome all delegates on behalf of his organization.

The Conference Dinner ticket will be provided to each full fee paying participant at the time of registration. Student registration also includes the conference dinner. The extra Conference Dinner tickets can be purchased through the webpage or can be bought at the registration desk. The dinner ticket will be collected from you in the Dinner Hall by the staff once you are seated at your table, so please bring the dinner ticket on the night of June 1, 2016.

IMPORTANT:

All registered participants at THERMEC'2016 must wear their name badge when attending luncheons, coffee breaks, conference dinner or any official THERMEC function for security reasons. The security staff will ask you to leave the premises if you fail to wear the name badge or if you do not have your THERMEC name badge with you. **KINDLY COOPERATE WITH US IN THIS MATTER.**

Drinks in Conjunction with Student Poster Presentation Sessions

Wednesday, June 1: 5 pm to 7 pm – FOYER mc/SOUTH

The Program Committee has organized drinks in conjunction with the poster presentations by over 250 students from many countries. We encourage all participants to visit the poster sessions to encourage our student participants.

Poster Sessions

Poster Presenters please note:

Maximum poster size allowed at THERMEC'2016 is: height of 120 cm and maximum width of 100 cm

POSTER MUST NOT BE LAMINATED otherwise it will not stick on the Poster Board.

Poster Presentations

Two Groups are making poster presentations at THERMEC'2016:

- GROUP A (Non Students Presentations) on Tuesday, May 31, 2016
- GROUP B (Students Presentations) on Wednesday, June 1, 2016

Posters will be displayed in the *Foyer mcn*.

GROUP A (Non Students)

Presentation time: *May 31, 2016 from 5.00 pm to 7.00 pm*

Authors making POSTER presentation in Group A are requested to bring their posters to the registration desk on *May 31 (between 11.00 am and 12.30 pm)*. Please identify your poster number which will be displayed on the boards, and affix your poster on the poster boards provided. Please do not change the location of your poster ID displayed on the poster boards.

Authors in Group A are requested to take their poster off the poster board on May 31, 2016 after 7.30 pm in order to make the poster boards available for the next poster group presentation on June 1, 2016. If you fail to remove your poster by 8.00 pm on May 31, the staff will remove all the displayed posters. The THERMEC Committee does not take any responsibility for those posters left on the boards after 8.00 pm on May 31.

GROUP B (Students)

Presentation time: *June 1, 2016 from 5.00 pm to 7.00 pm*

All students are scheduled to make poster presentations at THERMEC'2016. The student presenters are requested to bring their posters to the registration desk on June 1, 2016 (between 11.00 am and 12.30 pm). Please identify your poster number which will be displayed on the boards, and affix your poster on the poster boards provided. Please do not change the location of your poster ID displayed on the poster boards.

Students are requested to take their poster off the poster board on June 2, 2016 before noon. If you fail to remove your poster by 12.30 noon on June 1, the staff will remove all the displayed posters. The THERMEC Committee does not take any responsibility for those posters left on the boards after noon on June 2.

THERMEC Secretariat does not assume any liability for mailed posters. Please **DO NOT** mail posters to the Conference Secretariat. Please bring your posters with you to the Registration Desk at the MESSE GRAZ on the dates specified.

Poster Presenters

The posters will have a maximum height of 120cm and maximum width of 100cm.

At the registration desk on May 31 (Group A) and June 1 (Group B), you will be given instructions on how to place your poster with your poster ID on the board allocated. Tape will be provided to you at the registration desk to affix the posters on the boards.

All participants are encouraged to visit the poster sessions and authors will be available for discussions.

Prof. E. Kozeschnik, Prof. Norbert Enzinger, Prof Aferdita Vevecka Priftaj and Prof. R.N. Srinivasan, are in charge of Poster sessions and are also on the THERMEC'2016 Students' Affairs Committee, and additional enquiries can be addressed to them.

Manuscripts submitted by students will be reviewed and included in the THERMEC'2016 Proceeding and in the periodical.

Non-Student Poster Presenters (Group A)

Poster Numbers P101 to P232

Tuesday May 31, 2016 from 5.00 pm to 7.00 pm in the FOYER mc/SOUTH

Session: Non-Student Posters

Venue: FOYER mcn

Date and Time: May-31, 5PM to 7PM

Session Chairs: Ragu N. Srinivasan, USA & NorbertENZinger, Austria

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Change in mechanical strength and bone contact ratio of beta-type TNTZ subjected to mechanical surface modification

Toshikazu Akahori, Tomokazu Hattori, Hisao Fukui, Mitsuo Niinomi
Meijo University, Japan

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Recrystallization and grain growth behaviour of an Mg-La alloy after hot-rolling

Djazia Elfiad, Youcef Bourezg, Hiba Azzeddine, Djamel Bradai
USTHB, Algeria

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Microstructure and microtexture evolution of invar alloy after cross accumulative roll bonding

Kamel Tirsatine, Hiba Azzeddine, Thierry Baudin, Anne-Laure Helbert, François Brisset, Djamel Bradai
USTHB, Algeria

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Synthesis of SiO₂-CaO-K₂O-Al₂O₃-B₂O₃ glass-ceramics for dental applications

Jae Chul Bang
SoonChunHyang University, Korea

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Effect of temperature and strain rate on the mechanical properties of 99.5 aluminium rods extruded by KOBO

Sonia Boczkal, Marzena Lech-Grega, Wojciech Szymanski, Paweł Ostachowski, Marek Łagoda
Institute of Non-Ferrous Metals in Gliwice, Poland

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Corrosion of MgCa alloys with conversion coatings

Michał Karaś, Sonia Boczkal, Marzena Lech-Grega
Institute of Non-Ferrous Metals in Gliwice, Poland

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Corrosion behavior of ZK40 alloys modified with Gd, Nd, Y or CaO using potentiodynamic polarization curves and SKPFM

Ricardo Henrique Buzolin, Marta Mohedano, Chamini Mendis, Carsten Blawert, Carlos Costa, Haroldo Cavalcanti Pinto, Karl Ulrich Kainer, Norbert Hort
University of São Paulo, Brazil

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The quantification of galling in forming operations of hot dip galvanised sheet metal under laboratory conditions

Jochen Giedenbacher, Anna-Elisabeth Raab, Christian Walch, Aziz Huskic
Forschungs & Entwicklungs GmbH FH OÖ, Austria

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Effect of added elements on microstructures and joint strength of lead-free Sn-based solder joint dispersed IMC pillar

Yawara Hayashi, Ikuo Shohji, Yusuke Nakata, Tomihito Hashimoto
Gunma University, Japan

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***Friction stir processing at high rotation rates of a magnesium alloy: Mechanical properties at high temperatures and microstructure**

Emanuela Cerri, G. Renna, M. Cabibbo, M. Simoncini, A. Forcellese
University of Parma, Italy

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Microstructure and mechanical properties of powder-pack boronized Inconel 625 alloy

Byungchul Cha, Jooyong Cheon, Jinyoung Park, Eoksoo Kim, Pilhwan Yon
Korea Institute of Industrial Technology, Korea

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Electroless plating of copper on TaN barrier layers using seed-anchoring self-assembled monolayer

Sung-Te Chen, Giin-Shan Chen
Hsiuping University of Science and Technology, China

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***Effects of precipitated particles on microstructure evolution during thermo-mechanical processing of Al-Zn-Mg-Cu alloy**

Huiqin Chen, Kun Zhang, Huiqu Li, Xiaodong Zhao, Lianhua Han
Taiyuan University of Science and Technology, China

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Yi-Lung Cheng
National Chi-Nan University, China

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High strength low carbon steel containing nano-sized copper precipitates and carbides

Phaniraj Madakashira, Young-Min Shin, Woo Sang Jung, In-Suk Choi
Korea Institute of Science and Technology, Korea

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Charlotte de Formanoir, Sébastien Michotte, Adrien Dolimont, Stéphane Godet
Université Libre de Bruxelles, Belgium

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New route to develop multi-structured anti-CMAS coatings to protect thermal barriers

Elodie Delon, Florence Ansart, Sandrine Duluard, Jean-Pierre Bonino, André Malie, Aurelien Joulia
Paul Sabatier University, France

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***Nanocomposites consisting of carbon nanotubes and nanoparticles of noble metals**

Anna Dobrzańska-Danikiewicz, Dawid Cichocki, Dariusz Łukowiec
Silesian University of Technology, Poland

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Deri Galvin
University of Swansea, United Kingdom

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Jau-Shiung Fang, Guan-Ru Su, G.S. Chen, Y.L. Cheng, T.S. Chin
National Formosa University, Taiwan

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Agnieszka Fornalczyk

Silesian University of Technology, Poland

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Mitsuaki Furui, Shouyou Sakashita, Shougo Suzuki, Tetsuo Aida, Yuusuke Ishisaka, Masayuki Yamamoto, Masayuki Ohta

Tokyo University of Technology, Japan

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Helmholtz-Zentrum Geesthacht, Germany

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Brandenburg University of Technology, Germany

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Feng Chia Univ., China

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Eugene Goli-Oglu

Denmark

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Sadao Hashiguchi, Sunao Sadamatsu, Jun Heshikiri, Yoshitaka Adachi

Kagoshima University, Japan

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Tae Kwon Ha

Gangneung-Wonju National University, Korea

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Tae Kwon Ha

Gangneung-Wonju National University, Korea

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Masahiro Kaido, Kenta Imai, Masahiko Hatakeyama, Satoshi Sunada

University of Toyama, Japan

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Shihoko Inui, Kenichi Hamada, Emi Uyama, Eiichi Honda
Tokushima University, Japan

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Lizi He
Northeastern University, China

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Guangjie Huang, Li Huang, Zhihong Jia, Qing Liu
Chongqing University, China

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Tomonari Inamura, Iyoko Kubota, Hideki Hosoda
Tokyo Institute of Technology, Japan

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Mihail Ionescu, Alec Deslandes, Rohan Holmes, Mathew Guenette, Inna Karatchevtseva, Lars Thomsen, Gregory Lumpkin
ANSTO, Australia

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Yoshihide Saeki, Yoshinori Yamada, Kazuhiro Ishikawa
Kanazawa University, Japan

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Markku Pirinen, Jukka Martikainen, Paul Kah, Victor Karkhin, Sergei Ivanov
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Hiroshi Izui, Shoji Kamemawa, Yoshiki Komiya
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Dora Janovszky, Kinga Tomolya, Anna Sycheva, Maria Sveda, Andras Roos
MTA-TKI, Hungary

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Okayama University of Science, Japan

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Je Deok Kim, Lee Jin Ghil

National Institute for Materials Science (NIMS), Japan

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Mee-Ri Kim, Ki-Chul Kim

Mokwon University, Korea

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Pukyong National University, Korea

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IPP-Centre, Ltd, Ukraine

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National Research Nuclear University «MEPhI», Russia

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Korea Institute of Industrial Technology, Korea

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Insup Lee

Dongueui University, Korea

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Rudny industrial Institute, Kazakhstan

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Zongbin Li
Key Laboratory for Anisotropy and Texture of Materials (Ministry of Education), Northeastern University, China

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Liu Lirong
Shenyang University of Technology, China

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Stefan Mitsche, Ernst Plesiutchnig, Christof Sommitsch
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Leandro Tanure, Claudio Alcântara, Tarcísio Oliveira, Dagoberto Santos, Berenice Gonzalez

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Jian Xu, Hui-Li Gao, Yong Shen
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Veena Jawali, Prakash Parasivamurthy
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Dongdong Zhao, YanJun Li, Ole Martin Løvvik, Knut Marthinsen
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University of Ljubljana, Slovenia

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Heung-Ju Kim, Sook-Hwan Kim, Jeong-Ung Park, Gyu-Baek An
Research Institute of Industrial Science and Technology, Korea

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Mingxin Huang
The University of Hong Kong, China

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Session: Student Posters

Venue: FOYER mcn

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Evolution of homogeneity in oxygen-free copper processed by ECAP and HPT

Meshal Alawadhi, Yi Huang, T.G. Langdon
University of Southampton, United Kingdom

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Saad A. Alsubaie, Yi Huang, T. G. Langdon
University of Southampton, United Kingdom

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Fady Archie, Stefan Zaefferer
Max-Planck-Institut für Eisenforschung GmbH, Germany

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University of Toyama, Japan

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Clio Azina, Jean-François Silvain, Yongfeng Lu
ICMCB, France

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Christian Baron, Agnieszka Szczepaniak, Hauke Springer, Dierk Raabe
Max-Planck-Institut für Eisenforschung GmbH, Germany

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Correlations between defect content, mechanical properties and fractographic investigation of AlSi₉Cu₃(Fe) alloy reference castings

Eleonora Battaglia, Franco Bonollo, Ilaria Tonello, Elena Fiorese
University of Padova, Italy

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Marion Bellavoine, Myriam Dumont, Josée Drillet, Philippe Maugis, Véronique Hebert
ArcelorMittal Research SA, France

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Alec Blankenship, Adam Pilchak, Jared Shank, Alisha Hutson, Dennis Buchanon, Raghu Srinivasan
Wright State University / USAF AFRL, USA

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Materials Center Leoben Forschung GmbH, Austria

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Guillaume Boivin, Pierre Belanger, Ricardo J. Zednik
École de technologie supérieure, Canada

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Michael Booth, Olga Gopkalo, Xu Liu, Brad Diak, Adrian Gerlich
University of Waterloo, Canada

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Claire Bruna-Rosso, Barbara Previtali, Maurizio Vedani
Politecnico di Milano, Italy

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Tokyo Institute of Technology, Japan

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Romain Bureau, Mirjam Spuller, Peter Simon, Cecilia Poletti
Graz University of Technology, Austria

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Daniele Caliarì, Giulio Timelli, Tiziano Salata, Sergio Maestri, Giuseppe Cavagnini
University of Padova, Italy

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Illinois Institute of Technology, USA

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Jaroslav Čapek, Dalibor Vojtěch
Institute of Physics CAS, Czech Republic

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Pietrogiannini Cerchier, Katya Brunelli, Manuele Dabalà
University of Padova, Italy

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National Sun Yat-sen University, Taiwan

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National Sun Yat-Sen University, Taiwan

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Paul Christian

Graz University of Technology, Austria

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Fatayalkadri Citrawati, Md Zakaria Quadir, Paul Munroe

University of New South Wales, Australia

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Dan Cluff, Stephen Corbin, Michael Gharghour

Dalhousie University, Canada

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Deakin University, Australia

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École de Technologie Supérieure, Canada

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Lena Eisenhut, Daniel Rupp, Christian Motz

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Deakin University, Australia

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Maria Teresa Di Giovanni, Emanuela Cerri, Mattia Merlin, Daniele Casari, Lars Arnberg, Gian Luca Garagnani

University of Parma, Italy

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Charles University in Prague, Czech Republic

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University of Vienna, Austria

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Julien Fadonougbo, Jin-Yoo Suh, Soogyong Han, Cheol-Hwee Shim, Gyeong-Ho Kim, Man-Ho Kim, Eric Fleury, Yong-Hwan Cho
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Xiaogang Fang, Shusen Wu, Shulin Lü
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Alexandra Fedoseeva, Nadezhda Dudova, Rustam Kaibyshev
Belgorod State University, Russia

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Eva Grünwald, M. Ehmann, A. Binter, Rudolf Zelsacher, Robert Nuster, Günther Paltauf, Roland Brunner
Materials Center Leoben, Austria

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Haruka Furukawa, Masahiro Yoshizawa-Fujita, Yuko Takeoka, Masahiro Rikukawa
Sophia University, Japan

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Katharina Grundner, Anton Hohenwarter, Reinhard Pippan
Austrian Academy of Sciences, Austria

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Bernadette Gsellmann, Dilek Halici, Mihaela Albu, Coline Béal, Bernhard Sonderegger
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Lei Guo, Hans Roelofs, H. K. D. H. Bhadeshia
University of Cambridge, United Kingdom

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Jinming Guo, Julian Rosalie, Zaoli Zhang
Austrian Academy of Sciences, Austria

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Novel approaches for aluminium magnesium diffusion bonding by surface engineering

Stefan Habisch, Peter Mayr
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Florent Hannard, Rajmund Mokso, eric maire, thomas pardoen, aude simar
UCL, Belgium

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Phillip Haslberger, Ronald Schnitzer, Daniel Schwarz, Irmgard Weißensteiner, Wolfgang Ernst, Helmut Clemens
Montanuniversität Leoben, Austria

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Yuki Hayashi, Siddharth Lokachari, Satoshi Yamagishi, Masakazu Okazaki
Nagaoka University of Technology, Japan

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Anita Heczal, Jenő Gubicza, Lola Lilensten, Julie Bourgon, Loic Perriere, Jean-Philippe Couzinié, Guy Dirras, Ivan Guillot, Yi Huang, Terence G. Langdon
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Development of three-dimensional porous titanium web for bone defect filling

Yoko Henmi
Institute of Biomedical Sciences, The University of Tokushima Graduate School, Japan

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Graphite-alumina and carbon nanotube-alumina sol-gel composite coatings on 304-L stainless steel for tribological applications

Karim Hentour, Viviane Turq, Alicia Weibel, Jean-Michel Sobrino, Pierre-François Cardey, Julien Garcia, Christophe Laurent
Université Paul Sabatier, Institut Carnot CIRIMAT, France

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Yukihiro Higashino, Norihiko Okamoto, Haruyuki Inui
Kyoto University, Japan

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Klaudia Horváth, Kristián Máthis, Daria Drozdenko, Gerardo Garces, Patrik Dobroň
Charles University in Prague, Czech Republic

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Huilan Huang, Zhihong Jia, Xueli Wang, Yuan Xing, Qing Liu
Chongqing University, China

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Tokyo City University, Japan

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Hailong Jia, Yanjun Li, Knut Marthinsen
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Deakin University, Australia

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Norberto Jimenez Mena, Jean-Marie Drezet, Pascal J. Jacques, Aude Simar
Université Catholique de Louvain, Belgium

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Jaimyun Jung, Hyoungseop Kim, Jaelk Yoon
POSTECH, Korea

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Marino Kawamura, Norihiko L. Okamoto, Katsushi Tanaka, Haruyuki Inui, Easo P. George
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Vasuki Kentheswaran, Sarah Dine, Jean-Philippe Couzinié, Dominique Vrel, Guy Dirras
Université Paris 13, France

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Chonnam National University, Korea

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Jeong Min Kim, Suk Yoon Hong, Ji Hun Jang, Kyung Jong Lee

Hanyang University, Korea

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Krishna Kishore, Adepu Kumar

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Effects of processing parameters on microstructure for semisolid forging of A356 alloy

Sewoong Park, Byung Keun Kang, Chun Pyo Hong, Il Sohn

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Kentaro Kojima, Yasuhide Inoue, Yasumasa Koyama

Waseda University, Japan

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Karoline Sophie Kormout, Bo Yang, Reinhard Pippan

Erich Schmid Institute of Leoben, Austria

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Anisotropic defect recovery in HPT- and ECAP-processed ultrafine-grained Ni studied by difference dilatometry

Jaromir Kotzurek, Anton Hohenwarter, Macej Krystian, Wolfgang Sprengel, Reinhard Pippan, Roland Würschum

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Bulk metallic glasses composites produced via severe plastic deformation

Lisa Krämer, Verena Maier, Karoline Kormout, Reinhard Pippan, Yannick Champion

Erich Schmid Institute, ÖAW, Austria

SP580

Influence of thermo- and HIP treatments on the microstructure and mechanical properties of IN625 alloy parts produced by selective laser melting: a comparative study

Alena Kreitzberg, Vladimir Brailovski, Sylvain Turenne, Victor Urlea, Cyrille Chanal

Ecole de Technologie Supérieure, Canada

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The effects of Fe on the microstructure and the interface between hypereutectoid Cu-Al-Fe coatings and steel substrate

Pawee Kucita, Shuncai Wang, Wen-Sheng Li, Marco Starink

University of Southampton, United Kingdom

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Influence of peak temperature during weld simulation thermal cycle on microstructure and mechanical properties in weld HAZ of a low carbon quenched and tempered steel

Sanjeev Kumar, S. K. Nath

Indian Institute of Technology Roorkee, India

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Effect of prior strain on damping capacity and mechanical property during heat treatment

Juho Kwak, Changyong Kang, Hansang Kwon, Kwonhoo Kim
Pukyong National University, Korea

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Micro-tensile testing of single block structures of lath martensitic steel

Kwangsik Kwak, Tsuyoshi Mayama, Yoji Mine, Kazuki Takashima
Kumamoto University, Japan

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The role of grain boundary character on the hydrogen embrittlement of high-Mn TWIP steels

Young Jin Kwon, Junmo Lee, Da Hye Shim, Chong Soo Lee
POSTECH, Korea

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Separating technology of pure zirconia from zircon-sand by the Ar-H₂ arc plasma fusion and the microwave leaching

Jeong Han Lee, Sung Kil Hong, Da Som Kang
Chonnam National UNIV, Korea

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A Study on the microstructural characterization of René 142 deposited atop René 80 processed through scanning laser epitaxy

Amrita Basak, Suman Das
Georgia Institute of Technology, USA

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Synthesis of a metal matrix nanocomposite through high-pressure torsion

Han-Joo Lee, Jae-Kyung Han, Byungmin Ahn, Megumi Kawasaki, Terence Langdon
Hanyang University, Korea

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Understanding and controlling the microscale silicon distribution for microstructure optimization of Q&P steels

Zhuangming Li, Stefan Zaefferer, Richard Thiessen
Max-Planck-Institut für Eisenforschung, Germany

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Microstructural factors affecting deformation and fracture behaviors of advanced austenitic steels during creep

Hyun-Hwa Park, Joon-Oh Moon, Heon-Young Ha, Tae-Ho Lee, Hyun-Uk Hong
Changwon University, Korea

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Strain induced martensitic transformation in Austempered Ductile Iron (ADI)

Xiaohu Li, Michael Hofmann, Patrick Saal, Markus Hölzel
FRM2, Germany

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Thermal desorption spectroscopy study on the hydrogen behavior in a plasma charged aluminum

Toshiaki Manaka, Masaya Aoki, Goroh Itoh
Ibaraki University, Japan

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Technical challenges in narrow-gap root pass welding during tandem and hybrid laser-arc welding of a thick martensitic stainless steel

Fatemeh Mirakhorli, Xinjin Cao, Tan Pham, Priti Wanjara, Jean-Luc Fihey
École de Technologie Supérieure, Canada

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A study on the microstructure and the tensile fracture behavior of infiltrated TiC-steel composite

Nu-Ri Oh, Seung-Chan Cho, Sang-Kwan Lee, Hyun-Uk Hong

Changwon University, Korea

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Microstructure evolution during LCF of a 10% Cr steel at room temperature

Roman Mishnev, Nadezhda Dudova, Rustam Kaibyshev

Belgorod State University, Russia

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The effect of Si and Mn to phase decomposition of Cu-Zn alloys during annealing process

Tsuyoshi Miura

Graduate School of Science and Engineering for Education, Japan

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Thermomechanical bonding between metallic glasses and various die materials

Amir Monfared, Weidong Liu, Liangchi Zhang, Mei Liu

UNSW, Australia

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The influence of filler metal composition on microstructural evolution and isothermal solidification during transient liquid phase bonding of nickel

Eric Moreau, Eric Moreau, Stephen Corbin

Dalhousie University, Canada

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Crystallographic investigation of the initial solidification grain structure in Al-Si alloy

Hironori Morishita, Hisao Esaka, Kei Shinozuka

National Defense Academy, Japan

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Effect of deformation structure on strength of a low-alloyed Cu-Cr-Zr alloy

Anna Morozova, Iaroslava Shakhova, Andrey Belyakov, Rustam Kaibyshev

Belgorod State University, Russia

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High temperature mechanical properties of harmonic structure designed SUS304L austenitic stainless steel

Masashi Nakatani, Yuya Fujiki, Mie Ota, Sanjay K. Vajpai, Kei Ameyama

Ritsumeikan University, Japan

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Crystallographic features of the approximant H phase in the Mn-Si-V alloy system

Kei Nakayama, Takumi Komatsuzaki, Yasumasa Koyama

Waseda University, Japan

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Influence of nano reinforcement volume-percentage on fabrication of surface nano composite by friction stir processing

Parumandla Naresh, Adepu Kumar, Mugada Krishna Kishore

NIT Warangal, India

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Characterization of product phases formed from austenite during isothermal treatments around the Ms temperature in a low-C high-Si steel

Alfonso Navarro-López, Javier Hidalgo, Jilt Sietsma, Maria J. Santofimia

Delft University of Technology, The Netherlands

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In-situ investigation of the kinetics of reverse austenite formation in supermartensitic stainless steel

Frank Nießen, Matteo Villa, Daniel Apel, Olaf Keßler, Michael Reich, Marcel Somers, John Hald
Technical University of Denmark, Denmark

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Characteristic features of the modulated structure appearing in the multiferroic material $\text{Bi}_{1-x}\text{Sm}_x\text{FeO}_3$ around $x=0.15$

Masashi Nomoto, Takumi Inoshita, Yasuhide Inoue, Yoichi Horibe, Yasumasa Koyama
Waseda University, Japan

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Deformation microstructures and mechanical properties of an austenitic stainless steel subjected to warm rolling

Marina Odnobokova, Andrey Belyakov, Rustam Kaibyshev
Belgorod State University, Russia

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Crystal plasticity finite element analysis of micro-tensile behaviour of dual-phase steel subjected to pre-straining

Shinya Ogata, Tsuyoshi Mayama, Yoji Mine, Kazuki Takashima
Kumamoto University, Japan

SP611

A study on the microstructure and the tensile fracture behavior of infiltrated TiC-steel composite

Nu-Ri Oh, Seung-Chan Cho, Sang-Kwan Lee, Hyun-Uk Hong
Changwon National University, Korea

SP613

Microstructure formation of high pressure torsion processed (alpha gamma) two phase stainless steel

Mie Ota, Daiki Nanya, Sanjay Kumar Vajpai, Kei Ameyama, Kaveh Edalati, Zenji Horita
Ritsumeikan University, Japan

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A new method to study the thermodynamics of homogeneous nucleation of bcc phase from fcc in pure iron by molecular dynamics

Xiaoqin Ou, Jilt Sietsma, Maria Santofimia
Delft University of Technology, The Netherlands

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Effect of Aluminum content on texture formation behaviors in magnesium alloy

Minsoo Park, Junho Choi, Kwonhoo Kim
Pukyong National University, Korea

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Influence of initial heat treatment on microhardness evolution in an Al-Mg-Sc alloy processed by high-pressure torsion

Pedro Pereira, Yi Huang, Terence Langdon
University of Southampton, United Kingdom

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Effect of the secondary phase precipitation on the corrosion resistance of different duplex stainless steels

Luca Pezzato, M. Lago, M. Breda, K. Brunelli, I. Calliari
University of Padova, Italy

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Electrodeposited molybdenum oxide films and patterned submicrometer motifs: structure and mechanical properties

Alberto Quintana, Aïda Varea, Miguel Guerrero, Santiago Suriñach, Maria Dolors Baró, Jordi Sort, Eva Pellicer
Universitat Autònoma de Barcelona, Spain

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Control of physical properties of anodic coatings obtained by anodizing in aluminate solutions

David Alberto Quintero Giraldo, Maryory Gómez, Jorge A. Calderón, Juan G. Castaño, Félix Echeverría, Peter Skeldon, Michele Curioni, George Thompson, Etsushi Tsuji, Yoshitaka Aoki, Hiroki Habazaki
Universidad de Antioquia, Colombia

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Joining of dual phase steel DP 600 – benefits of weld bonding

Sivaraman Rajan, G. V. Sarathkumar, G. D. Janaki Ram, M. Kamaraj
Indian Institute of Technology Madras, India

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Softening kinetics of plain carbon steels containing dilute Nb additions

Bhushan Rakshe, Eric Palmiere, Jitendra Patel
University of Sheffield, United Kingdom

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Biocompatible ceramic-biopolymer coatings obtained by electrophoretic deposition on electron beam structured titanium alloy surfaces

Claudia Ramskogler, Luis Eduardo Cordero-Arias, Fernando Warchomicka, Aldo R. Boccaccini, Christof Sommitsch
Graz University of Technology, Austria

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Fatigue in nanocrystalline, bimodal and ultrafine-grained nickel in respect of thermal and mechanical stability

Dominic Rathmann, Michael Marx, Christian Motz
Saarland University, Germany

SP625

Effect of prior austenite grain size on bainite formation: Faster or slower kinetics?

Ashwath M. Ravi, Jilt Sietsma, Maria J. Santofimia
Delft University of Technology, The Netherlands

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Characterization of the oxygen pick-up behaviour of a nickel-based super alloy powder under different sintering atmosphere conditions using a combined TG-GC-MS technique

Addison Rayner, Catherine Whitman, Stephen Corbin
Dalhousie University, Canada

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On the influence of microstructure and thermally activated processes on anomalous yielding point phenomena during nanoindentation

Oliver Renk, Anton Hohenwarter, Reinhard Pippan
Austrian Academy of Sciences, Austria

SP628

Effect of previous grain size on recrystallization texture and the formability of a Nb ferritic stainless steel

Daniella Rodrigues, Cláudio Moreira Alcântara, Dagoberto Brandão Santos, Tarcísio Reis de Oliveira, Berenice Mendonça Gonzalez
Universidade Federal de Minas Gerais, Brazil

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Solid-state bonding of 5052 aluminum alloy/316L stainless steel by using organic salt formation/decomposition reaction

Hiroki Saito, Shinji Koyama
Gunma University, Japan

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Effect of Cu and Ag addition on mechanical properties in Al-Mg-Ge alloys aged at different temperatures

Tatsuya Sato, Akihiro Kawai, Seungwon Lee, Susumu Ikeno, Kenji Matsuda
University of Toyama, Japan

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Simulating cosegregation of carbon and oxygen in molybdenum with DFT

Daniel Scheiber, Lorenz Romaner, Peter Puschnig, Reinhard Pippan
Karl Franzens University, Austria

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Experimental and theoretical EELS study of rhenium borides

Felix Schmuck, Dominik Spahr, Björn Winkler, Christopher Neun, Victor Milman, Miguel Avalos-Borja, Héctor Gabriel Silva-Pereyra, Benedikt Petermüller, Hubert Huppertz
Goethe Universität Frankfurt, Germany

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Influence of different welding processes on the mechanical properties of structural steel S960

Christian Schneider, Wolfgang Ernst, Ronald Schnitzer, Herbert Staufer, Norbert Enzinger
Graz University of Technology, Austria

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Phase decomposition of a single-phase nanocrystalline CoCrFeMnNi high-entropy alloy

Benjamin Schuh, Francisca Mendez-Martin, Bernhard Völker, Easo P. George, Helmut Clemens, Reinhard Pippan, Anton Hohenwarter
Montanuniversität Leoben, Austria

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The effects of interfacial heat transfer coefficient on the microstructure of high-pressure Die-cast magnesium alloy AM60B

Pouya Sharifi, Kumar Sadayappan, Jeff Wood
Western University, Canada

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Crystallographic features of states near the state boundary between the C- and A-type orbital-ordered states in $\text{Sr}_{1-x}\text{R}_x\text{MnO}_3$ (R=Nd, Sm)

Rina Shimasaki, Ayumi Shiratani, Hiroki Sato, Yasuhide Inoue, Yasumasa Koyama
Waseda University, Japan

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Development of porous metallic femoral stems

Vladimir Brailovski, Patrick Terriault, Charles Simoneau, Mathieu Dumas, Bruno Jette
Ecole de Technologie Supérieure, Canada

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An extended mean field model for coupling discontinuous dynamic RX and post-dynamic RX

Guillaume Smaghe, David Piot, Frank Montheillet, Marc Bernacki, John Joseph Jonas, Guillaume Kermouche, Aurore Montouchet
EMSE, France

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Preparation and characterization of nanostructured (Zn,Al) layered double hydroxides

Peiman Soltani, Lina Di Giamberardino, Alessio Mattoccia, Pier Gianni Medaglia, Roberto Montanari, Maria Richetta, Alessandra Varone, Saulius Kaciulis, Alessio Mezzi
ISMN-CNR, Italy

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Microstructural influence on low-cycle fatigue properties of high-manganese Fe-Mn-C steels

Seok Weon Song, Seok Hwan Jung, Chong Soo Lee
POSTECH, Korea

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Determination of the boron and oxygen K-edge in orthoboric acid by electron energy loss spectroscopy

Dominik Spahr, Felix Schmuck, Björn Winkler, Eiken Haussühl, Rita Luchitskaia, Victor Milman, Miguel Avalos-Borja, Hector G. Silva-Pereyra
Goethe Universität Frankfurt, Germany

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The effects of intercritical annealing temperature and initial microstructure on the stability of retained austenite in a 0.1C-6Mn steel

Katharina Steineder, Daniel Krizan, Reinhold Schneider, Coline Béal, Christof Sommitsch
University of Applied Sciences Upper Austria, Austria

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Electron beam welding of TZM sheets

Markus Stuetz, Diogo Oliveira, Norbert Enzinger, Matthias Rüttinger, Nikolaus Reheis, Heinrich Kestler
Graz University of Technology, Austria

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Systematic investigation of the temperature field in Atmospheric Plasma Processing (APP)

Maximilian Stummer, Philipp Stögmüller, Norbert Enzinger
Graz University of Technology, Austria

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The effect of Ni on the surface oxide layer during simulated brazing of aluminum alloys

Colin Tadgell, Mary Wells, Stephen Corbin, Sooky Winkler, Leo Colley, Brian Cheadle
Dalhousie University, Canada

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Microstructure observations of graphite in gray cast iron and ductile cast iron using TEM

Makoto Takezawa, Seungwon Lee, Susumu Ikeno, Kenji Matsuda
University of Toyama, Japan

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The effect of thermal cycling on microstructure of Er₂O₃ coating layer prepared by MOCVD process

Masaki Tanaka, Makoto Takezawa, Yoshimitsu Hishinuma, Teruya Tanaka, Takeo Muroga, Seungwon Lee, Susumu Ikeno, Kenji Matsuda
University of Toyama, Japan

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Analysis of Thin Strip Shape and Profile in cold rolling: A way to Improve Strip Profile and Mechanical Properties

Hasan Tibar, Zhentyi Jiang
University of Wollongong, Australia

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Effect of tempering on microstructure and creep properties of a P911-type steel

Evgeniy Tkachev, Marina Odnobokova, Alla Kipelova, Andrey Belyakov, Rustam Kaibyshev
Belgorod State University, Russia

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Reverse transformation behavior induced by shot-peening for SUS410S martensitic stainless steel

Nagomi Tsuboi, Serika Higa, Hisashi Sato, Yoshimi Watanabe
Nagoya Institute of Technology, Japan

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Micro-mechanical characterisation of hydrogen embrittlement related to twin boundary in type 304 stainless steel

Shohei Ueki, Kaoru Koga, Yoji Mine, Kazuki Takashima
Kumamoto University, Japan

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Multi-stimuli responsive polymer gels via initiated chemical vapor deposition

Katrin Unger
Graz University of Technology, Austria

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Investigation of microstructure evolution and phase transformations in ultra-fine grained metastable beta Ti alloys

Kristína Václavová, Josef Stráský, Jakub Čížek, Petr Hrcuba, Svetlana Gatina, Veronika Polyakova, Irina Semenova, Miloš Janeček
Charles University in Prague, Czech Republic

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Texture gradient through thickness of a cross roll-bonded aluminum composite

Kévin Verstraete, Thierry Baudin, Anne-Laure Helbert, François Brisset
ICMMO, France

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High heating rates and their influences on austenite formation

Annika Vieweg, Erwin Povoden-Karadeniz, Peter Raninger, Reinhold Ebner
Materials Center Leoben Forschung GmbH, Austria

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Laser direct metal deposition of M2 high speed steel: Microstructure evolution and crystallization behavior during annealing

Yiqiao Yang, Xiang Zhao, Shuang Jiang
Northeastern University, China

SP658

The effect of initial micro-structures on deformation behaviors of commercial pure titanium

Tongbo Wang
Beijing University of Science and Technology, China

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A nanotwinned surface layer generated by high strain-rate deformation in a TRIP steel

Pan Xie, Cuilan Wu, Yan Chen, Jianghua Chen, Xiubo Yang, Shiyun Duan, Ning Yan, Xueao Zhang, Jingyue Fang
Hunan University, China

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Temperature field evolution during flash butt welding of railway rails

Leonhard Weingrill, Norbert Enzinger
Graz University of Technology, Austria

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Effect of different bainite morphologies on the formability of advanced high strength steels

Irmgard Weißensteiner, Thomas Hebesberger, Helmut Clemens
Montanuniversität Leoben, Austria

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Effects of microalloy additions and thermomechanical processing on austenite grain size control in medium carbon steel bar rolling

Blake Whitley, John Speer, Robert Cryderman, Robert Goldstein, Kip Findley, David Matlock
Colorado School of Mines- Advanced Steel Processing & Products Research Center, USA

SP663

Dissimilar electron beam welds of nickel base alloy A625 with a 9% Cr-steel for high temperature applications

Christopher Wiednig, Ernst Plesiutchnig, Coline Beal, Norbert Enzinger, Claus Lochbichler
Graz University of Technology, Austria

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Mg impact upon the generalized stacking fault energy of Al

Dongdong Zhao
NTNU, Norway

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Further study on the effect of environment on fatigue crack growth behavior of 2000 and 7000 series aluminum alloys

Ryuichi Yamada, Goroh Itoh, Akira Kurumada, Manabu Nakai
Ibaraki University, Japan

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Crystal structure, microstructure and martensitic transformation path in Ni-Mn-In alloys

Haile Yan, Yudong Zhang, Claude Esling, Xiang Zhao, Liang Zuo
Key Laboratory for Anisotropy and Texture of Materials, China

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The effect of grain size on oxidation resistance of pure titanium

Yang Yang, Kitashima Tomonori, Hara Toru, Hara Yuka, Yamabe-Mitarai Yoko, Liu Lijun
Kyushu University, Japan

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Crystallographic features of the states appearing in the multiferroic material , Bi_{1-x}La_xFeO₃ around x = 0.2

Haruka Yoshida, Masashi Nomoto, Takumi Inoshita, Yasuhide Inoue, Yoichi Horibe, Yasumasa Koyama
Waseda University, Japan

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Evaluation of parameters effect on microstructure and mechanical properties in TIG welding of A105 to A106 steels

Afshin Yousefi, Davood Ghasemi, Goroh Itoh
Ibaraki University, Japan

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Prediction of carbide coarsening and its effect on the fretting wear behavior of an Inconel 690 SG tube for nuclear power plants

Jaeyong Yun, Hosik Lee, Woongsoon Kang, Seonjin Kim
Hanyang University, Korea

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Fatigue crack growth in forged and flow formed IN718

Costa Coleman, Martin Bache, Carl Boettcher
Swansea University, United Kingdom

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Characterization of phase transformations occurring in Ti-15Mo by in-situ methods

Pavel Zháňal
Charles University in Prague, Faculty of Mathematics and Physics, Czech Republic

SP675

Microstructure and mechanical properties of medium manganese steel plate with high strength and toughness

Ying Zou, YunBo Xu, ZhiPing Hu, Hui Liu, XiaoLong Yang, XiaoDong Tan, YongMei Yu
Northeastern University, China

SP676

Characterization and mechanical properties of a 0.2C steel produced by Q&P

Pierre Huyghe, Loic Malet, Stéphane Godet, Matteo Caruso, Cédric Georges
Université Libre de Bruxelles, Belgium

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Components of a heart catheter system

Gregor Gatomski, Jordanka Kostova, Hong-Nhung Nguyen, Loredana Santo, Fabrizio Quadrini, Andreas Foitzik
Technical University of Applied Sciences Wildau, Germany

SP680

Crystallographic features of electronic states in the highly-correlated electronic system $\text{Sr}_{1-x}\text{Sm}_x\text{MnO}_3$ around $x = 0.50$

Misato Yamagata, Yasuhide Inoue, Yasumasa Koyama
Waseda University, Japan

SP681

Harnessing the multifunctionality in nature: A bioactive agent release system with self-antimicrobial and immunomodulatory properties

Angela Mutschler, Hayriye Ozcelik, Engin Vrana, Adele Carrado, Alexandru Gudima, Pierre Schaaf, Julia Kzhyshkowska, Philippe Laval
INSERM, France

SP682

Study of growth kinetics of deformation twins in AZ31 magnesium alloy

Wenwen Wei, Erwin Povoden-Karadeniz, Ernst Kozeschnik
TU Wien, Austria

SP683

Miniaturized flow-through bioreactor for processing and testing in pharmacology

Andrea Böhme, Lars Radke, Felix Schütze, Sylvio Schneider, Sabine Sauer, Loredana Santo, Fabrizio Quadrini, Michael Hummel, Christoph Giese, Marcus Frohme, Andreas H. Foitzik
Technical University of Applied Sciences Wildau, Germany

SP684

Creep study of martensitic steels developed within the project Z-ultra: Experiments and modelling

Surya Deo Yadav, Bernhard Sonderegger, Coline Beal, Jiří Svoboda, Elguja Kutelia, Razmik Barseghyan, Cecilia Poletti

Graz University of Technology, Austria

SP685

Numerical and experimental investigation on dissimilar friction stir welded butt joints made of AA7020-T651 and AA6060-T6

Hugo Robe, Landry Giraud, Amevi Tongne, Jean-Michel Bergheau, Christophe Desrayaud, Philippe Bocher, Eric Feulvarch

LTDS, France

SP686

Tunability of the domain structure of $\text{Pb}_x\text{Sr}_{1-x}\text{TiO}_3$ thin film capacitors and its effect on the dielectric response

Stephanie Fernandez-Pena, Céline Lichtensteiger, Pavlo Zubko, Christian Weyman, Stefano Gariglio, Jean-Marc Triscone

University of Geneva, Switzerland

SP687

Innovative thin films by DC reactive pulsed co-sputtering

Maxime Parailous, L. Teule-Gay, D. Michau, T. Cardinal, A. Poulon-Quintin

ICMCB-CNRS, France

SP689

Phases stability study of the shape memory alloy CuAl-X ($X = \text{Be, Zn, Ti, Ni, Ag}$ and Au) by ab initio calculations

Nassim Boudalia, Jean-Marc Raulot, Etienne Patoor, Claude Esling

University of Lorraine, France

SP690

Analysis of microtexture development and deformation heterogeneity in the weld region of friction stir welded AZ31 Mg alloy

Min-Seong Kim

Korea

SP691

Measurement of residual stresses in linear friction welded in-service Inconel 718 superalloy by neutron diffraction

Mathew Smith

Canada

SP692

Comparative study of optimization in pultrusion with pre-heating and die-cooler temperature for improved cure

Rita de Cassia Costa Dias, Ralf Schledjewski

Montanuniversität Leoben, Austria

SP693

Measurement of local strain during martensitic transformations

Yadunandan Das

The Open University, United Kingdom

SP694

The effect of thermo-mechanical processing on grain Size of a novel maraging steel for shaft applications

Matthew Williams

Swansea University, United Kingdom

SP695

Continuous modelling of dislocation cores using a mechanical theory of dislocation fields

Kodjovi Gbemou, Jean-Marc Raulot, Vincent Taupin, Claude Fressengeas

University of Lorraine, France

SP696

Effect of as-rolled microstructure on static recrystallization characteristics and texture evolution during annealing

Jing Su

McGill University, Canada

THERMEC'2016

Distinguished Award Recipients

Professor Michel Jeandin

Prof. Michel Jeandin is Research Professor “Directeur de Recherche” at MINES Paris Tech. He earned his doctorate in 1981 from the Ecole des Mines de Paris and worked at FRAMATOME (French nuclear components manufacturer) and at Joint Research Center –ISPRA-Italy before joining Paris Tech. Prof Jeandin has worked in numerous research areas over years but has specialized in the field of coatings and surface processing and tribology. Prof Jeandin has received several awards and honours such as “Palme Académique” (French academic decoration for services to education), ASM Fellow and member of several Scientific Committees and General Coordinator of the European High Temperature Materials. Prof Jeandin has published extensively and has over 350 papers and also has 10 patents and 3 French “Enveloppes Solean” to his credit.

CITATION

“for significant contributions in the field of laser processing & tribology/surface treatments of advanced materials and leadership in materials science/engineering education in France “

Professor Roberto Montanari

Prof. Roberto Montanari was born in Bologna, Italy and is at present Professor of Metallurgy/Materials engineering at the University of Rome-Tor Vergata. Prof Montanari's research activities in the physical metallurgy cover topics like liquid metals and phase transformations, materials for future nuclear fusion reactors and metal-matrix composites. Prof Montanari has been actively involved in the construction of the copy of the equestrian statue of Marco Aurelio –a symbol of the cultural and artistic heritage of ancient Rome. In 1977, the copy of Marco Aurelio monument was placed on Michelangelo's plinth in Campidoglio Square in Italy. Prof Montanari is author of over 270 scientific papers and 10 books and also involved in patents relating to portable apparatus of cylindrical indenter “FIMEC” and in the process for the production of coins with high security standards. Prof Montanari has served as the President of COMET (Council of Metallurgy) in 2014 and also as the President of the Centre of Physical Metallurgy & Materials Science of AIM (Italian Metallurgical Society) from 2004 to 2008.

CITATION

“for outstanding contributions in the area of structure of liquid metals & advanced materials for future nuclear fusion systems and leadership in materials science & engineering education in Italy”

Professor Mitsuo Niinomi

Prof. Mitsuo Niinomi is the Professor of Biomaterials Science, at the Institute of Materials Research, Tohoku University, in Sendai, Japan. He received his PhD in engineering in 1979 from Nagoya University, Japan. Prior to joining Tohoku University, he was at the Toyohashi University for several years and has also time as Visiting Professor at the University of Dayton and foreign researcher at the Materials Institute, WPAFB, in Dayton, Ohio. Prof Niinomi has held number of senior positions at Tohoku University but especially he was the Special Advisor to the President in 2008. He has received over 20 awards and honours from various organizations but notably: Nagai Academic Award, Nishiyama Award (ISIJ), Kobayashi Award, Tamigawa-Haris Award (JIM), JILM Medal (Japan Institute of Light Metals), Murakami Memorial Award just to name some to his credit. In 2016, Prof Niinomi became Fellow of the Biomaterials Science & Engineering (International Union of Societies for Biomaterial Science & Engineering). Prof Niinomi is the member of several Editorial Boards and Committees and has published over 440 papers and also has 16 patents to his portfolio. He is one of the internationally recognized scientists in the field of biomaterials in Japan.

CITATION:

“for pioneering research in the field of biomaterials & structural/functional materials and leadership in materials engineering education in Japan”.

Professor Reinhard Pippan

Prof Reinhard Pippan is Director and Group Leader at the famous Erich Schmid Institute in Austria. He received his doctorate in 1982 from the Montanuniversität Leoben and completed his Habilitation in solid state physics in 1991 at the University of Leoben. His scientific career has been mostly connected with the Erich Schmid Institute of the Austrian Academy of Sciences. Prof. Pippan's research activities have been focused on the mechanical properties of metals/alloys and composites. His recent research interest has been in the field of SPD (Severe Plastic Deformation) on the structural evolution and mechanical properties. He established a new field of synthesis of novel advanced materials at his institute and has authored over 300 papers and also 60 chapters in scientific books together with 3 patents to his credit. Prof. Pippan is the editor of the Special issue of Engineering Fracture Mechanics. Prof. Pippan received several awards over years: 1985 Erich Schmid Award, 2009 Tammann Gedenkmünze Award of DGM (German Materials Society) and 2014 Wöhler Medal of ESIS (European Structural Integrity Society).

CITATION

“for pioneering research in the field of fatigue/fracture and severe plastic deformation of advanced materials & for leadership in materials education in Austria”

Professor C (Ravi) Ravindran

Prof. Ravindran is Professor of Advanced Materials & Manufacturing at the Ryerson University, Toronto, Canada. He received PhD in Materials Engineering from the University of Manitoba. Prior to joining the academic position, Prof Ravindran worked in research and development at the Manitoba Steel Rolling Mills where he achieved outstanding success. Prof Ravindran was invited in 1985 to assume the position of Group Vice-president of Galtaco Automotive Castings & Stamping Corporation Inc., a multinational having plants in USA and Canada. While working in industry Prof Ravindran made several innovative R & D contributions in steel making, continuous casting of microalloyed steels. In 1989 he joined Ryerson university where he established the Centre for Near-Net Shape Processing of Materials (CNPM). CNPM earned recognition from the Magnesium Division of the American Foundry Society with the "Outstanding Organizational Award" for research excellence in Magnesium Castings placing this centre at Ryerson University in the position to be recognized as one of elite Mg Research Centres in the world. Prof. Ravindran is widely recognized in Canada and USA for excellence in collaborative research and technology transfer. He is Fellow of several societies: ASM International-USA, American Association for the Advancement of Science (AAAS) and Canadian Academy of Engineering (CAE). He was trustee of ASM (1997-2000) the largest materials professional organization in world. He was elected vice-president in 2012 and President in 2013 of the ASM international. Prof Ravindran has received numerous awards: 1995 MacDonald ASM-Canada Council award, 2004 Brian Ives award and 2006 Allen Ray Putnam -ASM International Award.

CITATION

"for outstanding contributions in the area of magnesium technology and for significant research to solution to industrial problems in secondary processing of light alloys for automotive applications"

Professor Ze Zhang

Prof. Ze Zhang is Professor of Materials Science & Engineering at the Zhejiang University and also member of the Chinese Academy of Sciences. Prof. Zhang received PhD in 1987 from the Institute of Metals Research (IMR)-Chinese Academy of Sciences and also served as the Vice-President of prestigious Beijing University of Technology. Prof Zhang has been working actively in the field of structural characterization of materials using electron microscopic techniques for over 25 years. His research covers TEM study of advanced materials including nano-wires to thin films. Special interests in the in-situ atomic resolution study of materials has led to pioneering research work in the materials physical properties. He is Chief Scientist of the National Basic Research Program in PR China and the President of the China Association for Instrumental Analysis, Chinese Electron Microscopy Society, and the President of the Asia-Pacific Electron Microscopy Association since 2012. Prof Zhang has received several awards from various organizations from PR China such as Ho Leung Ho Lee Prize, National Chien-Shiung Wu award and Chinese Young Scientist award. Prof Zhang has published over 250 papers.

CITATION

"for outstanding research in the field of structural characterization techniques (transmission electron microscopy, advanced technique involving In-situ atomic resolution) to study the microstructures in the metals/alloys including thin films and nano-wires"

Acknowledgements

The following organizations supported THERMEC'2016, and the Committee expresses sincere thanks them.

- AMAG Austria Metall AG, Austria
- City of Graz, Austria
- Dayananda Sagar College of Engineering, Bangalore, India
- Dynamic Systems Inc (DSI), U.S.A
- Graz Convention Bureau
- Graz University of Technology
- MatCalc Engineering, Austria
- Province of Styria
- THERMEC Convention Services, Australia
- Trans Tech Publications, Switzerland
- VOESTALPINE AG, Austria

Thermec'2016 Program Matrix Table

Session	May 30		May 31		June 01		June 02		June 03
	AM	PM	AM	PM	AM	PM	AM	PM	AM
A	Steels -SS 1	Steels -SS 2	Steels 3	Steels 4	Steels 5	Steels 6	Steels 7	Eng. Technol. For Medicine 8	Eng. Technol. For Medicine 9
B	High & U High Temp. Mat. 1	High & U High Temp. Mat. 2	High & U High Temp. Mat. 3	High & U High Temp. Mat. 4	High & U High Temp. Mat. 5	TMP Microalloyed Steels 6	TMP Microalloyed Steels 7	LPSO 8	LPSO 9
C	Adv. Mat. In Biomedical & Bioeng. Applic. 1	Adv. Mat. In Biomedical & Bioeng. Applic. 2	Adv. Mat. In Biomedical & Bioeng. Applic. 3	Aluminum Alloys 4	Aluminum Alloys 5	Aluminum Alloys 6	Aluminum Alloys 7	Biomimetic Mat. Nanostructured Biomat. Applic. 8	Biomimetic Mat. & Nanostructured Biomat. Applic. 9
D	Surface Eng. Adv. Coatings 1	Surface Eng. Adv. Coatings 2	Surface Eng. Adv. Coatings 3	Surface Eng. Adv. Coatings 4	Surface Eng. Adv. Coatings 5	Ti Alloys 6	Ti Alloys 7	Ti Alloys 8	
E	Fuel Cells, H Storage, Batteries 1	Fuel Cells, H Storage, Batteries 2	Fuel Cells, H Storage, Batteries 3	Additive Manufacturing 4	Additive Manufacturing 5	Smart/Intel. Materials 6	Smart/Intel. Materials 7	Smart/Intel. Materials 8	
F	Interfaces GB & Structural Charact. 1	Interfaces GB & Structural Charact. 2	Interfaces GB & Structural Charact. 3	Interfaces GB & Structural Charact. 4	Mg Alloys 5	Mg Alloys 6	Mg Alloys 7	Composites 8	Composites 9
G	Metallic Glass Amorphous Mat 1	Metallic Glass Amorphous Mat 2	Metallic Glass Amorphous Mat 3	Metallic Glass Amorphous Mat 4	Mat. Under Extreme Cond. 5	Mat. Under Extreme Cond. 6	Mat. Under Extreme Cond. 7		
H	Nanomat. for Energy & Structure 1	Nanomat. for Energy & Structure 2	Nanomat. for Energy & Structure 3	Nanomat. for Energy & Structure 4	Welding Joining FSW/P 5	Welding Joining FSW/P 6	Welding Joining FSW/P 7	Welding Joining FSW/P 8	
I	Materials Performance 1	Materials Performance 2	Materials Performance 3	Materials Performance 4	Ultra fine Grained Mat 5	Ultra fine Grained Mat 6	Ultra fine Grained Mat 7	Ultra fine Grained Mat 8	
J	Modelling & Simulation 1 (Prof W. Bleck Symposium)	Modelling & Simulation 2 (Prof W. Bleck Symposium)	Modelling & Simulation 3 (Prof W. Bleck Symposium)	Modelling & Simulation 4 (Prof W. Bleck Symposium)	Modelling & Simulation 5 (Prof W. Bleck Symposium)	Neutron & X-ray Scattering 6	Neutron & X-ray Scattering 7	Neutron & X-ray Scattering 8	
K			Texture 3	Texture 4					

Rooms Allocations

Session	Room	Session	Room
A	Hall 1a	G	Gallery B
B	Hall 12a	H	Hall 1b
C	Hall 12b	I	Hall 11a
D	Gallery A	J	Hall 10
E	Hall 11b	K	Hall 3
F	Gallery C		

THERMEC'2016

Inaugural Session

May 30 (Monday)

Messe Graz STADTHALLE Ground Floor

8.30 AM – 9.00 AM: Introductory Remarks

Welcome: Professor Christof Sommitsch - General Chair

Introductory Remarks: Professor T. Chandra – THERMEC'2016 International Advisory Committee

Official Inaugural Address: Prof. Dr. Harald Kainz: Rector- TU Graz

Program Chairman (Vote of Thanks): Professor Ernst Kozeschnik:

9.00 AM – 9.30 AM: Inaugural Distinguished Plenary Lecture

“Engineering of Bio-inspired Functional Surfaces”

Prof. Eduard Arzt, Scientific Director, INM Leibniz Institute for New Materials, Saarland University, Germany

Chairman: Prof. Reinhard Pippan: Erich Schmid Institute, Austria

9.30 AM – 10.15 AM Coffee Break

Session A

Room: Hall 1a

Session: A1, Venue: (Room: Hall 1A)

Advanced Steels (HSLA/IF/TRIP/Stainless/HNS) Stainless Steels 1

Session Chairs: Setsuo Takaki, Japan & Helena Van Swygenhoven, Switzerland

A1 May-30 10:30 Keynote

***Effect of C and N on deformation behavior and stacking fault energy of Fe-Cr-Mn austenitic stainless steels**

Sung-Joon Kim

POSTECH, Korea

A1 May-30 11:00

***Regularities of microstructure evolution and strengthening mechanisms of austenitic stainless steels subjected to large strain cold working**

Andrey Belyakov, Marina Odnobokova, Iaroslava Shakhova, Rustam Kaibyshev

Belgorod State University, Russia

A1 May-30 11:20

***Characterisation of hydrogen embrittlement of metastable austenitic stainless steel using micro-tensile testing**

Yoji Mine, Oliver Kraft, Kazuki Takashima

Kumamoto University, Japan

A1 May-30 11:40

***The effect of sample preparation on the microstructure of duplex stainless steels**

Timo Juuti, Antti Kaijalainen, Sampo Uusikallio, Severi Anttila, Esa Heinonen, Nyo Tun Tun, David Porter

University of Oulu, Finland

A1 May-30 12:00

The observation of austenite to ferrite martensitic transformation in an Fe-Mn-Al austenitic steel after cooling from high temperature

Wei-Chun Cheng, Kun-Hsien Lee, Shu-Mao Lin, Shao-Yu Chien

National Taiwan University of Science and Technology, China

A1 May-30 12:20

***Mechanical stability of austenite in carbon- and nitrogen-added metastable austenitic stainless steel**

Takuro Masumura, Kohei Fujino, Toshihiro Tsuchiyama, Setsuo Takaki, Kazuhiko Adachi

Kyushu University, Japan

A1 May-30 12:40

***Stabilization of retained austenite by carbon and nitrogen in Q&P processed martensitic stainless steel**

Toshihiro Tsuchiyama, Junya Tobata, Setsuo Takaki

Kyushu University, Japan

A1 May-30 13:00

***In situ investigation on the deformation-induced phase transformation of metastable austenite in Fe-13%Cr-4%Ni martensitic stainless steel**

Pei Wang, Dianzhong Li, Yiyi Li

Institute of Metal Research, Chinese Academy of Sciences, China

A1 May-30 13:20

***Potential for improved machinability in carbon steels via graphitisation**

Aqil Inam, David Edmonds

University of Leeds, United Kingdom

Lunch break 13:40 - Sessions restarts at 14:10

Session: A2, Venue: (Room: Hall 1A)

Advanced Steels (HSLA/IF/TRIP/Stainless/HNS) Stainless Steels 2

Session Chairs: Stephanie Godet, Belgium & John Jonas, Canada

A2 May-30 14:10 Keynote

***Thermomechanical Processing of Medium Manganese Steels**

Atsushi Ito, Yo-ichiro Matsui, Akinobu Shibata, Nobuhiro Tsuji
Kyoto University, Japan

A2 May-30 14:40

***Anisotropic plasticity and crystallographic fatigue crack growth in lath martensite structures of carbon steel**

Yoji Mine, Takuya Matsumura, Shohei Ueki, Kazuki Takashima
Kumamoto University, Japan

A2 May-30 15:00

***Recrystallization kinetics and texture evolution of Nb stabilized ferritic 430 stainless steel cold rolled and isothermal annealed**

Paula Malta, Iane Moutinho, Aline Vasconcelos, Davi Alves, Dagoberto Santos
Universidade Federal de Minas Gerais, Brazil

A2 May-30 15:20

The microstructural criterion for creep strength breakdown in a 10% Cr martensitic steel

Nadezhda Dudova, Roman Mishnev, Rustam Kaibyshev
Belgorod State University, Russia

Coffee / Tea break 15:40 to 16:10

A2 May-30 16:10

Effects of warm working on microstructural and shear deformation properties of TRIP-aided martensitic steel

Tomohiko Hojo, Takuya Kochi, Koh-ichi Sugimoto
Iwate University, Japan

A2 May-30 16:30

Microstructure and mechanical properties of medium manganese steel plate with high strength and toughness

Ying Zou, YunBo Xu, ZhiPing Hu, Hui Liu, XiaoLong Yang, XiaoDong Tan, YongMei Yu
Northeastern University, China

A2 May-30 16:50

Mechanical properties of duplex stainless steel with martensitic phase and austenitic phase

Yoshiki Morimoto, Taichirou Mizoguchi
NISSHIN STEEL CO.LTD, Japan

A2 May-30 17:10

***Influence of grain size on work-hardening behavior in 12Cr stainless steel**

Masataka Yoshino, Chikara Kami
JFE Steel Corporation, Japan

A2 May-30 17:30

***The work-hardening behaviour of Fe-Ni and Fe-Cr-Ni austenitic alloys**

Chihiro Furusho, Hiroyuki Takabayashi, Setsuo Takaki, Daichi Akama
Daido Steel Co., Ltd., Japan

**invited presentation*

A2 May-30 17:50

*Multiaxial strain path changes in 316L steel: Insitu neutron diffraction and multi-scale modelling

T. Panzner, M. Upadhyay, S. Van Petegem, Helena Van Swygenhoven-Moens

Paul Scherrer Institute, EPFL, Switzerland

A2 May-30 18:10

*Effect of nitrogen on age-hardening of metastable austenitic stainless steel after cold drawing

Shota Yamasaki, Kohji Takano

Nippon Steel & Sumikin Stainless Steel Corporation, Japan

A2 May-30 18:30

Development of hetero-nano structure in a 316LN austenitic stainless steel during cold-rolling

Chihiro Watanabe, Yoshiteru Aoyagi, Yoshikazu Todaka, Masakazu Kobayashi, Hiromi Miura

Kanazawa University, Japan

A2 May-30 18:50

Kinetic behavior of Fe-Ni-C martensitic steels during aging at room temperature

Sergiu Curelea, Sophie Cazottes, Frederic Danoix, Mohamed Goune, Helena Zapolsky, Philippe Maugis, Thierry

Epicier, Mykola Lavrskyi, Sara Chentouf

MATEIS, University of Lyon, INSA-LYON, France

Session: A3, Venue: (Room: Hall 1A)

Advanced Steels (HSLA/IF/TRIP/Stainless/HNS) 3

Session Chairs: Dirk Ponge, Germany & Sung Joon Kim, Korea

A3 May-31 8:30 Keynote

*** Grain size dependence on the yielding behavior of iron**

Setsuo Takaki

Kyushu University, Japan

A3 May-31 9:00

***Influence of prior-austenite grain structure on delamination toughening of ultra-high-strength low-alloy steels processed by warm tempforming**

Yuuji Kimura, Tadanobu Inoue

National Institute for Materials Science, Japan

A3 May-31 9:20

***Development of medium-Mn steels via batch and continuous annealing**

Daniel Krizan, Katharina Steineder, Johannes Rehrl, Reinhold Schneider, Coline Béal, Christof Sommitsch

Voestalpine Steel Division GmbH, Austria

A3 May-31 9:40

Effect of prior austenite grain size on yielding behavior of the low-C martensitic stainless steel

Kazumasa Kubota, Masahito Ueda, Hideki Nakagawa

Aichi Steel Corporation, Japan

A3 May-31 10:00

***A study on the microstructural evolution of low and medium Mn TRIP steel during annealing process**

Kyooyoung Lee, Joohyun Ryu, Seawoong Lee, Jeongin Kim, Dongwoo Suh

POSCO, Korea

A3 May-31 10:20

***Design of third generation advanced high strength steels for processing in the continuous galvanizing line**

Joseph McDermid, Kazi Bhadhon, R. Kavitha, Elizabeth McNally, Daniella Pallisco, Armando Salinas-Rodriguez, Frank E. Goodwin

McMaster University, Canada

Coffee / Tea break 10:40 to 11:00

A3 May-31 11:00

***Austenite formation along dislocations in medium manganese steels**

Margarita Kuzmina, Dirk Ponge, Stefanie Sandlöbes, Michael Herbig, Dierk Raabe

Max-Planck-Institut für Eisenforschung GmbH, Germany

A3 May-31 11:20

***Design of hybrid and composite tool steels by mechanical milling and spark plasma sintering**

Massimo Pellizzari

University of Trento, Italy

**invited presentation*

A3 May-31 11:40

Macrosegregation of alloying elements in hot-top of large high strength steel ingot

Abdelhalim Loucif, Davood Shahriari, Chunping Zhang, Mohammad Jahazi, Louis-Philippe Lapierre-Boire, Rami Tremblay

École de technologie supérieure, Canada

A3 May-31 12:00

*Laboratory simulations of strip casting for production of dual-phase and transformation-induced plasticity steels

Zhiping Xiong, Andrii Kostyryzh, Ahmed Saleh, Nicole Stanford, Elena Pereloma

University of Wollongong, Australia

A3 May-31 12:20

Effect of microalloying elements on phase transformation, microstructure and mechanical properties in dual-phase steels

Ekaterina Bocharova, Kirill Khlopkov, Roland Sebal

ThyssenKrupp Steel Europe, Germany

A3 May-31 12:40

*Continuous versus conventional heat treatment of hardenable steels

Sophie Primig, Stephanie Sackl, Harald Leitner, Michael Zuber, Helmut Clemens

University of New South Wales, Australia

A3 May-31 13:00

*The low-nickel cryogenic steel alloyed by nitrogen

Anatoly Svyazhin, Lyudmila Kaputkina, Inga Smrygina

National University of Science and Technology MISiS, Russia

A3 May-31 13:20

*2.1 GPa ultra-strong nanostructured steel with unexpected large ductility

Mingxin Huang

The University of Hong Kong, China

Lunch break 13:30 - Sessions restarts at 14:10

Session: A4, Venue: (Room: Hall 1A)

Advanced Steels (HSLA/IF/TRIP/Stainless/HNS) 4

Session Chairs: David Edmonds, UK & Oscar Ruano, Spain

A4 May-31 14:10

*Relationship between microstructures and mechanical properties of temper heat treated metastable austenitic stainless steel

Kazuhiko Adachi, Masayoshi Sawada, Masaru Abe

NIPPON STEEL & SUMITOMO METAL CORPORATION, Japan

A4 May-31 14:30

*Migration of interfaces in low carbon steels at low temperatures

Jilt Sietsma, Maria J. Santofimia

Delft University of Technology, Netherlands

A4 May-31 14:50

*The influence of microstructure on low cycle fatigue behavior of steels containing retained austenite

Kip Findley, Alex Ly, Dan Shields, Shenjia Zhang

Colorado School of Mines, USA

A4 May-31 15:10

*Transformation mechanism and microstructure optimization of a novel high strength high ductility hot rolled medium Mn steel

Wei Xu

Northeastern University, China and Delft University of Technology, The Netherlands

Coffee / Tea break 15:30 to 16:00

A4 May-31 16:00

*Microstructure and mechanical properties of Fe-Mn-Al-C low density steels

Hua Ding, Dong Han, Zhihui Cai, Minghui Cai

Northeastern University, China

A4 May-31 16:20

*An investigation of recrystallization behavior of a high-manganese transformation-induced plasticity (TRIP) steel

Xing Li, Yang Zhao, Liqing Chen

Northeastern University, China

A4 May-31 16:40

*Effects of magnetic field intensity on carbon diffusion coefficient in pure iron in the paramagnetic ferrite region

Huihui Li, Yan Wu, Xiang Zhao

Northeastern University, China

A4 May-31 17:00

*Effect of continuous annealing temperature on microstructure and mechanical properties of a high strength cold-rolled DP980 steel

Kai Zhou, Ying Zou, Yun Bo Xu, ZhiPing Hu, XiaoLong Yang, XiaoDong Tan, YongMei Yu, Hua Zhan

Northeastern University, China

**invited presentation*

A4 May-31 17:20

*Drawing Fe-6.5wt.%Si wires with enhanced formability

Shibo Wen, Hui Li, Yongfeng Liang, Wei Yang, Feng Ye
University of Science and Technology Beijing, China

A4 May-31 17:40

*The effect of thermomechanical processing temperature-straining-time parameters on the mesostructure formation

Georgii Kodzhaspirov, A. Rudskoy
Peter the Great St. Petersburg Polytechnic University, Russia

A4 May-31 18:00

Microstructure of Z-phase strengthened martensitic steels: meeting the 650oC challenge

Fang Liu, Masoud Rashidi, John Hald, Lutz Reissig, Hans-Olof Andren
Chalmers University of Technology, Sweden

A4 May-31 18:20 Student

In-situ investigation of the kinetics of reverse austenite formation in supermartensitic stainless steel

Frank Nießen, Matteo Villa, Daniel Apel, Olaf Keßler, Michael Reich, Marcel Somers, John Hald
Technical University of Denmark, Denmark

A4 May-31 18:30 Student

A study on the microstructure and the tensile fracture behavior of infiltrated TiC-steel composite

Nu-Ri Oh, Seung-Chan Cho, Sang-Kwan Lee, Hyun-Uk Hong
Changwon University, Korea

A4 May-31 18:40 Student

Microstructural factors affecting deformation and fracture behaviors of advanced austenitic steels during creep

Hyun-Hwa Park, Joon-Oh Moon, Heon-Young Ha, Tae-Ho Lee, Hyun-Uk Hong
Changwon University, Korea

A4 May-31 18:50 Student

Microstructure formation of high pressure torsion processed (alpha gamma) two phase stainless steel

Mie Ota, Daiki Nanya, Sanjav Kumar Vajpai, Kei Ameyama, Kaveh Edalati, Zenji Horita
Ritsumei University, Japan

Session: A5, Venue: (Room: Hall 1A)

Advanced Steels (HSLA/IF/TRIP/Stainless/HNS) 5

Session Chairs: Beatriz Lopez, Spain & Dagoberto Santos, Brazil

A5 June-1 8:30 Keynote

***Dynamic transformation during plate and strip rolling**

John Jonas, Clodualdo Aranas, Jr., Samuel Rodrigues, Rupanjit Grewal

McGill University, Canada

A5 June-1 9:00

***High ductility AHSS grades: Improved formability by advanced microstructure control**

Thomas Hebesberger, Andreas Pichler, Daniel Krizan, Florian Winkelhofer, Christian Walch

Voestalpine Stahl GmbH, Austria

A5 June-1 9:20

Reversion during continuous heating in martensitic Fe-2Mn-1.5Si-0.3C alloy

Xianguang Zhang, Goro Miyamoto, Tadashi Furuhashi

Institute for Materials Research, Tohoku University, Japan

A5 June-1 9:40

***Analysis of mechanical properties in nitrogen-added duplex stainless steels by nano-indentation and in-situ neutron diffraction**

Heung Nam Han, Yanghoo Kim, Yong Min Kim, Tae Ho Lee, Wan Chuck Woo

Seoul National University, Korea

A5 June-1 10:00

***An appraisal of direct quenching for the development and processing of novel super-high strength steels**

Mahesh Somani, Jaakko Hannula, Antti Kaijalainen, Devesh Misra, David Porter

University of Oulu, Finland

A5 June-1 10:20

Anelastic dislocation behavior of an interstitial free steel

Zalao Arechabaleta, Ton Riemsdijk, Peter van Liempt, Jilt Sietsma

Delft University of Technology, The Netherlands

Coffee / Tea break 10:40 to 11:00

A5 June-1 11:00

Development of a 2.25%Cr steel grade T/P P23 reinforced with micro/nano-carbide particles prepared by self-propagating high-temperature synthesis

Jose Jimenez, Manuel Carsi, Maider Garcia de Cortazar, Oscar Ruano

CENIM-CSIC, Spain

A5 June-1 11:20

The effect of fast annealing on the strength and microstructure of CMnAlSi TRIP steel

Felipe Castro, Constantinos Goulas, Ilchat Sabirov, Spyros Papaefthymiou, Alberto Monsalve, Roumen Petrov

Ghent University, Belgium

A5 June-1 11:40

***Microstructural banding in medium carbon steel**

Rian Dippenaar, Masoud Al-Gahtani

University of Wollongong, Australia

**invited presentation*

A5 June-1 12:00

*Property improvement of (ferrite + austenite) duplex lightweight steels by TRIP and TWIP mechanisms

Seok Su Sohn, Jai-Hyun Kwak, Nack Joon Kim, Sunghak Lee

Pohang University of Science and Technology, Korea

A5 June-1 12:20

Low cycle fatigue behaviour of a high interstitial cast TRIP steel

Matthias Droste, Marco Wendler, Horst Biermann

TU Bergakademie Freiberg, Germany

A5 June-1 12:40

*Relationship between the tensile strength-fracture toughness balance and the multiscale microstructure of a maraging stainless steel for aircraft applications

Charline Le Nué, Jean-Marc Cloué, Marie-Hélène Mathon, Sylvain Puech, Denis Béchet, Denis Delagnes

Ecole des Mines d'Albi, France

A5 June-1 13:00

Evolution of the dislocation structure of a cold worked high nitrogen steel during fatigue testing

Rainer Fluch, Marianne Kapp, Krystina Spiradek Hahn, Manfred Brabetz, Heinz Holzer

BÖHLER Edelstahl GmbH & Co KG, Austria

Lunch break 13:20 - Sessions restarts at 14:10

Session: A6, Venue: (Room: Hall 1A)

Advanced Steels (HSLA/IF/TRIP/Stainless/HNS) 6

Session Chairs: Eric Palmiere, UK & Jose Maria Rodriguez-Ibabe, Spain

A6 June-1 14:10 Keynote

***Intermetallic phases in new steels**

Wolfgang Bleck, Wenwen Song, Alexander Zimmermann

RWTH Aachen University, Germany

A6 June-1 14:40

Constitutive modelling of high Mn TWIP steels: Composition and temperature dependencies of tensile behaviour

Jee-Hyun Kang, Tobias Ingendahl, Wolfgang Bleck

Pohang University of Science and Technology (POSTECH), Korea

A6 June-1 15:00

*Understanding carbon redistribution processes during quenching and partitioning heat treatments

Bij-Na Kim, Jilt Sietsma, Maria J Santofimia

TU Delft, The Netherlands

A6 June-1 15:20

*Effects of grain size and particle dispersion on the work hardening behavior of austenitic stainless steel

Takashi Hosoda, Yasumasa Muto, Kazuo Nakama

Sanyo Special Steel Co., Ltd, Japan

Coffee / Tea break 15:40 to 16:00

A6 June-1 16:00

Revealing the individual hardening effects of twins, dislocations, grain boundaries and solid solution in a twinning-induced plasticity steel

Zhiyuan Liang, Yizhuang Li, Mingxin Huang

The University of Hong Kong, China

A6 June-1 16:20

*Microstructure and mechanical properties of welded joint of TMCP890 steel and the effect of postweld heat treatment

Yun Peng, Yuanjie Zhang, Chengyong Ma, Zhiling Tian

China Iron & Steel Research Institute Group, China

A6 June-1 16:40

Effects of an intercritical and single-phase annealing on texture evolution in cold-rolled dual-phase steel sheets

Hidekazu Minami, Shinjiro Kaneko, Kaneharu Okuda, Yasunobu Nagataki

JFE Steel Corporation, Japan

A6 June-1 17:00

*Microstructure-property relationships in medium-Mn steels with metastable retained austenite

Adam Grajcar, Mateusz Morawiec, Krzysztof Radwanski

Silesian University of Technology, Poland

A6 June-1 17:20

Modelling the static recrystallization kinetics of microalloyed twip steels with different alloying contents

Laura Llanos, Beatriz Pereda, Beatriz Lopez, Jose Mari Rodriguez-Ibabe

CEIT and TECNUN, Spain

**invited presentation*

A6 June-1 17:40

*Ultra-fine microstructures immediately beneath denomination cracks in fully pearlitic steels

Masaki Tanaka, Tetsuya Ohashi

Kyushu University, Japan

A6 June-1 18:00

*Continuous casting of high Al TWIP steel using molten mold flux technology

Shin Yoo, Ki-Hyeon Moon, Min-Seok Park, Joo-Kil Park, Jung-Wook Cho

POSCO and POSTECH, Korea

A6 June-1 18:20 Student

The effects of inter-critical annealing temperature and initial microstructure on the stability of retained austenite in a 0.1C-6Mn steel

Katharina Steineder, Daniel Krizan, Reinhold Schneider, Coline Béal, Christof Sommitsch

University of Applied Sciences Upper Austria, Austria

A6 June-1 18:30 Student

High temperature mechanical properties of harmonic structure designed SUS304L austenitic stainless steel

Masashi Nakatani, Yuya Fujiki, Mie Ota, Sanjay K. Vajpai, Kei Ameyama

Ritsumeikan University, Japan

A6 June-1 18:40 Student

Interfacial strength characterization in a high-modulus low-density steel-based Fe-TiB₂ composite

Yizhuang Li, Mingxin Huang

The University of Hong Kong, China

Session: A7, Venue: (Room: Hall 1A)

Advanced Steels (HSLA/IF/TRIP/Stainless/HNS) 7

Session Chairs: Francisca Caballero & Yun Peng, PR China

A7 June-2 8:30 Keynote

***Ultrafast heating of advanced high strength steels**

Roumen Petrov, Leo Kestens

Ghent University, Belgium

A7 June-2 9:00

***Nanoparticle addition into molten steel**

Idurre Kaltzakorta, Lorena M. Callejo, Zurine Idoyaga

TECNALIA, Spain

A7 June-2 9:20

***Modelling fracture behaviour of high strength low alloy steel with microstructural FE model and crystal plasticity**

Tom Andersson, Merja Sippola, Anssi Laukkanen

VTT Technical Research Centre of Finland, Finland

A7 June-2 9:40

***Complex nano-scale structures for unprecedented properties in steels**

Francisca Caballero, Jon Poplawsky, Hung-Wei Yen, Rosalia Rementeria, Lucia Morales-Rivas, Jer-Ren Yang, Carlos Garcia-Mateo

CENIM-CSIC, Spain

A7 June-2 10:00

Influence of the processing variables on the microstructure evolution of a bainitic carbide-free steel

María del Carmen Taboada, Isabel Gutierrez, Denis Jorge-Badiola, Stefan van Bohemen, Frank Hisker, Georg Paul

CEIT and TECNUN (University of Navarra), Spain

A7 June-2 10:20

***Mechanisms of microstructure evolution during hot deformation of a 20%Cr ferritic stainless steel**

Jean-Denis Mithieux, Grégoire Jacquet, Frank Montheillet, Guillaume Lefebvre, Chad W Sinclair

APERAM, France

Coffee / Tea break 10:40 to 11:00

A7 June-2 11:00

***Thermo-mechanical processing advanced high-strength steels: atom probe microscopy guided materials design**

Simon P. Ringer

University of Sydney, Australia

A7 June-2 11:20

***Evolution of deformation microstructures in cold-rolled ferritic steel**

Tatsuya Morikawa, Tetsuya Ohashi

Kyushu University, Japan

A7 June-2 11:40

***Manganese effect on Q&P CMnSi steels**

Andrea Di Schino, Pablo Rodriguez-Calvillo, José Maria Cabrera

University of Perugia, Italy

**invited presentation*

A7 June-2 12:00

*Interaction between recrystallization and austenite formation in cold-rolled dual-phase steels during non-isothermal inter-critical treatments

Melanie Ollat

MATEIS INSA Lyon, France

A7 June-2 12:20 Student

*Surface hardening and nitride precipitation of nitride Fe-M1-M2 ternary alloys

Goro Miyamoto, Tadashi Furuhashi

Tohoku University, Japan

A7 June-2 12:40

Carbon enrichment in austenite during bainite transformation in Fe-2Mn-1.5Si-C alloys

Takeshi Kaneshita, Goro Miyamoto, Tadashi Furuhashi, S. Ohtani, Toshio Murakami

Tohoku University, Japan

A7 June-2 13:00 Student

Deformation microstructures and mechanical properties of an austenitic stainless steel subjected to warm rolling

Marina Odnobokova, Andrey Belyakov, Rustam Kaibyshev

Belgorod State University, Russia

A7 June-2 13:10 Student

Microstructural evolution in a 9%Cr-3%Co-3%W-VNb steel during creep

Alexandra Fedoseeva, Nadezhda Dudova, Rustam Kaibyshev

Belgorod State University, Russia

A7 June-2 13:20 Student

Microstructure evolution during LCF of a 10% Cr steel at room temperature

Roman Mishnev, Nadezhda Dudova, Rustam Kaibyshev

Belgorod State University, Russia

A7 June-2 13:30 Student

Characterization and mechanical properties of a 0.2C steel produced by Q&P

Pierre Huyghe, Loic Malet, Stéphane Godet, Matteo Caruso, Cédric Georges

Université Libre de Bruxelles, Belgium

Lunch break 13:10 - Sessions restarts at 14:10

Session: A8, Venue: (Room: Hall 1a)

Engineering Technologies for Medicine 1

Session Chairs: Andreas Foitzik, Germany & Enrico Staderini, Switzerland

A8 June-02 14:10 Keynote

*** Diamond based Schottky photodiode for radiation therapy dosimetry**

Gianluca Verona Rinati, Marco Marinelli, Giuseppe Prestopino, Claudio Verona

Università di Roma Tor Vergata, Italy

A8 June-02 14:40

***Photonic application of diatom frustules**

Fabio De Matteis, Paolo Proposito, Roberto Francini, Roberta De Angelis, Sonia Melino, Roberta Congestri, Laura Bruno, Mauro Casalboni

University of Rome Tor Vergata, Italy

A8 June-02 15:00

***Otoacoustic emissions as a promising diagnostic tool for the early detection of mild hearing impairment. Technical advances in acquisition, analysis and modeling**

Arturo Moleti

University of Rome Tor Vergata, Italy

A8 June-02 15:20

***Photolithography of 3D scaffolds for artificial tissue**

Paolo Proposito, Roberto Francini, Fabio De Matteis, Sonia Melino, Federico Mochi, Paolo Di Nardo, Slava Ksenzov, Sigurd Schrader, Mauro Casalboni

University of Rome Tor Vergata, Italy

Coffee / Tea break 15:40 to 16:10

A8 June-02 16:10

***Miniaturized laser power sensor via rapid phototyping**

Sylvio Schneider, Harald Beyer, Karsten Lange, Werner Bohmeyer, Mauro Casalboni, Maria Richetta, Andreas H. Foitzik

Technical University of Applied Sciences Wildau, Germany

A8 June-02 16:30

***Novel bioreactor-system for in-situ-cultivation of artificial tissue**

Jordanka Kostova, Sylvio Schneider, Thilo Liebscher, Andrea Böhme, Sabine Sauer, Mauro Casalboni, Andreas H. Foitzik

University of Applied Science Wildau, Germany

A8 June-02 16:50

***Affinity viscosimetry sensor for enzyme free detection of glucose in a micro-bioreaction chamber**

Thilo Liebscher, Franziska Glös, Andrea Böhme, Mario Birkholz, Maria Luisa Di Vona, Fabio De Matt, Andreas Foitzik

University of Applied Science Wildau, Germany

A8 June-02 17:10

***Experimental bio-ESPI for validation of magnetic induced deformation on HeLa cells**

Kai-Henning Lietzau, Carsten Stollfuß, Steffen Zinn, Maria Richetta, Andreas H. Foitzik

TH Wildau, Germany

**invited presentation*

A8 June-02 17:30

*A new approach for the spectroscopic detection of different pH-values

Christian Rogge, Steffen Zinn, Sylvio Schneider, Roberto Francini, Paolo Proposito, Andreas Foitzik
Technical University of Applied Sciences Wildau, Germany

A8 June-02 17:50

*The use of vibrotactile stimulation for improving manual tasks in Parkinson's disease patients

Sandro Gentili, Maria Richetta, Stefano Mugnaini, Sarah Mancini, Enrico Maria Staderini
University of Rome Tor Vergata, Italy

A8 June-02 18:10

*Near infrared device for tissue inflammation evaluation

Enrico Maria Staderini, David Junior Branco, Stefano Mugnaini, Sandro Gentili
University of Rome Tor Vergata, Italy

A8 June-02 18:30 Student

Novel ESPI measurement prototype for analyzing biological samples from cell culture technique

Carsten Stollfuß, Kai-Henning Lietzau, Maria Richetta, Andreas Foitzik
University of Applied Science Wildau, Germany

Session: A9, Venue: (Room: Hall 1a)

Engineering Technologies for Medicine 2

Session Chairs: Maria Richetta, Italy & Paolo Prosposito, Italy

A9 June-03 9:00 Keynote

***Evaluating athletic performances with a real time location and tracking system**

Stefano Milici, Ambra Esposito, Enrico M. Staderini

HEIG-VD Switzerland, Switzerland

A9 June-03 9:40

***Application of optical techniques to detect chemical and biological agents dangerous for human health**

Pasquale Gaudio, A. Malizia, M. Gelfusa, A. Murari, R. Pizzoferrato, M. Carestia, O. Cenciarelli, G. M. Ludovici, J. Gabriele, V. Gabbarini, M. Richetta

University of Rome Tor Vergata, Italy

A9 June-03 10:00

A novel facility to investigate dust mobilization in confined environments with applications of the safety of the medical industry

Andrea Malizia, Michela Gelfusa, Andrea Murari, Maria Richetta, Jean Francois Ciparisse, Luigi Antonio Poggi, Michele Lungaroni, Pasqualino Gaudio

University of Rome Tor Vergata, Italy

A9 June-03 10:20

Design and characterization of conductive biopolymer nanocomposite electrodes for medical applications

Charles Tematio, Monica Bassas, Narcis Fosso, Vanessa Gaillard, Marc Mathieu, Manfred Zinn, Enrico Staderini, Silvia Schintke

HEIG-VD, University of Applied Sciences Western Switzerland, Switzerland

A9 June-03 10:40 Student

Miniaturized flow-through bioreactor for processing and testing in pharmacology

Andrea Böhme, Lars Radke, Felix Schütze, Sylvio Schneider, Sabine Sauer, Loredana Santo, Fabrizio Quadrini, Michael Hummel, Christoph Giese, Marcus Frohme, Andreas H. Foitzik

Technical University of Applied Sciences Wildau, Germany

Session B

Room: Hall 12a

Session: B1, Venue: (Room: Hall 12a)

High and Ultra High Temp. Materials 1

Session Chairs: Haruyuki Inui, Japan & Florian Pyczak, Germany

B1 May-30 10:30 Keynote

***Advanced engineering intermetallic titanium aluminides**

Helmut Clemens, Svea Mayer, Wilfried Smarsly

Montanuniversität Leoben, Austria

B1 May-30 11:00

***MAX phases: New materials for high temperature applications**

Jesus Gonzalez-Julian, Martin Bram, Olivier Guillon

Forschungszentrum Jülich, Germany

B1 May-30 11:20

***Influence of long term ageing on deformation and fracture behaviors of Alloy 617**

Guocai Chai, Mattias Calmunger, Sten Johansson, Johan Moverare, Joakin Odqvist

Sandvik Materials Technology, Sweden

B1 May-30 11:40

***Spark plasma sintering: A route for manufacturing TiAl blades?**

Alain Couret

CEMES/CNRS, France

B1 May-30 12:00

***Quantum-mechanical study of clean and impurity-segregated grain boundaries in Ni₃Al and Fe₃Al**

Martin Friak, Monika Vsianska, Tomas Komarek, Mojmir Sob

Institute of Physics of Materials ASCR, Brno, Czech Republic

B1 May-30 12:20

***Shear band and texture formation in intermetallic gamma titanium aluminides during severe hot-working**

Ulrich Froebel, Andreas Stark

Helmholtz-Zentrum Geesthacht, Germany

B1 May-30 12:40

***Z-phase strengthened steels - the European Z-ultra project**

John Hald, Bernhard Donth, Hermann Riedel

DTU Mechanical Engineering, Denmark

B1 May-30 13:00

***Evolution of Σ -CSL boundaries of Ni₃Al-based alloy in long term annealing treatments**

Ming Qian, Heli Luo, Chaochao Ding, Jiantao Wang

Jilin University, China

Lunch break 13:20 - Sessions restarts at 14:10

Session: B2, Venue: (Room: Hall 12a)

High and Ultra High Temp. Materials 2

Session Chairs: Hiroyuki Yasuda, Japan & Alain Couret, France

B2 May-30 14:10 Keynote

***What controls temperature dependence of yield stress in L12-ordered intermetallic compounds?**

Haruyuki Inui

Kyoto University, Japan

B2 May-30 14:40

*** Microstructure - mechanical properties relationship of MoSi₂/Mo₅Si₃-based eutectic composites**

Kyosuke Kishida, Hirotaka Matsunoshita, Haruyuki Inui

Kyoto University, Japan

B2 May-30 15:00

***The 3D imaging and metrology of microstructural elements in innovative materials for clean energy systems and aeronautics**

Adam Kruk, Aleksandra Czyrska-Filemonowicz

AGH University of Science and Technology, Poland

B2 May-30 15:20

***Role of plasticity during the microstructure evolution in metallic alloys**

Yann Le Bouar, Maeva Cottura, Pierre-Louis Valdenaire, Alphonse Finel, Benoît Appolaire

CNRS/ONERA, France

Coffee / Tea break 15:40 to 16:10

B2 May-30 16:10

***On the role of alloying elements in gamma/gamma prime cobalt-base superalloys**

Steffen Neumeier, Christopher H. Zenk, Mathias Göken

Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany

B2 May-30 16:30

***Solid solution strengthening and atomic displacements in equiatomic high-entropy alloys with the FCC structure**

Norihiko Okamoto, Marino Kawamura, Koretaka Yuge, Katsushi Tanaka, Haruyuki Inui, Easo George

Kyoto University, Japan

B2 May-30 16:50

TEM analysis of creep deformation micromechanisms in the AD730 Ni-based disk superalloy

Florence Pettinari-Sturm, Muriel Hantcherli, Winnie Vultos, Joël Douin, Patrick Villechaise, Jonathan Cormier, Alexandre Devaux

CEMES-CNRS, France

B2 May-30 17:10

***Microstructure formation in a quaternary Ti-Al-Nb-Ta alloy by massive transformation**

Florian Pyczak, Marcus Rackel, Andreas Stark, Norbert Schell, Andreas Schreyer

Helmholtz-Zentrum Geesthacht, Germany

B2 May-30 17:30

***Study on the formation of stray grains during directional solidification of Nickel-base superalloys**

Maria Rita Ridolfi

Centro Sviluppo Materiali S.p.A., Italy

**invited presentation*

B2 May-30 17:50

Influence of thermo- and HIP treatments on the microstructure and mechanical properties of IN625 alloy parts produced by selective laser melting: a comparative study

Alena Kreitchberg, Vladimir Brailovski, Sylvain Turenne, Victor Urlea, Cyrille Chanal

Ecole de Technologie Supérieure, Montreal, Canada

B2 May-30 18:10 Student

Characterization of the oxygen pick-up behaviour of a nickel-based super alloy powder under different sintering atmosphere conditions using a combined TG-GC-MS technique

Addison Rayner, Catherine Whitman, Stephen Corbin

Dalhousie University, Canada

B2 May-30 18:20 Student

Electron beam welding of TZM sheets

Markus Stuetz, Diogo Oliveira, Norbert Enzinger, Matthias Rüttinger, Nikolaus Reheis, Heinrich Kestler

Graz University of Technology, Austria

Session: B3, Venue: (Room: Hall 12a)

High and Ultra High Temp. Materials 3

Session Chairs: Marc Thomas, France & Kouichi Maruyama, Japan

B3 May-31 8:30 Keynote

*Temperature and strain rate effects on strengthening of metallic materials

Ernst Kozeschnik, Johannes Kreyca, Heinrich Buken, Jiri Svoboda, Hermann Riedel, Franz Dieter Fischer
TU Wien, Austria

B3 May-31 9:00

*New Fe-Al-O based ODS alloys; processing, microstructure and properties

Jiří Svoboda, Bohuslav Mašek
Institute of Physics of Materials, Czech Republic

B3 May-31 9:20

*Solidification pathway for the formation of Bcc/T1/T2 three-phase microstructure in Mo-Nb-Si-B quaternary system

Naoki Takata, Nobuaki Sekido, Michael Figueroa, Masao Takeyama, John Perepezko
Nagoya University, Japan

B3 May-31 9:40

Controlling microstructures of Co-based L12/fcc two-phase superalloys having oxidation resistance

Takumi Iwanaka, Shogo Ikeda, Katsushi Tanaka
Kobe University, Japan

B3 May-31 10:00

*Zinc oxide sputter lubricative coatings

Masahiro Tosa, Michiko Sasaki, Masahiro Goto, Akira Kasahara, Hiroshi Suzuki, Hiroshi Honda
National Institute for Materials Science, Japan

B3 May-31 10:20

Effect of a number transition metals on the cohesion properties of Cr-base alloys

Victor Butrim, Vsevolod Razumovskiy, Alexander Beresnev, Anna Trushnikova, Igor Razumovskii
JSK Kompozit, Russia

Coffee / Tea break 10:40 to 11:00

B3 May-31 11:00

*Applications of electric discharge assisted mechanical milling to the synthesis of high temperature and high hardness materials

David Wexler, Andrzej Calka
University of Wollongong, Australia

B3 May-31 11:20

*Deformation behavior of Fe-Al-Co-Ti single crystals containing Co₂AlTi precipitates

Hiroyuki Yasuda, Ryota Kobayashi
Osaka University, Japan

B3 May-31 11:40

*Annealing effect on ambient ductility of a high Nb containing TiAl alloy

Ji Zhang, Joe Kelleher, Shu Yan Zhang, Hongbiao Dong
China Iron and Steel Research Institute Group, China

B3 May-31 12:00

The effect of process parameters of a novel interdendritic-melt solidification control technique on the microstructure and properties of a Ni-base superalloy

Liang Zheng, Guoqing Zhang, Dominik Daisenberger, Zhou Li, Chengbo Xiao

Beijing Institute of Aeronautical Materials, China

B3 May-31 12:20

Challenges of thermomechanical processing of a beta-stabilized gamma-TiAl alloy in a near conventional forging process

Daniel Huber, Cecilia Poletti, Helmut Clemens, Martin Stockinger

Böhler Schmiedetechnik GmbH Co KG, Austria

B3 May-31 12:40

*Molybdenum based materials and their challenges in production and applications

Wolfram Knabl

Plansee SE, Austria

B3 May-31 13:00

Strain rate sensitivity on tensile deformation behaviour of GH4199 superalloy under dynamic loading

Lei Wang, Y. Liu, X. Song, J. C. Jin, X. Y. Qiao, Y. Q. Wang

Northeastern University, China

B3 May-31 13:20 Student

Creep study of martensitic steels developed within the project Z-ultra: Experiments and modelling

Surya Deo Yadav, Bernhard Sonderegger, Coline Beal, Jiří Svoboda, Elguja Kutelia, Razmik Barseghyan, Cecilia Poletti

Graz University of Technology, Austria

Lunch break 13:30 - Sessions restarts at 14:10

Session: B4, Venue: (Room: Hall 12a)

High and Ultra High Temp. Materials 4

Session Chairs: Koji Hagihara, Japan & Raghavan Srinivasan, USA

B4 May-31 14:10 Keynote

***Microstructure and creep behaviour of similar martensitic 9% chromium steel electron beam welds**

Christof Sommitsch, Coline Beal, Christian Schlacher, Tanja Pelzmann, Corinna Sabitzer

Graz University of Technology, Austria

B4 May-31 14:40

***Experimental validation of the CALPHAD approach applied to multi-component alloys**

Raghavan Srinivasan, Nathan Bryant, Daniel Miracle, Oleg Senkov, Jonathan Miller

Wright State University, USA

B4 May-31 15:00

Polycrystalline gamma/gamma prime Co-base superalloys produced by casting and rolling

Lisa Freund, Steffen Neumeier, Mathias Göken

Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany

B4 May-31 15:20

***High-temperature deformation behavior of (Mo_{0.85}Nb_{0.15}) Si₂ crystals with C40/C11b lamellar microstructure**

Koji Hagihara, Haruka Araki, Takaaki Ikenishi, Takayoshi Nakano

Osaka University, Japan

Coffee / Tea break 15:40 to 16:10

B4 May-31 16:10

Structure formation in Ni superalloys during high-speed direct laser deposition

Gleb Turichin, Olga Klimova-Korsmik, Evgeniy Zemlyakov, Konstantin Babkin, Pavel Petrovsky, Andrey Travyanov

Peter the Great Saint-Petersburg Polytechnic University, Russia

B4 May-31 16:30

A 3D DDD modelling and simulations of precipitate strengthening at high temperatures

Tomáš Zálezák, Jiří Svoboda, Antonín Dlouhý

Institute of Physics of Materials, Czech Republic

B4 May-31 16:50

Kinetic simulation of long-term precipitate evolution in heat-resistant alloys

Jae-Hyeok Shim, Woo Sang Jung, Jin-Yoo Suh, Brian Wirth, Erwin Povoden-Karadeniz, Ernst Kozeschnik

High Temperature Energy Materials Research Center, Korea

B4 May-31 17:10

Microstructure evolution and its effect on creep strength of single crystal Ni-based superalloys with various orientations

Sugui Tian, Yong Su, Huichen Yu, Delong Shu

Shenyang University of Technology, China

B4 May-31 17:30

Atomic-scale modeling of point defects, phase stability, and the formation mechanism of Z phases CrMN (M=V, Nb, Ta)

Daniel Urban, Matous Mrovec, Christian Elsässer

Fraunhofer Institute for Mechanics of Materials IWM, Germany

**invited presentation*

B4 May-31 17:50

Stability, kinetics and prospects of high entropy alloys at elevated temperatures

Nicholas Jones, Edward Pickering, Katerina Christofidou, Paul Mignanelli, Howard Stone

University of Cambridge, United Kingdom

Session: B5, Venue: (Room: Hall 12a)

High and Ultra High Temp. Materials 5

Session Chairs: David Wexler, Australia & Tian Sugui, PR Cina

B5 June-01 9:00

Development of new heat resistant austenitic alloys hardened with intermetallic sigma phase

Michael Spiegel, Patrik Schraven

Salzgitter Mannesmann Forschung GmbH, Germany

B5 June-01 9:20

*Microstructural instabilities in Co-Co₃Ti based superalloys

Howard Stone, Ayan Bhowmik, James Minshull, Steffen Neumeier, Katerina Christofidou, Nicholas Jones

University of Cambridge, United Kingdom

B5 June-01 9:40

*Discontinuous precipitation of the complex intermetallic phase Nb₂Co₇ from supersaturated Co solid solution

Frank Stein, Toshiaki Horiuchi

Max-Planck-Institut für Eisenforschung, Germany

B5 June-01 10:00

Initiation and propagation behaviors of small crack in a polycrystalline Ni-base superalloy under thermos-mechanical fatigue loading

Yasuhiro Yamazaki, Tomohiro Tomita

Niigata Institute of Technology, Japan

B5 June-01 10:20

Creep rupture, oxidation and corrosion of a Z-phase stabilized steel tested with welded tubes

Simon Heckmann, Ralf Mohrmann, Gereon Lüdenbach

RWE Power AG, Germany

Coffee / Tea break 10:40 to 11:10

B5 June-01 11:10

Simulation of the residual stress field in air-quenched turbine disks

Andreas Drexler, Hans-Peter Gänser, Werner Ecker, Bernd Oberwinkler, Andreas Fischersworring-Bunk

Materials Center Leoben, Austria

B5 June-01 11:30

EBSD study of delta-processed Ni-base superalloy

Martha P. Guerrero Mata

Universidad Autonoma de Nuevo Leon, Mexico

B5 June-01 11:50

Design of solution heat treatments for low-cost single crystal Ni superalloy

Jeonghyeon Do, Baig Gyu Choi, In Soo Kim, Joong Eun Jung, Chang Yong Jo

Korea Institute of Materials Science, Korea

Lunch break 13:20 - Sessions restarts at 14:10

Session: B6, Venue: (Room: Hall 12a)

TMP- Microalloyed Steels 1

Session Chairs: Tadashi Furuhashi, Japan & John Speer, USA

B6 June-01 14:10 Keynote

***Metallurgical aspects affecting thermomechanical processing of Ti based microalloyed steels**

Beatriz Lopez, Jose Rodriguez-Ibabe

CEIT and Tecnun, Spain

B6 June-01 14:40

***Grain coarsening in niobium containing steels studied in-situ by 3DXRD microscopy**

Erik Offerman, Hemant Sharma, John Wright, Jilt Sietsma

Delft University of Technology, The Netherlands

B6 June-01 15:00

***Physical simulation of thermo-mechanical processing of ferritic-bainitic dual phase (FBDP) steel**

Taher El-Bitar, Eman El-Shenawy, Maha El-meligy

Central Metallurgical R&D Institute (CMRDI), Egypt

B6 June-01 15:20

Northeastern University, China

***Synchrotron radiation investigations of niobium precipitates in HSLA steel**

Christian Klinkenberg, Helmut Klein

SMS group, Germany

Coffee / Tea break 15:40 to 16:10

B6 June-01 16:10

***Novel steels with niobium microalloying**

Sujoy Hazra

Ferro Tech India Pvt. Ltd., India

B6 June-01 16:30

***High quality tmcp production and metallurgy of niobium bearing steels**

Steven Jansto

CBMM North America, Inc, USA

B6 June-01 16:50

***An approach to the deformation of thick steel plates by high-frequency induction heating**

Kwang Seok Lee

KIMS, Korea

B6 June-01 17:10

Optimization of design and development of advanced TMCP steel plates using physical simulation

Daniel Rupp, Peter Flüss, Volker Schwinn

AG der Dillinger Hüttenwerke, Germany

B6 June-01 17:30

***The influence of nitrogen on the precipitation kinetics in microalloyed medium carbon steel**

Sabine Zamberger, Tomasz Wojcik, Gerald Klösch, Ernst Kozeschnik

Voestalpine Stahl Donawitz GmbH, Austria

**invited presentation*

B6 June-01 17:50

*Influence of thermal history on the hot ductility of Ti-Nb microalloyed steels

Coline Béal, Ozan Caliskanoglu, Christof Sommitsch, Sergiu Ilie, Jakob Six, Mária Dománková
Graz University of Technology, Austria

B6 June-01 18:10

In-situ characterisation of gamma/alpha decomposition kinetics and interphase morphology and their influence upon interphase precipitation in V and V+Mo microalloyed HSLA steels

Samuel Clark, Vit Janik, Arjan Rijkenberg, Yongjun Lan, Seetharaman Sridhar
International Manufacturing Centre, United Kingdom

B6 June-02 18:30

The effect of boron addition on precipitation and hot ductility of 1.5Mn-0.1Nb-Ti carbon steels in as-cast condition

Jacek Komenda, David Martin, Johan Lönnqvist
Swerea KIMAB AB, Sweden

B6 June-02 18:50

On the contribution of deformation temperature and strain to the work-hardening behavior of the twinning induce plasticity (TWIP) steel

Ilana Timokhina
Deakin University, Australia

B6 June-02 19:10

Refined and Uniform Microstructure with Superior Mechanical Properties in Medium Plate Microalloyed Steel with Reduction in Mn-content during Ultrafast Cooling

Zhaodong Wang, Bin Wang
Northeastern University, Republic of China

B6 June-02 19:30 Student

Effects of microalloy additions and thermomechanical processing on austenite grain size control in medium carbon steel bar rolling

Blake Whitley, John Speer, Robert Cryderman, Robert Goldstein, Kip Findley, David Matlock
Colorado School of Mines, USA

B6 June-02 19:40 Student

Softening kinetics of plain carbon steels containing dilute Nb additions

Bhushan Rakshe, Eric Palmiere, Jitendra Patel
University of Sheffield, United Kingdom

Session: B7, Venue: (Room: Hall 12a)

TMP- Microalloyed Steels 2

Session Chairs: David Matlock, USA and Riad Asfahani, USA

B7 June-02 8:30 Keynote

***Strengthening of low alloy steel by nano-scale precipitation of alloy carbide/nitride**

Tadashi Furuhashi, Goro Miyamoto, Mitsutaka Sato

Tohoku University, Japan

B7 June-02 9:00

***Nb-microalloying in next-generation automotive sheet steels**

John Speer

Colorado School of Mines, USA

B7 June-02 9:20

***Effect of microalloying and thermo-mechanical processing on the properties of quenched-and-tempered X65 seamless pipe**

Riad Asfahani

U. S. Steel, USA

B7 June-02 9:40

***Dissolution and precipitation behaviour in steels microalloyed with niobium during thermomechanical processing**

Peng Gong, Eric Palmiere, Mark Rainforth

The University of Sheffield, United Kingdom

B7 June-02 10:00

Application of physical modelling for fine grain structure formation in Nb-microalloyed pipe steels during controlled rolling

Andrei Chastukhin, Dmitry Ringinen, Sergei Golovin, Leonid Efron

Vyksa Steel Works, Russia

B7 June-02 10:20

Microstructure evolution of 304L stainless steel during variable thermo-mechanical processing conditions: Experiment and simulation

Ke Huang, Roland Logé

École polytechnique fédérale de Lausanne (EPFL), Switzerland

Coffee / Tea break 10:40 to 11:00

B7 June-02 11:00

Improving the control of precipitation strengthening during thermomechanical processing of V-bearing micro-alloyed steel by application of in-situ EBSD and phase field modelling methods

Vit Janik, Alireza Rahnema, Sam Clark, Arjan Rijkenberg, Yongjun Lan, Seetharaman Sridhar

University of Warwick, United Kingdom

B7 June-02 11:20

Effect of pre-deformation on TiC precipitation kinetics in ferritic steel

Yukiko Kobayashi, Jun Takahashi, Kazuto Kawakami

Nippon Steel & Sumitomo Metal Corporation, Japan

**invited presentation*

B7 June-02 11:40

Mathematical model of microstructural evolution of hot rolled wire rods for Nb microalloyed steels

Felipe Oliveira, Ronaldo Barbosa, Roney Lino

Universidade Federal de Minas Gerais, Brazil

B7 June-02 12:00

*Analysis of the static recrystallization behaviour of Nb-Ti microalloyed steels including low strain levels

Lorena Sanz-Vilariño, Beatriz Pereda, Beatriz Lopez

CEIT and TECNUN, Spain

B7 June-02 12:20

Computational and experimental analysis of hot ductility during continuous casting of micro-alloyed steel

Harald Radlwimmer, Sergiu Ilie, Jakob Six, Ernst Kozeschnik

TU Wien, Austria

B7 June-02 12:40

Low temperature toughness stability increasing of X65 and X70 steel using austenite evolution models

Dmitrii Ringinen, Andrei Chastukhin, Alexander Muntin, Alexey Chervonniy, Leonid Efron

Vyksa Steel Works, Russia

B7 June-02 13:00

Effect of cooling rate and austenite grain size on Ar3 in low alloy steels

Congyu Zhang, Zhigang Yang, Masato Enomoto, Hao Chen, Zenan Yang, Chi Zhang

Tsinghua University, China

B7 June-02 13:20

Influence of NbC-precipitation on hot ductility in microalloyed steel

Tomasz Wojcik, Ernst Kozeschnik

TU Wien, Austria

Lunch break 13:40 - Sessions restarts at 14:10

Session: B8, Venue: (Room: Hall 12a)

LPSO Structure and its Related Materials 1

Session Chairs: Yoshihito Kawamura, Japan & Koretaka Yuge, Japan

B8 June-02 14:10 Keynote

***LPSO structure and its related high strength magnesium alloys**

Yoshihito Kawamura

Kumamoto University, Japan

B8 June-02 14:40

***Plasticity analysis by synchrotron radiation diffraction in Mg-Y-Zn alloys**

Gerardo Garces

CENIM-CSIC, Spain

B8 June-02 15:00

***Thermal conductivity and tensile property of Mg-Zn-Y casting alloys with long-period stacking ordered phase**

Yuichi Ienaga

Honda R&D Co., Ltd., Japan

B8 June-02 15:20

***First-principles study on thermodynamic stability of Mg-based LPSO phases revisited from short-range order**

Koretaka Yuge

Kyoto University, Japan

Coffee / Tea break 15:40 to 16:10

B8 June-02 16:10 Keynote

***The formation of kink bands in a Mg alloy with synchronized LPSO structure**

Tetsuya Ohashi

Kyushu University, Japan

B8 June-02 16:40

***Preparation of Mg-TM-Y (TM=Transition metal) alloys with long period stacking ordered phase and their superior mechanical properties**

Takaomi Itoi

Chiba University, Japan

B8 June-02 17:00

***Microstructure of the Mg₉₆Zn₂Y₂ alloy joints welded by ultrasonic spot welding**

Chihiro Iwamoto, Yuichi Higashi, Yoshihito Kawamura

Ibaraki University, Japan

B8 June-02 17:20

***Observation of local structures in Mg-Zn-Y LPSO structures by scanning tunneling microscopy**

Shu Kurokawa

Kyoto University, Japan

B8 June-02 17:40

***Quantitative evaluation of dislocation nucleation in magnesium via atomistic simulations**

Masayuki Uranagase

Kyoto University, Japan

**invited presentation*

B8 June-02 18:00

*Early stage of phase transformation in MgYZn ternary alloys from rapidly quenched ribbons

Hiroshi Okuda, Hiroto Tanaka, Michiaki Yamasaki, Yoshihito Kawamura, Shigeru Kimura

Kyoto University, Japan

B8 June-02 18:20

*Influence of second phases on the superplasticity of Mg-TM-Y-CeMM alloys containing LPSO-phases

Pablo Pérez Zubiaur, Judit Medina, Gerardo Garcés, Paloma Adeva

CENIM-CSIC, Spain

Session: B9, Venue: (Room: Hall 12a)

LPSO Structure and its Related Materials 2

Session Chairs: Tetsuya Ohashi, Japan & Jian Feng Nie, Australia

B9 June-03 8:30 Keynote

***Kinking and Disclinations in Plastically Anisotropic Materials**

Alexey Romanov

ITMO University, St. Petersburg, Russia

B9 June-03 9:00

***Effect of short-range ordering of solute atoms on elastic properties of Mg-Zn-Y alloy single crystals with long-period stacking ordered structures**

Masakazu Tane, Hajime Kimizuka, Koji Hagihara

Osaka University, Japan

B9 June-03 9:20

***Hydrogenation behaviour and structural change of LPSO Mg-based alloys**

Kazuhiro Ishikawa, Teppei Kawasaki, Yoshinori Yamada

Kanazawa University, Japan

B9 June-03 9:40

***Mg-Zn-Y alloys with long-period stacking ordered phases: deformation, creep, solute segregation and strengthening mechanisms at elevated temperatures**

Zhiqing Yang, Weiwei Hu, Hengqiang Ye

Institute of Metal Research, CAS, China

B9 June-03 10:00

Microscopic elastic properties of polycrystalline Mg-Zn-Y alloys with long-period stacking ordered 18R phase by inelastic x-ray scattering

Shinya Hosokawa, Koji Kimura, Michiaki Yamasaki, Yoshihito Kawamura, Koji Yoshida, Masanori Inui, Satoshi Tsutsui, Alfred Baron

Nagoya Institute of Technology, Japan

B9 June-03 10:20

***Local structure investigation of in Mg-Zn-Gd alloys by XAFS**

Satoru Yoshioka, Masahiro Ishida, Toshiki Yoshimoto, Tomokazu Yamamoto, Kazuhiro Yasuda, Syo Matsumura, Nobuhiro Yasuda, Shigeru Kimura

Kyushu University, Japan

Session C

Room: Hall 12b

Session: C1, Venue: (Room: Hall 12b)

Advanced Materials in Biomedical and Bioengineering Applications 1

Session Chairs: Thierry Gloriant, France & Hideki Hosoda, Japan

C1 May-30 10:30 Keynote

***Innovation for the next generation of health solutions**

Diego Mantovani

Laval University, Canada

C1 May-30 11:00

***Plasmonic nanostructures for biomedical sensing**

Monika Fleischer

University of Tübingen, Germany

C1 May-30 11:20

***Microstructure and mechanical properties of selective laser melted metals for biomedical applications**

Naoyuki Nomura

Tohoku University, Japan

C1 May-30 11:40

***Human liver microtissue spheroids in hollow fiber membrane bioreactor**

Loredana De Bartolo, Haysam Ahmed, Shervin Khakpour, Simona Salerno, Sabrina Morelli, Franco Tasselli, Lidietta Giorno

National Research Council of Italy, Italy

C1 May-30 12:00

***In vitro degradation behavior of AZ31 Mg alloy as biomaterial in Hank's solution**

Junhua Dong, Baojie Wang, Daokui Xu, Wei Ke

Institute of Metal Research, CAS, China

C1 May-30 12:20

***Surface structuring of dental zirconia implants in terms of stable osseointegration**

Jens Fischer

University of Basel, Switzerland

C1 May-30 12:40

***Surface nitriding of beta-type titanium-based superelastic alloys for biomedical applications**

Doina-Margareta Gordin, Yvan Bédouin, Valentina Mitran, Anisoara Cimpean, Cora Vasilescu, Silviu-Iulian Drob, Lorène Héraud, Thierry Gloriant

INSA Rennes, France

C1 May-30 13:00

***Laser processing of biomedical materials**

Roger Narayan

University of North Carolina and North Carolina State University, USA

Lunch break 13:20 - Sessions restarts at 14:10

**invited presentation*

Session: C2, Venue: (Room: Hall 12b)

Advanced Materials in Biomedical and Bioengineering Applications 2

Session Chairs: **Diego Mantovani, Canada & Carolina Richard, France**

C2 May-30 14:10 Keynote

***Enhancement of mechanical biocompatibility of metastable beta-type titanium alloys by deformation-induced transformation**

Mitsuo Niinomi

Tohoku University, Japan

C2 May-30 14:40

***Development of Zr-Mo alloy with low magnetic susceptibility for spinal instruments to decrease MRI artifact**

Takao Hanawa, Naoyuki Nomura, Maki Ashida, Yusuke Tsutsumi, Hisashi Doi, Peng Chen

Tokyo Medical and Dental University, Japan

C2 May-30 15:00

***Effect of Fe addition on mechanical properties of Ti-Au near-eutectoid alloys**

Hideki Hosoda, Takuya Ishigaki, Tomonari Inamura

Tokyo Institute of Technology, Japan

C2 May-30 15:20

***Preparation of poly (lactic acid)-based composites containing calcium carbonate with core-shell-type fibrous structure**

Jian Wang, Pin Zhou, Akiko Obata, Julian Jones, Toshihiro Kasuga

Nagoya Institute of Technology, Japan

Coffee / Tea break 15:40 to 16:10

C2 May-30 16:10

***Tailored properties for metallic implant materials**

Bernhard Mingler, Maciej Krystian, Jelena Horky, Manfred Bammer

AIT Austrian Institute of Technology GmbH, Austria

C2 May-30 16:30

***Hydroxyapatite formation on Type 316L stainless steel and zirconium by cathodic polarization with pulse current**

Sayaka Miyabe, Chisato Toji, Naoya Asakura, Shinji Fujimoto

Osaka University, Japan

C2 May-30 16:50

***Anti-bacterial nanocomposites by silver nano-coating fragmentation**

Fabrizio Quadrini, Denise Bellisario, Giovanni Matteo Tedde, Loredana Santo

University of Rome Tor Vergata, Italy

C2 May-30 May-30 17:10

Wool keratin fibrils sponges for bone tissue engineering

Alessia Patrucco, Francesco Cristofaro, Martina Simionati, Marina Zoccola, Giovanna Bruni, Lorenzo Fassina, Livia Visai, Giovanni Magenes, Raffaella Mossotti, Alessio Montarsolo

CNR Italian National Research Council, Italy

C2 May-30 17:30

Superelasticity of rolled Ti-Nb-Zr alloy

Margarita Isaenkova, Yuriy Perlovich, Vladimir Fesenko, Olga Krymskaya, Sergey Chekanov

National Research Nuclear University MEPhy, Russia

**invited presentation*

C2 May-30 17:50

*Concept of nano technology in ayurveda

Ahalya Sharma

Ayurveda Medical College, Bangalore, India

C2 May-30 18:10

Characterization of a degradable Zn based alloy

Zhenlun Song, Zhenguo Niu, Cheng Xu, Ijin yang

Ningbo Institute of Material Technology and Engineering Chinese Academy of Sciences, China

C2 May-30 18:30

Effects of Ti addition on properties of Au-Nb-Ti alloys for MRI artefact-free biomedical applications

Kenichi Hamada, Shihoko Inui, Emi Uyama, Eiichi Honda

Tokushima University, Japan

C2 May-30 18:50 Student

Multi-stimuli responsive polymer gels via initiated chemical vapour deposition

Katrin Unger

Graz University of Technology, Austria

C2 May-30 19:00 Student

Harnessing the multifunctionality in nature: A bioactive agent release system with self-antimicrobial and immunomodulatory properties

Angela Mutschler, Hayriye Ozcelik, Engin Vrana, Adele Carrado, Alexandru Gudima, Pierre Schaaf, Julia Kzhyskowska, Philippe Laval

INSERM, France

Session: C3, Venue: (Room: Hall 12b)

Advanced Materials in Biomedical and Bioengineering Applications 3

Session Chairs: Roger Narayan, USA & Takao Hanawa, Japan

C3 May-31 8:30 Keynote

***Application of the additive manufacturing by selective laser sintering for constituting implant-scaffolds and hybrid multilayer biological and engineering composite materials**

Leszek A. Dobrzański

Silesian University of Technology, Poland

C3 May-31 9:00

Nanoscale AB-type carbonated hydroxyapatite fabricated based on sea shells

Yongmei Ge, Huili Li, Kuan Jiang, Yizebang Xue, Bin Tang

South University of Science and Technology of China, China

C3 May-31 9:20

***Athermal ω -phase transformation and mechanical properties in binary Zr-Nb biomedical alloy**

Mitsuharu Todai, Keisuke Fukunaga, Takayoshi Nakano

Osaka University, Japan

C3 May-31 9:40

***Effect of chemical state of silver added to calcium phosphates on dissolution behavior, antibacterial activity, and cytotoxicity**

Kyosuke Ueda, Ozkan Gokcekaya, Kouetsu Ogasawara, Hiroyasu Kanetaka, Takayuki Narushima

Tohoku University, Japan

C3 May-31 10:00

***Innovative surface treatments of titanium alloys for biomedical applications**

Caroline Richard

Université François Rabelais de Tours, France

Coffee / Tea break 10:20 to 11:00

C3 May-31 11:00

Pre-ceramic polymer-derived sphene bioceramic coating on cpTi substrates for orthopaedic implants

Lisa Biasetto, Hamada Elsayed, Paolo Colombo, Franco Bonollo

Università di Padova, Italy

C3 May-31 11:20

Environment-assisted cracking of super-elastic TiNi alloy depending on solution pH and electrochemical potential

Takumi Haruna, Yosuke Fujita, Daiki Morihashi, Youhei Hirohata

Kansai University, Japan

C3 May-31 11:40

***Precipitates and mechanical properties of metallic biomaterials**

Takayuki Narushima, Kosuke Ueki, Kenji Hara, Kyosuke Ueda

Tohoku University, Japan

C3 May-31 12:00

***Adsorption of an albumin subdomain on different crystallographic surfaces of anatase TiO₂: a molecular dynamics study**

Giuseppina Raffaini

Politecnico di Milano, Italy

**invited presentation*

C3 May-31 12:20

*Thermal spray coating application onto low temperature polymer substrate

Armando Salito, Sylvie Ruch, Laurent Corté

Althenia AG, Switzerland

C3 May-31 12:40

*Biodegradability, cytotoxicity, mechanical and magnetic properties of newly- developed Fe-Mn-Si-Pd alloys during in-vitro immersion tests in simulated body fluid

Jordina Fornell, Yuping Feng, Andreu Blanquer, Sophia Zhang, Carme Nogués, Elena Ibañez, Lleonard Barrios, Pau Solsona, Maria Dolors Baró, Santiago Suriñach, Eva Pellicer, Jordi Sort

UAB, USA

C3 May-31 13:00

*Hydroxyapatite coating and silver nanoparticles assemblies on additively manufactured Ti6Al4V scaffolds

E. Chudinova, M. Surmeneva, A. Koptioug, P. Skoglund, A. Sharonova, K. Loza, M. Epple, R. Surmenev

Naional Research Tomsk Polytechnic University, Russia

Lunch break 13:20 - Sessions restarts at 14:10
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Session: C4, Venue: (Room: Hall 12b)

Aluminium Alloys 1

Session Chairs: Knut Marthinsen, Norway & Hiromi Nagaumi, PR China

C4 May-31 14:10 Keynote

***Precipitates in Al alloys across and between industrially common compositions**

Sigurd Wenner, Calin D. Marioara, Eva A. Mørtzell, Jesper Friis, Sigmund J. Andersen, Randi Holmestad
Norwegian University of Science and Technology (NTNU), Norway

C4 May-31 14:40

***Needle like Fe-containing intermetallic compounds of high silicon aluminium alloy with Fe modified by Mn and ultrasonic vibration**

Zhong Gu, Wu Shusen, Lin Chong, Xin Tao Li, Hiromi Nagaumi
Chinalco Research Institute of Science & Technology, China

C4 May-31 15:00

***Analytical sub-angstrom scanning transmission electron microscopy of alloys and steels**

Mihaela Albu, JH. Li, A. Pal, E. Plesiutchnig, R.C. Picu, P. Schumacher, B. Panzirsch, G. Kothleitner, F. Hofer
Graz Center for Electron Microscopy, Austria

C4 May-31 15:20

***Development of Al-Mg-Si-(Cu) alloys for automotive body panels and the related ageing behaviours**

Lingfei Cao, Hao Zhong, Paul Rometsch,
Chongqing University, China

Coffee / Tea break 15:40 to 16:10

C4 May-31 16:10

***Accelerated ageing and Portevin-Le Chatelier effect in Al 2024**

Fabienne Delaunois, Véronique Vitry
UMONS – Polytech, Belgium

C4 May-31 16:30

***Joining of aluminium alloy to galvanized and uncoated steels**

Honggang Dong, Yang Song, Song Niu, Wenjin Hu, Chuanqing Liao, Liquan Yang
Dalian University of Technology, China

C4 May-31 16:50

***Effect of the compositional variations on the early-stage precipitation hardening in Al-Mg-Si(-Cu) alloys**

Shahrazad Esmaceli, Vahid Fallah, Brian Langelier, Li Hua Liao, Helene Godin, Babak Raeisinia
University of Waterloo, Canada

C4 May-31 17:10

***Damage generation process in cast Al-Cu alloys during in situ room temperature tensile tests**

Ricardo Fernández Gutiérrez, Guillermo Requena, Federico Sket, Fabian Wilde
Nemak Linz GmbH, Austria

C4 May-31 17:30

***Simultaneous increase in strength and ductility of an Al-Si-based casting aluminum alloy**

Feng Liu
Northwestern Polytechnique University, China

**invited presentation*

C4 May-31 17:50

*Extraction of high purity silicon for solar cell from Al die casting scraps

Suk Jun Kim, Je-Beom Jeon, Ji-Won Youn, Ki-Young Kim

KOREATECH, Korea

C4 May-31 18:10 Student

Correlation between aging effects and high temperature mechanical properties of the unmodified A356 foundry aluminium alloy

Maria Teresa Di Giovanni, Emanuela Cerri, Mattia Merlin, Daniele Casari, Lars Arnberg, Gian Luca Garagnani

University of Parma, Italy

C4 May-31 18:20 Student

The effect of Ni on the surface oxide layer during simulated brazing of aluminium alloys

Colin Tadgell, Mary Wells, Stephen Corbin, Sooky Winkler, Leo Colley, Brian Cheadle

Dalhousie University, Canada

Session: C5, Venue: (Room: Hall 12b)

Aluminium Alloys 2

Session Chairs: Alexis Deschamps, France & Kenji Matsuda, Japan

C5 June-01 8:30 Keynote

***The natural aging and precipitation hardening behavior of Al-Mg-Si-Cu alloys with different Mg/Si ratio and Cu addition**

Qing Liu, Lipeng Ding, Zhihong Jia
Chongqing University, China

C5 June-01 9:00

***Characterization and modelling the microstructure and texture evolution in AlMgSi-extrusions**

Knut Marthinsen, Kai Zhang, Bjørn Holmedal, Jesper Friis, Tanja Pettersen, Trond Aukrust, Antonio Segatori,
Norwegian University of Science and Technology, Norway

C5 June-01 9:20

***The effect of thermo mechanical coupling on microstructure and properties in Al-Li alloy**

Yue Ma, Chong Gao,
Beihang University, China

C5 June-01 9:40

***Design of high strength aluminium alloys by application of rapid solidification and hot extrusion technology**

Tomasz Tokarski,
AGH University of Science and Technology, Poland

C5 June-01 10:00

***Research on microstructure evolution in Al-9.8Zn-2.0Mg-1.8Cu alloy during solution treatment**

Baiqing Xiong, Kai Wen, Yunqiang Fan, Yongan Zhang, Xiwu Li, Zhuihui Li, Shuhui Huang, Hongwei Liu, Hongwei Yan
General Research Institute for Nonferrous Metals, China

C5 June-01 10:20

Effect of cold rolling on the size and shape of the second phase particles in Al-Si alloy

Tianlin Houang, Linfei Shuai, Guilin Wu, Xiaoxu Huang
Chongqing University, China

Coffee / Tea break 10:40 to 11:10

C5 June-01 11:10

***Trace element-added Al-Mg-Si alloys**

Stefan Pogatscher, Marion Werinos, Helmut Antrekowitsch, Peter J. Uggowitzer
Montanuniversität Leoben, Austria

C5 June-01 11:30

Solidification behaviour of aluminium-copper based alloy during controlled diffusion solidification

Hao Qitang,
Northwestern Polytechnical University, China

C5 June-01 11:50

***In situ study on interface evolution of Al/Cu bimetal by synchrotron X-ray radiography**

Tongmin Wang, Fei Cao, Fenfen Yang, Tingju Li
Dalian University of Technology, China

**invited presentation*

C5 June-01 12:10

*Modification effects of Sb on Al7SiMg alloy measured with cooling curve analysis

Shusen Wu, Mengjie Lü, Jianxun Chen, Ping An, Shulin Lü, Huazhong

University of Science and Technology, China

C5 June-01 12:30

*Sheet forming processes for AW-7xxx alloys: Relevant process parameters

Manoj Kumar, Georg Kirov, Florian Grabner, Ermal Mukeli, Olaf Kessler

LKR Leichtmetallkompetenzzentrum Ranshofen GmbH, Austrian Institute of Technology, Austria

C5 June-01 12:50

A comparative study of CALPHAD and differential scanning calorimetry to optimize 7xxx aluminium alloys

Gernot Kolb, Helmut Antrekowitsch, Peter J. Uggowitzer, Daniel Pöschmann, Stefan Pogatscher

Montanuniversität Leoben, Austria

C5 June-01 13:10

*Precipitation in the gradient nanostructured Al-Cu-Mg alloy

Zongqiang Feng, Xuan Luo, Tianlin Huang, Guilin Wu

Chongqing University, China

Lunch break 13:30 - Sessions restarts at 14:10

Session: C6, Venue: (Room: Hall 12b)

Aluminium Alloys 3

Session Chairs: Randi Holmestad, Norway & Qing Liu, PR China

C6 June-01 14:10 Keynote

***Neutron diffraction analysis of light alloys**

Comondore (Ravi) Ravindran, Anthony Lombardi, Eli Vandersluis, Dmitry Sediako,
Ryerson University, Canada

C6 June-01 14:40

***Microstructure observation of Al-Mg-Ge alloy aged at 423K and 473K using TEM**

Kenji Matsuda
University of Toyama, Japan

C6 June-01 15:00

***Metastable phase structure and evolution in the Al-Si-Mg-Hf Alloy**

Zhihong Jia, Xueli Wang, Qing Liu
Chongqing University, China

C6 June-01 15:20

***In-situ study of the recrystallization behavior of an age hardening AlMgScZr alloy**

Johannes Taendl, Shoichi Nambu, Junya Inoue, Toshihiko Koseki, Cecilia Poletti
Graz University of Technology, Austria

Coffee / Tea break 15:40 to 16:10

C6 June-01 16:10

Effect of cavity volume on deformation behavior of tailored step cast Al ingot

Yong-Nam Kwon
Korea Institute of Materials Science, Korea

C6 June-01 16:30

Investigation on effect of centrifugal counter-gravity casting to solidification microstructure and mechanical properties of aluminium alloy

Li Xinlei
Northwestern Polytechnical University, China

C6 June-01 16:50

Modelling of the microstructural evolution and yield strength of an innovative age-hardenable Al alloy for high temperature applications

Marco Colombo, Elisabetta Gariboldi, Paola Bassani, Mihaela Albu, Ferdinand Hofer
Politecnico di Milano, Italy

C6 June-01 17:10

Study on the porosity in Al-Zn-Mg-Cu high strength alloy DC ingot

Huixue Jiang, Nagaumi Hiromi, Shijie Guo, Chun Zou, Chinalco
Research Institute of Science and Technology, China

C6 June-01 17:30

Microstructure evolution of rolled Al-Si-Mg alloys with Fe/Mn ratio

Dae Hwan Kim, Kee Do Woo, Jae Hwang Kim
Korea Institute of Industrial Technology, Chonbuk National University, Korea

**invited presentation*

C6 June-01 17:50

Hot workability and extrusion characteristics of Al-Cu-Li-X and Al-Mg-Li-X alloys

Su-Hyeon Kim, Hyoung-Wook Kim, Joon-Hyeon Cha, Yun-Soo Lee, Cha Yong Lim

Korea Institute of Materials Science, Korea

Session: C7, Venue: (Room: Hall 12b)

Aluminium Alloys 4

Session Chairs: Xiaoxu Huang, PR China & C. Ravindran, Canada

C7 June-02 8:30

Effect of high and low temperature exposure on the mechanical properties of self-hardening Al-based alloy
Ildiko Peter, Christian Castella, Silvia Lombardo, Mario Rosso
Politecnico di Torino, Italy

C7 June-02 8:50

Diffusion based modelling of isothermal solidification during brazing of aluminium alloys
Catherine Whitman, Stephen Corbin, Mary Wells, Sooky Winkler
Dalhousie University, Canada

C7 June-02 9:10

The Portevin–Le Chatelier effect and kinematics of deformation bands in an Al-Mg-Sc alloy: Effect of grain size
Daria Zhemchuzhnikova, Mikhail Lebyodkin, Tatiana Lebedkina, Rustam Kaibyshev
Belgorod State University, Russia

C7 June-02 9:30

Numerical simulation of pore evolution of 7050 aluminium alloy during hot compression process
Yongfu Wu, Huixue Jiang, Chun Zou, Kangcai Yu, Hiromi Nagaumi
Laboratory of Advanced Aluminum Alloy, China

C7 June-02 9:50

*Multi-institutional collaboration of industry and university along the processing chain as a means to holistically optimize material characteristics of aluminium products
Werner Fragner, H. Antrekowitsch, E. Kozeschnik, G. Mori, S. Pogatscher, C. Sommitsch, P.J. Uggowitzer
Austria Metall GmbH, Austria

C7 June-02 10:10

Modelling yield strength in an A6061 aluminium alloy
Johannes Kreyca, Ahmad Falahati, Ernst Kozeschnik
TU Wien, Austria

Coffee / Tea break 10:30 to 11:00

C7 June-02 11:00

*Effects of precipitated particles on microstructure evolution during thermo-mechanical processing of Al-Zn-Mg-Cu alloy
Huiqin Chen, Kun Zhang, Huiqu Li, Xiaodong Zhao, Lianhua Han
Taiyuan University of Science and Technology, China

C7 June-02 11:20

Microstructure and mechanical properties of a spray-formed and hot worked ultra-high strength aluminum alloy
Shuhui Huang, Zhihui Li, Baiqing Xiong, Yongan Zhang, Xiwu Li, Hongwei Liu, Hongwei Yan, Lizhen Yan
General Research Institute for Nonferrous Metals, Beijing, China

C7 June-02 11:40

Impact of silicon, magnesium and strontium on feeding ability of AlSiMg cast alloys
Gerhard Huber, Mile Djurdjevic
Nemak Linz, Austria

C7 June-02 12:00

Age hardening behavior of Al-Li alloys produced by sand mold casting

Seiji Saikawa, Chiharu Otsubo, Hiroki Kako, Emi Yanagihara, Susumu Ikeno, Koichi Komai

University of Toyama, Japan

Lunch break 13:10 - Sessions restarts at 14:10

Session: C8, Venue: (Room: Hall 12b)

Biomimetic Materials, Nanostructured Biomaterials and Biological Applications

Session Chairs: Michael Tatoulian, France & Kunio Ishikawa, Japan

C8 June-02 14:10 Keynote

***Complex cell physiology on topographically and chemically designed material surfaces**

Barbara Nebe, Caroline Moerke, Susanne Staehlke, Birgit Finke, Matthias Schnabelrauch, Karine Anselme, Christiane Helm, Henrike Rebl

University Medical Center Rostock, Germany

C8 June-02 14:40

*Effects of the pore size on mechanical property and tissue response to porous carbonate apatite made by the setting reaction of carbonate apatite granules

Kunio Ishikawa, Kanji Tsuru, Chen Song

Kyushu University, Japan

C8 June-02 15:00

Nanostructured SPD-processed Ti-based materials for load-bearing orthopedic applications

Mariana Calin, Matthias Bönisch, Arne Helth, Stefan Pilz, Romy Schmidt, Annett Gebert, Thomas Waitz, Michael Zehetbauer, Jürgen Eckert

IFW Dresden, Germany

C8 June-02 15:20

*Non-viral vectors for gene delivery

Gabriele Candiani

Politecnico di Milano, Italy

Coffee / Tea break 15:40 to 16:10

C8 June-02 16:10

*Scaffolds applicable as implants of a loss of palate fragments

Anna Dobrzańska-Danikiewicz, Leszek A. Dobrzański, Tomasz Gawel

Silesian University of Technology, Poland

C8 June-02 16:30

*Plasma polymerized allylamine - PPAAm - a cell adhesive finishing for implant surfaces

Birgit Finke, Henrike Rebl, Barbara Nebe, Carmen Zietz, Carolin Gabler, Rainer Bader, Uwe Walschus, Michael Schlosser, Klaus-Dieter Weltmann, Martin Polak

INP Greifswald, Germany

C8 June-02 16:50

*Ultrafine-grained multifunctional titanium alloys

Yulin Hao

Institute of Metal Research, Chinese Academy of Sciences, China

C8 June-02 17:10

*Materials to control biological cells function: A focus on microtopography influence

Karine Anselme

CNRS, France

**invited presentation*

C8 June-02 17:30

*Implanted MgO is osteoinductive through the formation of a bone-inducing matrix

Håkan Nygren

University of Gothenburg, Sweden

C8 June-02 17:50

*Mechanical tuning of collagen fibrils through osmotic stress

Sylvia Desissaire, Orestis Andriotis, Philipp Thurner

TU-Wien, Austria

C8 June-02 18:10

Novel Ti-25Ta-Zr alloys for biomedical applications

Carlos Roberto Grandini

UNESP, Brazil

Session: C9, Venue: (Room: Hall 12b)

Biomimetic Materials, Nanostructured Biomaterials and Biological Applications

Session Chairs: Takayoshi Nakano, Japan & Barbara Nebe, Germany

C9 June-03 8:30

*Materials processing for fluorescent probes in the second biological window

Kohei Soga, Masao Kamimura

Tokyo University of Science, Japan

C9 June-03 8:50

*Apatite orientation and material property of bone are enhanced by artificially elevated load

Takuya Ishimoto, Jun Wang, Kohei Kadota, Tea-Wan Kim, Takayoshi Nakano

Osaka University, Japan

C9 June-03 9:10

*Osteoconductivity of protein adsorbed titanium implants using hydrothermal treatment

Kensuke Kuroda, Masazumi Okido

Nagoya University, Japan

C9 June-03 9:30

*Osteoconductivity of superhydrophilic Ti- and Zr-alloys for biomedical application

Masazumi Okido, Kensuke Kuroda

Nagoya University, Japan

C9 June-03 9:50

*Artificial extracellular matrices based on cross-linkable polysaccharides for tissue regeneration

Matthias Schnabelrauch, Jana Becher, Stephanie Moeller, Juergen Weisser, Albrecht Berg

INNOVENT e. V., Germany

C9 June-03 10:10

*Preparation of self-setting paste composed of hydroxyapatite/collagen bone-like nanocomposite

Masanori Kikuchi, Taira Sato, Mamoru Aizawa, Yuki Shirosaki

National Institute for Materials Science, Japan

C9 June-03 10:30

*High fatigue strength of Ti-12Cr rod as spinal fixation devices

Masaaki Nakai, Mitsuo Niinomi, Huihong Liu, Kengo Narita, Osamu Takakuwa, Hitoshi Soyama

Tohoku University, Japan

C9 June-03 10:50

Mechanical properties and magnetic susceptibility of Ti-X alloys fabricated by selective laser melting process for new biomaterial devices

Yalatu Su, Takayoshi Nakano, Norio Higuchi, Hitoshi Sakai

Osaka University, Japan

**invited presentation*

Session D

Room: Gallery A

Session: D1, Venue: (Room: Hall 11b)

Surface Engineering/Advanced Protective Coatings 1

(Prof. J.T. M. De Hosson Symposium)

Session Chairs: Michel Jeandin, France & Hideyuki Murakami, Japan

D1 May-30 10:30 Keynote

***Advanced plasma processing for surface modifications of materials**

M. Tatoulian, C. Guyon

Institut de Recherche de Chimie Paris, IRCP, France

D1 May-30 11:00

***Thermal design of hard coatings**

P. H. Michael Böttger, Jörg Patscheider, Valery Shklover, Matthias Sobiech

SKF Österreich AG, Austria

D1 May-30 11:20

*** The unexpected role of benzotriazole in mitigating magnesium alloy corrosion: A nucleating agent for crystalline nanostructured magnesium hydroxide film**

Jun-Lan Wang, Chong Ke, Katharina Pohl, Nick Birbilis, Xiaobo Chen

Monash University, Australia

D1 May-30 11:40

***Laser induced surface texturing of metal or organic substrates for structural adhesive bonding**

Sophie Costil, Robin Kromer, Sébastien Goujon, Christophe Verdy, Hanlin Liao

UTBM, France

D1 May-30 12:00

***Ceramic coatings for protecting carbon/carbon composites against oxidation**

Qian-Gang Fu

Northwestern Polytechnical University, China

D1 May-30 12:20

Microstructures and thermo-physical properties of thermal barrier coatings produced by PS-PVD

Hongbo Guo, Liangliang Wei, Shengkai Gong, Huibin Xu

Beihang University, China

D1 May-30 12:40

***Surface structuring by pulsed laser implantation**

Kai Hilgenberg, Michael Rethmeier

BAM, Germany

D1 May-30 13:00

***Non-classical crystallization of thin films and nanostructures synthesized by chemical vapor deposition**

Nong-Moon Hwang

Seoul National University, Korea

D1 May-30 13:20

***Structures and properties of laser-assisted cold-sprayed metallic coatings**

Heli Koivuluoto, Andrea Milanti, Giovanni Bolelli, Jyrki Latokartano, Francesco Marra, Giovanni Pulci, Jorma Vihinen, Luca Lusvarghi, Petri Vuoristo

Tampere University of Technology, Finland

**invited presentation*

Lunch break 13:40 - Sessions restarts at 14:10

Session: D2, Venue: (Room: Hall 11b)

Surface Engineering/Advanced Protective Coatings 2

Session Chairs: J.T. M. De Hosson, Netherlands & Masakazu Okazaki, Japan

D2 May-30 14:10 Keynote

***An artistic approach to thermal spray**

Michel Jeandin, François Borit, Nicole Fabregue, Gilles Rolland, Francesco Delloro
MINES ParisTech, France

D2 May-30 14:40

***Effect of oxygen potential gradient on mass transfer in alumina layer at high temperature**

Satoshi Kitaoka, Tsuneaki Matsudaira, Tsubasa Nakagawa, Naoya Shibata, Yuichi Ikuhara
Japan Fine Ceramics Centre, Japan

D2 May-30 15:00

***Mechanical properties of sol-gel hybrid coatings**

Eric Le Bourhis
Univ Poitiers, France

D2 May-30 15:20

***Release of polymer additives from pharmaceutical packaging studied by an original UHPLC-ESI-MS/MS and ToF-SIMS approach**

Charlène Pouech, Florent Lafay, Laure Wiest, Robert Baudot, Claire Bordes, Yohann Clement, Pierre Lanteri, Emmanuelle Vulliet, Didier Leonard
UMR 5280 CNRS, Université Lyon 1, ENS-Lyon, France

Coffee / Tea break 15:40 to 16:10

D2 May-30 16:10

***Atomic layer deposited protective layers**

Markku Leskelä
University of Helsinki, Finland

D2 May-30 16:30

***Air-based sputtering deposition of nitride, oxynitride, and N-doped oxide thin films**

Fu-Hsing Lu
National Chung Hsing University, Taiwan

D2 May-30 16:50

***Effect of nickel content on structure and scratch and wear resistances of nickel doped diamond-like carbon thin films**

Nay Win Khun, Erjia Liu
Nanyang Technological University, Singapore

D2 May-30 17:10

***Microstructure and oxidation resistance of bond coats on Ni-based single crystal superalloys**

Hideyuki Murakami
National Institute for Materials Science, Japan

D2 May-30 17:30

***Friction and wear properties of AlB₁₂- and SiB₆-based ceramics**

Takashi Murakami, Haruyuki Inui
National Institute of Advanced Industrial Science and Technology (AIST), Japan

**invited presentation*

D2 May-30 17:50

*Unusual wetting on surface fine crevice structure by laser irradiation

Masashi Nakamoto, Toshihiro Tanaka

Osaka University, Japan

D2 May-30 18:10

Reactive diffusion for contact in advanced MOS devices

Dominique Mangelinck, M. El Kousseifi, F. Panciera, K. Hoummada, M. Descoins, M. Bertoglio, M. Gregoire

IM2NP, France

D2 May-30 18:30

Electroless plating of copper on TaN barrier layers using seed-anchoring self-assembled monolayer

Sung-Te Chen

HUST, Taiwan

Session: D3, Venue: (Room: Hall 11b)

Surface Engineering/Advanced Protective Coatings 3

Session Chairs: Marcel Somers, Denmark & Lidong Sun, PR China

D3 May-31 8:30 Keynote

***Development of polymer-based composite coatings for the gas exploration industry**

Brajendra Mishra, Ali Usman Chaudhry
Worcester Polytechnic Institute, USA

D3 May-31 9:00

***Towards frictionless surface**

Tomas Polcar
University of Southampton, United Kingdom

D3 May-31 9:20

***Elaboration of nanostructured coatings by pulsed plasma spraying of liquid feedstock**

Vincent Rat, Fabrice Mavier, Marguerite Bienia, Martine Lejeune, Jean-François Coudert
CNRS-University of Limoges, France

D3 May-31 9:40

Overview of some innovative coatings for electrical applications at Schneider Electric

Sophie Roure, Arnaud Gautier, Viviane Aristhène
Schneider Electric, France

D3 May-31 10:00

***A plasma-based surface treatment as an alternative to chromate-based conversion coating for Al alloys**

Sergey Ershov, Farid Khelifa, Marie-Eve Druart, Philippe Dubois, Marjorie Olivier, Rony Snyders
University of Mons, Belgium

D3 May-31 10:20

***Anodizing of Al alloys in tartaric, boric and sulfuric acids mixture**

Salah Salman, O Tetsuya, K Kuroda, M. Okido
Institute of materials and system for sustainability, Nagoya University, Japan
Mining, Metallurgy and Petroleum Engineering Dept., Al-Azhar University, Egypt

Coffee / Tea break 10:40 to 11:00

D3 May-31 11:00

***Thermo-mechanical and low cycle fatigue failure behavior relevant to temperature regime in a TBCed superalloy specimen**

Masakazu Okazaki
Nagaoka University of Technology, Japan

D3 May-31 11:20

***Development of a self-healing thermal barrier coating system for prolonged lifetime**

Willem G. Sloof
Delft University of Technology, The Netherlands

D3 May-31 11:40

Re-melting technique with high intense pulsed plasma beams applied for surface modification of steel. Own investigations.

Bozena Sartowska, Marek Barlak, Wojciech Starosta, Lech Walis, Jan Senatorski
Institute of Nuclear Chemistry and Technology, Poland

**invited presentation*

D3 May-31 12:00

*Low temperature surface hardening of stainless steel; the role of plastic deformation

Federico Bottoli, Freja Jespersen, Jesper Hattel, Thomas Christiansen, Grethe Winther, Marcel Somers
Technical University of Denmark, Denmark

D3 May-31 12:20

*Coatings of anodic titania nanotube arrays grown on titanium tubular electrodes

Lidong Sun
Chongqing University, China

D3 May-31 12:40

*Deposition and characterization of boron-carbon-nitrogen (BCN) thin films for wear-resistant applications

Tolga Tavsanoğlu, Michel Jeandin, Okan Addemir
Mugla Sıtkı Kocman University, Turkey

D3 May-31 13:00

*Control of the surface of quantum dots and semiconductor oxides for photovoltaics

Jianjun Tian
University of Science and Technology Beijing, China

D3 May-31 13:20

Crystallization behavior of cold sprayed pure Ni coatings

Pasquale Cavaliere
University of Salento, Italy

Lunch break 13:40 - Sessions restarts at 14:10
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Session: D4, Venue: (Room: Hall 11b)

Surface Engineering/Advanced Protective Coatings 4

Session Chairs: Veronique Vitry, France & Hidehiro Yasuda, Japan

D4 May-31 14:10

*Gas nitriding of high vanadium alloy steel

Haizhi Li, Weiping Tong, Liang Zuo

Northeastern University, China

D4 May-31 14:30

*Development of the advanced TBC for high efficiency gas turbine

Taiji Torigoe

Mitsubishi Heavy Industries, LTD, Japan

D4 May-31 14:50

*Can heat treatment improve duplex electroless nickel coatings?

Véronique Vitry, Fabienne Delaunois

UMONS, Belgium

D4 May-31 15:10

*Photo-excitation-induced silicides formation in Pt/SiO_x bilayer film

Hidehiro Yasuda

Osaka University, Japan

D4 May-30 15:30

*Enamel coatings for high temperature protection of superalloys

Minghui Chen, Shenglong Zhu, Fuhui Wang

Laboratory of Corrosion and Protection, China

Coffee / Tea break 15:50 to 16:10

D4 May-30 16:10

A ceria-dispersed nickel aluminide coating with the increased resistance to high temperature oxidation

Xiao Peng

Institute of Metal Research, Chinese Academy of Sciences, China

D4 May-30 16:30

*Preparation and its application of high performance plasma electrolytic oxidation (PEO) and its compound coatings on magnesium alloy

Wei Zhang, Fuhui Wang

Institute of Metal Research, Chinese Academy of Sciences, China

D4 May-30 16:50

*Development of low expansion coatings of reactive element modified Ni+CrN+AlN nonacomposite for high temperature protection

Shenglong Zhu, Lijuan Zhu, Pan Ren, Shichen Wang, Fuhui Wang

Institute of Metal Research, Chinese Academy of Sciences, China

D4 May-30 17:10

*Thermocyclic high temperature oxidation of intermetallic TiAl alloys and their protection by fluorine

Alexander Donchev, Mathias Galetz, Michael Schütze

DFI, Germany

**invited presentation*

D4 May-30 17:30

*Tantalum nitride structure selection: A new route to control diamond nucleation and growth?

Angéline Poulon, Maureen Cheviot, Mohamed Goune

University of Bordeaux, France

D4 May-30 17:50

Improvement of mechanical and wear characteristics at the welded joint of rail by ultrasonic nanocrystal surface modification

Seky Chang, Auezhan Amanov, Jun-Hyong Kim, Shirmendagva Darisuren, Young-Sik Pyun

Korea Railroad Research Institute, Korea

D4 May-30 18:10

*Environmental protection of γ -TiAl alloy by coatings

Reinhold Braun, Nadine Laska

Institute of Materials Research, Köln, Germany

Session: D5, Venue: (Room: Hall 11b)

Surface Engineering/Advanced Protective Coatings 5

Session Chairs: Jose Ocana, Spain & Alexander Donchev, Germany

D5 June-01 9:00

*Fabrication of copper pattern with high adhesion via nano-structuring of PET substrate

Junhyun Han

Chungnam National University, Korea

D5 June-01 9:20

*Surface modification of magnesium alloy by shot lining and laser heating

Yasunori Harada, Minoru Matsumoto, Masayuki Nunobiki, Katsuhiko Takahashi

University of Hyogo, Japan

D5 June-01 9:40

*Splat analysis and assessment of porosity in thermal barrier coatings produced by axial suspension plasma spraying (ASPS)

Uta Klement, Johanna Ekberg, Ashish Ganvir

Chalmers University of Technology, Sweden

D5 June-01 10:00

*Surface modification of interfacial structure of the novel solar cells

Meicheng Li

North China Electric Power University, China

D5 June-01 10:20

*Compressive residual stresses and associated surface modifications induced in Ti6Al4V by laser shock processing

José L. Ocaña, José L. González-Carrasco, Marcela Lieblich, Sandra Barriuso, Juan A. Porro, Leonardo Ruiz de Lara, Marcos Díaz, José A. Santiago

Universidad Politécnica de Madrid, Spain

Coffee / Tea break 10:40 to 11:10

D5 June-01 11:10

*Enabling diamond deposition with Cold Spray through the coated particle method

Rocco Lupoi

Trinity College, University of Dublin, Ireland

D5 June-01 11:30

*Formation of hierarchical intra-splat crack patterns in plasma sprayed ceramic splats

Guanjun Yang

Xi'an Jiaotong University, China

D5 June-01 11:50

*Enhanced corrosion resistance and cell behavior of NiTi shape memory alloy by titanium ion implantation

Yan Li, Ting Zhou, Peng Luo

Beihang University, China

D5 June-01 12:10

*Local surface phase stability during cyclic oxidation process

Sten Johansson

Linköping University, Sweden

D5 June-01 12:30

Influence of long heat treatments on the microstructure and mechanical behaviour of HVOF sprayed WC-CoCr and Cr₃C₂-25NiCr coatings

Elisabetta Gariboldi, Ludovica Rovatti, Nora Lecis, Luisa Mondora, Giacomo Andrea Mondora
Politecnico di Milano, Italy

D5 June-01 12:50

Formation and interaction of point defects in group IVb transition metal carbides and nitrides

Vsevolod Razumovskiy, Maxim Popov, Hong Ding, Joakim Odqvist
Materials Center Leoben Forschung GmbH, Austria

D5 June-01 13:10 Student

Growth of polycrystalline diamond films on Cu/CF composite materials using combustion CVD method

Clio Azina, Jean-François Silvain, Yongfeng Lu
ICMCB, France

D5 June-01 13:20 Student

Innovative thin films by DC reactive pulsed co-sputtering

Maxime Paraillous, L. Teule-Gay, D. Michau, T. Cardinal, A. Poulon-Quintin
ICMCB-CNRS, France

Lunch break 13:30 - Sessions restarts at 14:10
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Session: D6, Venue: (Room: Gallery A)

Ti Alloys/Aerospace Structural Metallic Materials 1

Session Chairs: Chong Soo Lee, Korea & Eri Miura-Fujiwara, Japan

D6 June-01 14:10 Keynote

***Combined effects of grain boundary convection and migration in dynamic phase transformations**

Frank Montheillet, David Piot

Ecole des Mines, France

D6 June-01 14:40

***Deformation anisotropy and associated mechanisms in rolling textured high purity titanium**

Jong Woo Won, Seong Gu Hong, Chong Soo Lee

POSTECH, Korea

D6 June-01 15:00

***Titanium oxide coating on Ti-based alloys for dental application**

Eri Miura-Fujiwara, Yoshimi Watanabe, Toshihiro Kasuga, Thoru Yamasaki, Mitsuo Niinomi

University of Hyogo, Japan

D6 June-01 15:20

Microstructure study of nickel-based superalloys after deep cold rolling

Balasubramanian Nagarajan, Sylvie Castagne

Nanyang Technological University, Singapore

Coffee / Tea break 15:40 to 16:10

D6 June-01 16:10

***Modelling of grain-boundary mobility and nucleation rate in Ni-Nb alloys during discontinuous dynamic recrystallization**

David Piot, Frank Montheillet

Mines Saint-Étienne, France

D6 June-01 16:30

***Influence of the beta / alpha+beta transformation on the stresses and strains evolutions during quenching of Ti17 and Ti6Al4V alloys from the beta phase field**

Julien Teixeira, Benoît Denand, Elisabeth Aeby-Gautier, Sabine Denis

Institut Jean Lamour - CNRS - Université de Lorraine, France

D6 June-01 16:50

High strength titanium alloys with harmonic structure for enhanced properties: Microstructure and mechanical properties

Shota Yokoyama, Tarik Sadat, Aziz Hocini, David Tingaud, Frédéric Momprou, Damien Faurie, Guy Dirras, Kei Ameyama

Université Paris 13, France

D6 June-01 17:10

***Variant selection in α/β Ti alloy**

Denis Solas, Sebastien Le Corre

Université Paris Sud, France

**invited presentation*

D6 June-01 17:30

Ultrafine-grained equiaxed and bimodal Ti-6Al-4V fabricated by thermomechanical processing

Yan Chong, Nobuhiro Tsuji

Kyoto University, Japan

D6 June-01 17:50

TEM observation of the evolution of the microstructure during aging of a betametastable titanium alloy

Joël Douin, Nicolas Bello, Florence Pettinari-Sturmel, Claude Archambeau

CNRS, France

D6 June-01 18:10

Analysis of deformation and internal defect in flat-wedge cross-wedge rolling of GH4169 superalloy

Yan Chen

Institute of Metal Research, Chinese Academy of Sciences, China

D6 June-01 18:30 Student

Characterization of phase transformations occurring in Ti-15Mo by in-situ methods

Pavel Zháňal

Charles University in Prague, Faculty of Mathematics and Physics, Czech Republic

Session: D7, Venue: (Room: Gallery A)

Ti Alloys/Aerospace Structural Metallic Materials 2

Session Chairs: Sengo Kobayashi, Japan & Frank Montheillet, France

D7 June-02 8:30 Keynote

***Development and research of low-cost titanium alloys, especially case of Japan**

Masahiko Ikeda

Kansai University, Japan

D7 June-02 9:00

Anisotropic characteristics and constitutive modelling of Ti6Al4V sheets deformed at elevated temperature and strain rate

Beatrice Valoppi, Stefania Bruschi, Andrea Ghiotti

Dept. of Industrial Engineering, University of Padova, Italy

D7 June-02 9:20

***Thermohydrogen treatment of beta titanium alloys**

Hans-Juergen Christ, Vitali Macin, Peter Schmidt

Universität Siegen, Germany

D7 June-02 9:40

***Understanding the mechanisms of blended powder sintering of Ti alloys using combined thermal analysis**

Stephen Corbin

Dalhousie University, Canada

D7 June-02 10:00

***Innovative route for elaborating metal/metal composite**

Damien Fabregue, Guilhem Martin, Florian Mercier

MATEIS, France

D7 June-02 10:20

***Progress in Titanium Machining**

Franz Haas, Philipp Zopf, Jörg Edler

Graz University of Technology, Austria

D7 June-02 10:40

***First principle analysis for the effect of beta stabilizer in Ti alloys on the formation of alpha double prime phase**

Sengo Kobayashi, Mitsuki Sugeoi, Tatsuaki Sakamoto

Ehime University, Japan

Coffee / Tea break 10:40 to 11:10

D7 June-02 11:10

***Multiscale study of heterogeneity and intermittence of plastic deformation of commercially pure titanium**

Mikhail Lebyodkin, Kékéli E.K. Amouzou, Tatiana Lebedkina, Thiebaud Richeton, Amandine Roth

CNRS, France

D7 June-02 11:30

***Influence of niobium content on the hot mechanical behavior of nickel alloys**

Nedjoua Matougui, David Piot, Mohamed Lamine Fares, Frank Montheillet

École nationale supérieure des mines et métallurgie (ENSMM), Algeria

**invited presentation*

D7 June-02 11:50

*Design of strong and stable "high entropy alloys" (HEA) by multi-objective optimisation using thermodynamics and physical models

Edern Menou, Isaac Toda-Caraballo, Pedro Rivera-Diaz-del-Castillo, Franck Tancret

University of Cambridge, United Kingdom

D7 June-02 12:10

*Fibre laser beam welding of Ti6242 - effect of parameter variation on microstructural and mechanical properties

Nikolai Kashaev, Dmitry Pugachev, Volker Ventzke, Stefan Riekehr

Helmholtz-Zentrum Geesthacht, Germany

D7 June-02 12:30

*Identification of pre-transformations of beta phase in metastable beta titanium alloy

Yudong Zhang, Jiangkun Fan, Jinshan Li, Hongchao Kou, Jaafar Ghanbaja, Lionel Germain, Claude Esling

University of Lorraine, France

D7 June-02 12:50

*High porosity titanium coatings by cold spraying for photocatalytic water splitting

Maria Villa Vidaller, Frank Gärtner, Agnieszka Rzeszutek, Thomas Klassen

Helmut-Schmidt-Universität, Germany

D7 June-02 13:10

Microstructure and processing map development of Ti-Al-Fe alloy

Yong-Taek Hyun

KIMS, Korea

Lunch break 13:30 - Sessions restarts at 14:10

Session: D8, Venue: (Room: Gallery A)

Ti Alloys/Aerospace Structural Metallic Materials 3

Session Chairs: Priti Wanjara, Canada & Yudong Zhang, France

D8 June-02 14:10

*Microstructure evolution in titanium alloys during large deformation in a wide temperature interval

Sergey Zharebtsov, Gennady Salishchev
Belgorod State University, Russia

D8 June-02 14:30

*The effect of rare earth Er on the microstructure and mechanical properties in high temperature titanium alloys

Bolong Li, Tongbo Wang, Peng Han, Zhenqiang Wang, Zuoren Nie
Beijing University of Technology, China

D8 June-02 14:50

High temperature tensile behavior in Si-bearing near alpha titanium alloy

Tatsuaki Sakamoto, Hiroshi Matsumura, Shohei Ohtsuka, Sengo Kobayashi
Ehime University, Japan

D8 June-02 15:10

Microstructure and creep property of silicon- and/or germanium-bearing near-alpha titanium alloys

Tomonori Kitashima, Suresh K.S., Toru Hara, Yoko Yamabe-Mitarai, Yoshiaki Toda
National Institute for Materials Science, Japan

Coffee / Tea break 15:30 to 16:00

D8 May-31 16:00

Evaluation of weldability of titanium alloy Ti-6Al-4V and aluminum alloy 6061 dissimilar welds produced by electron beam welding

Petr Havlík, Jan Kouřil, Rudolf Foret, Ivo Dlouhý, Norbert Enzinger, Christopher Wiednig
Brno University of Technology, Faculty of Mechanical Engineering, Czech Republic

D8 June-02 16:20

Modeling molten Ni-based superalloy properties

James Lill, Christopher Woodward
Air Force Research Laboratory, Ohio, USA

D8 June-02 16:40

*Influence of flash treatment on pseudoelastic behaviour of biomedical Ti-25Nb-3Zr-3Mo-2Sn alloy

Suming Zhu, Yuman Zhu, Matthew Dargusch, Jian-Feng Nie
Monash University, Australia

D8 June-02 17:00

Design and characterization of new titanium alloys combining high strength, high strain hardening and improved ductility

Frédéric Prima
Paris Tech, France

D8 June-02 17:20

*In-situ measurement of resistivity in pure titanium during elastic/plastic deformations

Masato Ueda, Takanori Sakamoto, Masahiko Ikeda
Kansai University, Japan

**invited presentation*

Session E

Room: Hall 11b

Session: E1, Venue: (Room: Gallery A)

Fuel Cells and Hydrogen Storage Technologies, Batteries, Supercapacitors and Thermoelectric Materials 1

Session Chairs: **Phillipe Knauth, France & Ludger Blum, Germany**

E1 May-30 10:30 Keynote

***Ionic conducting polymer electrolytes for electrochemical energy technologies**

Maria Luisa Di Vona

University of Rome Tor Vergata, Italy

E1 May-30 11:00

***Syntheses of novel hydrides under high pressure and high temperature**

Hiroyuki Saitoh, Shigeyuki Takagi, Katsutoshi Aoki, Shin-ichi Orimo

Japan Atomic Energy Agency, Japan

E1 May-30 11:20

***Re-shaping our thoughts on thermoelectric higher manganese silicides**

Stephane Gorsse, Solange Vivès

ICMCB-CNRS, France

E1 May-30 11:40

***New insights into high-temperature polymer electrolyte membrane fuel cells using electron microscopy techniques**

Christina Scheu

Max-Planck-Institut für Eisenforschung GmbH, Germany

E1 May-30 12:00

***Fuel cell electrodes based on electrospun mats**

Sara Cavaliere

ICGM/AIME Université de Montpellier/CNRS, France

E1 May-30 12:20

***Effect of electrolyte solution concentration and composition on the transport properties of ion exchange membranes for applications in energy conversion systems**

Enrica Fontananova, Diego Messina, Isabella Nicotera, Ramato Ashu Tufa, Gianluca Di Profio, Efrem Curcio, Willem van Baak, Enrico Drioli

National Research Council (CNR), Italy

E1 May-30 12:40

***Interface storage and diffusion of sodium ions in titania-based Na-ion battery anodes**

Ilie Hanzu, Denise Prutsch, Martin Wilkening

Technische Universität Graz, Austria

E1 May-30 13:00

***Studies of degradation mechanisms of PEFC catalyst layers through an in-situ SEM/STEM technique**

Akari Hayashi

Kyushu University, Japan

E1 May-30 13:20

***Evaluation of hot pressing parameters on the electrochemical performance of MEAs based on Aquivion® PFSA membranes**

Irene Gatto, Ada Saccà, Vincenzo Baglio, Antonino Salvatore Aricò, Martina Corasaniti, Luca Merlo

CNR ITAE, Italy

Lunch break 13:40 - Sessions restarts at 14:10

Session: E2, Venue: (Room: Gallery A)

Fuel Cells and Hydrogen Storage Technologies, Batteries, Supercapacitors and Thermoelectric Materials 2

Session Chairs: Maria di Vona, Italy & Yoshitsugu Kojima, Japan

E2 May-30 14:10 Keynote

***Synergistic action of hydrophobic and hydrophilic zirconium phosphate nanofillers for efficient mechanical reinforcement of perfluorosulfonic acid membranes**

Mario Casciola, Anna Donnadio, Monica Pica, Alessandra Carbone, Irene Gatto
Università di Perugia, Italy

E2 May-30 14:40

***Advances in the electrochemical synthesis of polymer electrolytes for microbatteries**

Philippe Knauth
CNRS - Aix-Marseille University, France

E2 May-30 15:00

***Neutron scattering studies of aluminum-based hydrides by high intensity total diffractometer (NOVA)**

Kazutaka Ikeda, Toshiya Otomo, Hidetoshi Ohshita, Naokatsu Kaneko, Tomohiro Seya, Fumika Fujisaki, Kentaro Suzuya
High Energy Accelerator Research Organization (KEK), Japan

E2 May-30 15:20

Impact of the confinement on the in-cage dynamics of molecular hydrogen in clathrate hydrates

Margarita Russina, Ewout Kemner, Ferenc Mezei
ESS ERIC, Hungary

Coffee / Tea break 15:40 to 16:10

E2 May-30 16:10

***Magnesium spinel oxides undergoing spinel-to-rocksalt transition for magnesium battery cathodes**

Tetsu Ichitsubo, Shinya Okamoto, Tomoya Kawaguchi, Kohei Shimokawa, Yu Kumagai, Fumiyasu Oba, Shunsuke Yagi, Eiichiro Matsubara
Kyoto University, Japan

E2 May-30 16:30

***Effects of additional elements on hydrogen storage properties for vanadium alloys**

Atsunori Kamegawa, Ryoichi Nammba, Masuo Okada
Muroran Institute of Technology, Japan

E2 May-30 16:50

***Temperature tolerant polymer electrolytes for PEMFC**

Je Deok Kim
National Institute for Materials Science (NIMS), Japan

E2 May-30 17:10

***Ammonia for hydrogen storage**

Martin Jones, Bill David, Josh Makepeace, Thomas Wood, Hazel Hunter
STFC, United Kingdom

**invited presentation*

E2 May-30 17:30

*Hydrogen storage materials for hydrogen economy

Yoshitsugu Kojima

Hiroshima University, Japan

E2 May-30 17:50

*Synthesis kinetics, stability and local order of amorphous $\text{La}_2\text{Mo}_2\text{O}_7$ -d, a potential SOFC anode material

Gaëtan Buvat, Jesus E. Vega Castillo, Uday K. Ravella, Houssem Sellemi, Philippe Lacorre

CNRS, France

E2 May-30 18:10

*Hydrogen production via thermochemical and electrochemical hybrid process by sodium alloy

Hiroki Miyaoka

Hiroshima University, Japan

E2 May-30 18:30

*Synthesis and corrosion effect on A_2Ni_7 intermetallics used as electrode material for Ni-MH batteries (A= La, Gd, Y, Sm or Mg)

Judith Monnier, Véronique Charbonnier, Junxian Zhang, Michel Latroche, Suzanne Joiret, Beatriz Puga, Vincent Vivier, Lionel Goubault, Patrick Bernard

UPEC and CNRS, France

E2 May-30 18:50

*Coupling experiments and models to interpret degradation in polymer electrolyte fuel cell

Andrea Casalegno, Andrea Baricci, Matteo Zago

Politecnico di Milano, Italy

E2 May-30 19:10

*Laser machining of ceramic electrolytes for solid oxide fuel cell applications

Angel Larrea, José Antonio Cebollero, Ruth Lahoz, Miguel Angel Laguna-Bercero, Jose Ignacio Peña, Victor Orera

Instituto de Ciencia de Materiales de Aragon (CSIC-U. Zaragoza), Spain

E2 May-30 19:30

*Investigation on SPEEK-porphyrin interaction for polymer electrolyte membranes portable applications

Alessandra Carbone, Ada Saccà, Rolando Pedicini, Irene Gatto, Massimiliano Gaeta, Andrea Romeo, Luigi Monsù Scolaro, Maria Angela Castriciano

CNR-ITAE, Italy

Session: E3, Venue: (Room: Gallery A)

Fuel Cells and Hydrogen Storage Technologies, Batteries, Supercapacitors and Thermoelectric Materials 3

Session Chairs: Mario Casciola, Italy & Benjamin Gould, USA

E3 May-31 8:30

*New materials for all-solid-state thin film Li and Li-ion batteries

Brigitte Pecquenard, Frédéric Le Cras, Florian Flamary, Vincent Pelé, Stéphane Cotte

ICMCB, France

E3 May-31 8:50

*Functionalization of the anodic 3D nanostructures by atomic layer deposition for energy applications

Lionel Santinacci, Loic Assaud, Maïssa Barr, Elena Baranova, Nicolas Brazeau, Nareerat Plylahan, Thierry Djenizian, Julien Bachmann, Margrit Hanbucken

CNRS - Aix-Marseille University, France

E3 May-31 9:10

*All-solid-state argyrodite-based lithium batteries

Virginie Viallet, Sylvain Boulineau, Jean-Marie Tarascon, Jean-Bernard Leriche, Vincent Seznec

UMR CNRS 7314, France

E3 May-31 9:30

*A Microbattery Made from Monocrystalline Silicon

Martin Wilkening

Graz University of Technology, Austria

E3 May-31 9:50

*Processing and thermoelectric properties of new Si-/ Se-/ Sn-based intermetallics

Wilfried Wunderlich, Masashi Sato, Yoshihito Matsumura

Tokai University, Faculty of Engineering, Japan

E3 May-31 10:10

*Defects and charging processes in Li-ion battery cathodes studied by in-operando magnetometry and positron annihilation

Roland Würschum, Stefan Topolovec, Harald Kren, Gregor Klinser, Stefan Koller, Heinz Krenn, Christof Hugenschmidt, Frank Berkemeier, Martin Fiedler, Wolfgang Sprengel

Graz University of Technology, Austria

Coffee / Tea break 10:30 to 11:00

E3 May-31 11:00

*Characterization of electrodeposited manganese oxide layer for advanced capacitor electrode

Cheng Xu, Jikang Liu, Zhenlun Song

Ningbo Institute of Material Technology and Engineering Chinese Academy of Sciences, China

E3 May-31 11:20

*Analysis of hydrogen solubility and diffusivity toward the design of V-based alloy membranes with high hydrogen permeability and strong resistance to hydrogen embrittlement

Hiroshi Yukawa

Nagoya University, Japan

**invited presentation*

E3 May-31 11:40

*Solid oxide fuel cell and stack development at Forschungszentrum Jülich

Ludger Blum, L.G.J. de Haart, Jürgen Malzbender, Nikolaos Margaritis, Norbert H. Menzler

Forschungszentrum Jülich GmbH, Germany

E3 May-31 12:00

*Interfaces in metal-supported electrochemical energy converters

Martin Bram, Daniel Roehrens, Veronika Rojek, Marco Brandner, Alexander Opitz

Forschungszentrum Jülich GmbH, Germany

E3 May-31 12:20

Fluorinated copolymer membranes via initiated chemical vapor deposition

Paul Christian

Graz University of Technology, Austria

E3 May-31 12:40

*Hydrogenation properties of supported metal nanoparticles on graphene

Shigehito Isobe

Hokkaido University, Japan

E3 May-31 13:00

Framework structures for magnesium battery cathodes

Shunsuke Yagi, Masaaki Fukuda, Tetsu Ichitsubo, Eiichiro Matsubara

Osaka Prefecture University, Japan

E3 May-31 13:20 Student

*Lightweight titanium metal bipolar plates for PEM fuel cells

Benjamin Gould, Karen Swider-Lyons

US Naval Research Laboratory, USA

Lunch break 13:30 - Sessions restarts at 14:10

Session: E4, Venue: (Room: Hall 11b)

Additive Manufacturing 1

Session Chairs: Aude Simar, Belgium & Jean-Yves Hascoet, France

E4 May-31 14:10 Keynote

***Large scale metal additive manufacture for engineering parts**

Stewart Williams, Jialuo Ding, Filomeno Martina, Paul Colegrove
Cranfield University, United Kingdom

E4 May-31 14:40

***Additive manufacturing of parts from advanced materials by 3D screen printing**

Olaf Andersen, Thomas Studnitzky, Bernd Kieback
Fraunhofer IFAM Dresden, Germany

E4 May-31 15:00

***Microstructure tailoring by selective laser melting pulse optimisation**

M. Brochu, J. Milligan, R. Chou, R. Trespalacios, X. Wang
McGill University, Canada

E4 May-31 15:20

***Direct fabrication of hydroxyapatite by selective laser melting**

Shihai Sun, Takeo Kurozumi, Takayoshi Nakano
Osaka University, Japan

Coffee / Tea break 15:40 to 16:00

E4 May-31 16:00

***Rapid, high-throughput mechanical properties measurements of additively manufactured metals**

Brad Boyce, Brad R. Salzbrenner, Bradley H. Jared, Jeffrey M. Rodelas, Jonathan D. Madison
Sandia National Lab, USA

E4 May-31 16:20

In situ X-ray diffraction studies on rapidly solidified alloys under additive manufacturing conditions

Christoph Kenel, Daniel Grolimund, Julie Louise Fife, Vallerie Ann Samson, Steven Van Petegem, Helena Van Swygenhoven, Christian Leinenbach
Empa, Switzerland

E4 May-31 16:40

Usability of Ti6Al4V powder via hydride-dehydride process for selective laser melting process

Naoko Sato, Masaki Ito, Takayuki Izumida, Toru Shimizu, Shizuka Nakano
National institute of advanced industrial science and technology, Japan

E4 May-31 17:00

***Rotary bending fatigue behavior of selective-laser-melted Type 630 stainless**

Yoshihiko Uematsu, Toshifumi Kakiuchi, Masaki Nakajima, Masayuki Akita
Gifu University, Japan

E4 May-31 17:20

***Advances in process qualification for powder-bed electron beam additive manufacturing by temperature simulation and measurement**

Kevin Chou
The University of Alabama, USA

**invited presentation*

E4 May-31 17:40

*Friction stir processing (FSP) of selective laser melting (SLM) produced Al-CNT composites

Zhenglin Du, Ming-Jen Tan, Junfeng Guo, Jun Wei, Chee Kai Chua

Nanyang Technological University, Singapore

E4 May-31 18:00

Feedstock development for enhanced control of the direct ink write additive manufacturing process

Andrew Schmalzer, Andrea Labouriau, Kwan-Soo Lee, Brittany Branch, Alexander Mueller, Denisse Ortiz-Acosta

Los Alamos National Laboratory, USA

E4 May-31 18:20

Microstructure of fiber laser deposited WC-Co cemented carbide and carbon steel

Pei-quan Xu, Leijun Li

University of Alberta, Canada

E4 May-31 18:40

Process parameter optimization of fused deposition modeling for helical surfaces using grey relational analysis

John Tharappel Devasia, Anusree T.G, Anjan R, Sivadasan M

Government College of Engineering, Kannur, India

E4 May-31 19:00

*Further development of a predictive tool for managing distortion in electron beam additive manufacturing

Vu Nguyen, Sri Lathabai, Yuqing Feng, John Barnes, Gary Coleman

CSIRO, Australia

E4 May-31 19:20

Additive manufacturing of energetic materials: Enabling a new design parameter for controlled performance 970

Alexander Mueller

Los Alamos National Lab, USA

E4 May-31 19:40

The effect of post processing heat treatments on the microstructure of the nickel-based superalloy CM247LC following selective laser melting

Rocio Muñoz Moreno, V. D. Divya, Olivier Messé, Sarah Driver, Trevor Illston, Scarlett Baker, Michael Carpenter, Howard Stone

University of Cambridge, United Kingdom

E4 May-31 20:00

*Stereo-lithographic additive manufacturing of ceramic and metal components by using nanoparticle paste feeding

Soshu Kiriara

Osaka University, Japan

E4 May-31 20:20 Student

Analysis of Thin Strip Shape and Profile in cold rolling: A way to Improve Strip Profile and Mechanical Properties

Hasan Tibar, Zhentyi Jiang

University of Wollongong, Austria

Session: E5, Venue: (Room: Hall 11b)

Additive Manufacturing 2

Session Chairs: Olaf Andersen, Germany & Suman Das, USA

E5 June-01 8:30 Keynote

***Additive manufacturing – paving the way to industrial application**

Christoph Leyens

TU-Dresden, Germany

E5 June-01 9:00

***Progress in the understanding of the microstructure evolution of direct laser fabricated TiAl**

Marc Thomas

ONERA, France

E5 June-01 9:20

***In-situ neutron diffraction measurements during loading and annealing of additively manufactured materials**

Donald Brown, Bjorn Clausen, Amanda Wu, David Adams, Benjamin Reedlunn

Los Alamos National Laboratory, USA

E5 June-01 9:40

***Laser deposition repair of AA7075 alloy components using Al-12Si powder**

Xinjin Cao, P Wanjara, N. Penvern, J. Gholipour, R. Amos, K. Chiu

NRC, Canada

E5 June-01 10:00

***Effects of laser power on track profile and structure formation during selective laser melting of CoCrMo alloy**

Zhan Chen, K. Darvish, T. Pasang

Auckland University of Technology, New Zealand

E5 June-01 10:20

***Electron beam melting of Ti-6Al-4V: Effect of post-processing conditions on the microstructure and mechanical properties**

Stephane Godet, Sebastien Michotte, Adrien Dolimont, Charlotte de Formanoir

Université Libre de Bruxelles, Belgium

Coffee / Tea break 10:40 to 11:10

E5 June-01 11:10

***New metallurgy of additive manufacturing in metal: experiences from the material and process development with electron beam melting technology (EBM)**

Andrey Koptioug

Mid Sweden University, Sweden

E5 June-01 11:30

***Effects of powders on the EBM process and on as-built materials**

Guilhem Martin, Rémy Dendievel, Jean-Jacques Blandin, Mathieu Suard, Edouard Chauvet

CNRS/Université de Grenoble, France

E5 June-01 11:50

***Challenges of material science in additive manufacturing. Some case studies with CLAD process**

Surendar Marya, Jean Yves Hascoet

Ecole Centrale, France

**invited presentation*

E5 June-01 12:10

*Microstructural evolution during the heat treatment of laser beam melted AlSi10Mg

Anne Mertens, Olivier Dedry, David Reuter, Olivier Rigo, Jacqueline Lecomte-Beckers

University of Liège, Belgium

E5 June-01 12:30

*Development of a new powder/solid composite for bio-mimic anisotropic implant materials by electron-beam additive manufacturing

Takayoshi Nakano, Hidetsugu Fukuda

Osaka University, Japan

E5 June-01 12:50

*Influence of the scan speed on the microstructure of AlSi10Mg processed by additive manufacturing

Pauline Delroisse, Pascal Jacques, Olivier Rigo, Eric Maire, Aude Simar

Universite Catholique de Louvain, Belgium

E5 June-01 13:10

*Additive processing of materials with a higher carbon content

Aziz Huskic

University of Applied Sciences Upper Austria, Austria

E5 June-01 13:30

*Additive manufacturing process development for turbine engine hot-section nickel-based superalloys through scanning laser epitaxy

Suman Das

Georgia Institute of Technology, USA

Lunch break 13:50 - Sessions restarts at 14:10

Session: E6, Venue: (Room: Hall 11b)

Smart/Intelligent Materials and Processes 1

Session Chairs: Kiyoshi Mizuuchi, Japan & Vladimir Brailvoski, Canada

E6 June-01 14:10 Keynote

***Thermo-mechanical training of Fe-Mn alloys to improve damping capacity**

Yoshimi Watanabe, Hisashi Sato

Nagoya Institute of Technology, Japan

E6 June-01 14:40

***Multi-functionality of nanostructured silicon**

Nobuyoshi Koshida

Tokyo University, Japan

E6 June-01 15:00

***Shape recovery of polymeric matrix composites by IR heating**

Loredana Santo, Denise Bellisario, Fabrizio Quadrini

University of Rome Tor Vergata, Italy

E6 June-01 15:20

***Enhanced sintering densification of yttria ceramics by means of field-assisted and flash sintering techniques**

Hidehiro Yoshida, Yoshio Sakka, Takahisa Yamamoto, Jean-Marie Lebrun, Rishi Raj

National Institute for Materials Science, Japan

Coffee / Tea break 15:40 to 16:10

E6 June-01 16:10

***Hot compaction of mechanically alloyed high nitrogen stainless steel powders by plasma sintering**

Hidenori Ogawa

College of Industrial Technology Amagasaki, Japan

E6 June-01 16:30

***Superelastic Ni-free alloys for biomedical applications processed by selective laser melting**

Vladimir Brailovski, Sergey Prokoshkin, Alena Kreitchberg, Sergey Dubinskiy, Anton Konopatsky, Karine Inaekyan

Ecole de Technologie Supérieure, Canada

E6 June-01 16:50

***Susceptor design and in-situ shrinkage-temperature measurement during microwave sintering of oxides**

Sylvain Marinel, Rodolphe Macaigne, Anthony Thuault, Etienne Savary

CRISMAT laboratory, France

E6 June-01 17:10

***Anisotropy in microstructure and mechanical properties of superalloys (Inconel718) by selective laser forming (SLF)**

Hideshi Miura

Kyushu University, Japan

E6 June-01 17:30

***Effects of particle size on fabrication of Al-TiO₂ functionally graded materials by centrifugal mixed-powder method**

Hisashi Sato, Junya Maeda, Motoko Yamada, Yoshimi Watanabe

Nagoya Institute of Technology, Japan

**invited presentation*

E6 June-01 17:50

*DSC analysis of martensitic transformation temperature in casted Ti–Ni shape memory alloy

Kazuhiro Kitamura

Aichi University of Education, Japan

E6 June-01 18:10

Mechanical properties of shape memory alloy fiber / aluminum composite fabricated by spark plasma sintering

Yoshiki Komiya, Fumihiko Nabeshima, Hiroshi Izui

Nihon University, Japan

E6 June-01 18:30 Student

Ultrasound assisted hydrometallurgical process for Gold recovery from PCBs using thiosulphate as complexing agent

Pietrogiovanni Cerchier, Katya Brunelli, Manuele Dabalà

University of Padova, Italy

Session: E7, Venue: (Room: Hall 11b)

Smart/Intelligent Materials and Processes 2

Session Chairs: Loredana Santo, Italy & Hisashi Serizawa, Japan

E7 June-02 8:30 Keynote

*** Development of high-temperature shape memory alloys above 673 K**

Yoko Yamabe-Mitarai

NIMS, Japan

E7 June-02 9:00

***Supercritical fluids-based technologies for advanced materials**

Cyril Aymonier

ICMCB-CNRS, France

E7 June-02 9:20

***Plasma-based aerosol process for the production of single digit nanometer-sized particles from metal, oxide, semi-conductor and polymer**

Jean-Pascal Borra, Nicolas Jidenko, Alfred Weber

CNRS-Univ. Paris-Saclay, France

E7 June-02 9:40

***Heat treatment of biomedical Ni-Ti alloys – towards a one-step procedure for optimizing biocompatibility, pseudo elasticity and dimensional accuracy**

Andreas Undisz, Robert Hanke, Katharina Freiberg, Markus Rettenmayr

Friedrich Schiller University, Germany

E7 June-02 10:00

***Crystal structure and microstructure of Ni-Mn-In martensite and the mechanical behaviour of martensite variants**

Claude Esling, Haile Yan, Yudong Zhang, Xiang Zhao, Liang Zuo

LEM3 UMR 7239, CNRS, France

E7 June-02 10:20

***Design of functional oxide nanomaterials: From nanoparticle synthesis to original densification route**

Graziella Goglio, Arnaud Ndayishimiye, Stéphane Mornet, Alain Largeteau

CNRS, France

Coffee / Tea break 10:40 to 11:10

E7 June-02 11:10

***Magnetic shape memory effect in Ni-Mn-Ga single crystal**

Oleg Heczko

Institute of Physics, Czech Republic

E7 June-02 11:30

***Development of an electrically-debondable smart dental cement**

Noboru Kajimoto, Emi Uyama, Kazumitsu Sekine, Kenichi Hamada

Tokushima University, Japan

E7 June-02 11:50

***Crystal orientation control and magnetostrictive performance of RFe₂-based alloys by high magnetic fields**

Qiang Wang

Northeastern University, China

**invited presentation*

E7 June-02 12:10

*Development of joining method for zircaloy and SiC/SiC composite tubes by using diode laser

Hisashi Serizawa, Yuuki Asakura, Daichi Tanigawa, Hirotaka Motoki, Masahiro Tsukamoto, Joon-Soo Park, Hirotatsu Kishimoto, Akira Kohyama
Osaka University, Japan

E7 June-02 12:30

*Structure and microstructure of the phases involved in functional behavior in Co-Ni-Al and Ni-Mn-Ga systems

Jaromír Kopeček
Institute of Physics AS CR, Czech Republic

E7 June-02 12:50 Student

Torsional piezoelectric strain in monocrystalline paratellurite

Guillaume Boivin, Pierre Belanger, Ricardo J. Zednik
École de technologie supérieure Montréal, Canada

E7 June-02 13:00 Student

Phases stability study of the shape memory alloy CuAl-X (X = Be, Zn, Ti, Ni, Ag and Au) by ab initio calculations

Nassim Boudalia, Jean-Marc Raulot, Etienne Patoor, Claude Esling
University of Lorraine, France

Lunch break 13:20 - Sessions restarts at 14:10
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Session: E8, Venue: (Room: Hall 11b)

Smart/Intelligent Materials and Processes 3

Session Chairs: Yoshimi Watanabe, Japan & Bernhard B. Sonderegger, Austria

E8 June-02 14:10

*Synthesis of β -FeSi₂ by directly applied current sintering and its thermoelectric properties

Mikio Ito, Kenta Kawahara

Osaka University, Japan

E8 June-02 14:30

*Thermal conductivity of cubic boron nitride particle dispersed Al matrix composites fabricated by SPS

Kiyoshi Mizuuchi, Kanryu Inoue, Yasuyuki Agari, Motohiro Tanaka, Takashi Takeuchi, Jun-ichi Tani, Masakazu Kawahara, Yukio Makino, Mikio Ito

Osaka Municipal Technical Research Institute, Japan

E8 June-02 14:50

*Effects of alloy composition on phase transition temperatures of CoMnSi compounds

Katsunari Oikawa, Shun Saito, Nobuhumi Ueshima

Tohoku University, Japan

E8 June-02 15:10

*Soft matters containing self-propelled nanometer and micrometer-scale particles spontaneously generate large-scale mechanical network

Kazuhiro Oiwa

National Institute for Information and Communication Technology, Japan

Coffee / Tea break 15:30 to 16:00

E8 June-02 16:00

*Processing shape memory alloys and its composites by powder metallurgy

Jose San Juan, Gabriel A. López, Mariano Barrado, Oscar A. Ruano, Maria L. Nó

Universidad del Pais vasco, Bilbao, Spain

E8 June-02 16:20

*Magnetic shape memory - polymer hybrids

Ilkka Aaltio, Frans Nilsén, Joonas Lehtonen, Yanling Ge, Simo-Pekka Hannula

Aalto University, Finland

E8 June-02 16:40

*Fabrication and anisotropic properties of oriented $\text{Li}_{1+x-y}\text{Nb}_{1-x-3y}\text{Ti}_x+4\text{yO}_3$ solid solutions by slip casting in a high magnetic field

Hiromi Nakano, Shohei Furuya, Tohru Suzuki, Hitoshi Ohsato

Toyohashi University of Technology, Japan

E8 June-02 17:00

Dependence of frequency and electric conductivity on current distribution in SPS process

Tatsuya Misawa, Hiroaki Kodera, Yuji Kawakami, Masakazu Kawahara

Saga University, Japan

E8 June-02 17:20

Analysis of pre-strain in a hybrid forming process including stretch and incremental sheet forming

Fabio Lora, Bruno Caetano, Rodrigo S. Coelho, Lirio Schaeffer

Senai Cimatec, Brazil

**invited presentation*

E8 June-02 17:40

Determination of crystallographic orientation near a chill zone using ghost lines

Hisao Esaka, Takuya Ishida, Atsuya Yoshimoto, Kei Shinozuka

National Defence Academy, Japan

Session F

Room: Gallery C

Session: F1, Venue: (Room: Gallery C)

Interfaces, Grain Boundaries and Structural Characterization Techniques 1

Session Chairs: Dmitri Molodov, Germany & Seiichiro Ii, Japan

F1 May-30 10:30 Keynote

***Revisiting the hardening precipitates in high strength aluminum alloys by atomic-resolution electron microscopy**

Jianghua Chen

Hunan University, China

F1 May-30 11:00

***Formation and dissolution of hydride precipitates in zirconium alloys: Crystallographic orientation relationships and stability after temperature cycling**

Egle Conforto, Cyril Berziou, Stephane Cohendoz, Patrick Girault, Xavier Feaugas

University of La Rochelle, France

F1 May-30 11:20

***Quantitative microstructural analysis for age-hardenable Cu-based alloys using extraction technique**

Satoshi Semboshi, Shigeo Sato, Akihiro Iwase

Tohoku University, Japan

F1 May-30 11:40

***The interface structure between CIGS and Mo films**

Limei Cha, Junfeng Han, Rong Huang, Liangliang Fan

Hunan University, China

F1 May-30 12:00

***Characterization of interfacial segregation in magnesium alloys**

Houwen Chen

Chongqing University, China

F1 May-30 12:20

***Control of microstructure of high anisotropic FePt film through interface modification and doping**

Jingsheng Chen

National University of Singapore, Singapore

F1 May-30 12:40

***Atomically-resolved spectroscopy for emergent phenomena at oxide interfaces**

Ming-Wen Chu

National Taiwan University, Taiwan

F1 May-30 13:00

*** Quantitative transmission electron microscopy studies on deformation mechanisms in nanotwinned copper**

Kui Du, Ning Lu, Lei Lu, Hengqiang Ye

Institute of Metal Research, Chinese Academy of Sciences, China

F1 May-30 13:20

Size effects and plasticity of thin metallic materials: influence of the crystallographic structure and the stacking fault energy

Gwendoline Fleurier, Eric Hug, Pierre-Antoine Dubos, Mayerling Martinez

Normandie Université, CRISMAT, France

Lunch break 13:40 - Sessions restarts at 14:10

Session: F2, Venue: (Room: Gallery C)

Interfaces, Grain Boundaries and Structural Characterization Techniques 2

Session Chairs: Eric Hug, France & Jianghua Chen, P. R. China

F2 May-30 14:10

* Alloying effects on grain boundary motion and nanocrystal stability

Stephen Foiles, Fadi Abdeljawad, Christopher O'Brien

Sandia National Laboratories, USA

F2 May-30 14:30

*Measurement of grain boundary chemistry and crystallography by atom probe tomography and correlated electron microscopy

Michael Herbig, Margarita Kuzmina, Christian Haase, Dmitri Molodov, Ross Marceau, Ivan Gutierrez-Urrutia, Shoji Goto, Stefan Zaefferer, Pyuck-Pa Choi, Dierk Raabe

Max-Planck-Institut für Eisenforschung GmbH, Germany

F2 May-30 14:50

*Micro-scale strength evaluation for bonding interface of cold sprayed coatings

Yuji Ichikawa, Ryotaro Tokoro, Kauhiro Ogawa

Tohoku University, Japan

F2 May-30 15:10

*Visualization of elastic strain around various interfaces by TEM image analysis

Seiichiro Ii

National Institute for Materials Science, Japan

Coffee / Tea break 15:30 to 16:10

F2 May-30 16:10

*Effects of deformation induced structural variations on recrystallization of metals

Dorte Juul Jensen

DTU, Denmark

F2 May-30 16:30

*Effect of grain boundary microstructure on electrical conductivity in gold thin films produced by sputtering and subsequent annealing

Shigeaki Kobayashi, Yoshihito Sugiyama, Kazuma Ishibashi

Ashikaga Institute of Technology, Japan

F2 May-30 16:50

Direct imaging of mechanically or thermally induced grain structure changes in nanocrystalline metals

Christian Kuebel, Aaron Kobler, Krishna Kanth, Horst Hahn

KIT, Germany

F2 May-30 17:10

*Phosphorus at grain boundaries of iron and steels: An overview

Pavel Lejček, Siegfried Hofmann, Mojmír Šob

Institute of Physics, AS CR, Czech Republic

F2 May-30 17:30

*Atomistic experimental and simulation investigation on the modification of Al-Si alloys

Jiehua Li

Montanuniversität Leoben, Austria

**invited presentation*

F2 May-30 17:50

*Real-time STEM imaging of nucleation, growth and transformation of the precipitates in age-hardening Al-Cu-(Mg) alloys during in-situ heating

Chunhui Liu, Limei Liu, Peipei Ma, Jianghua Chen, Henny Zandbergen

Center for High Resolution Electron Microscopy, College of Materials Science and Engineering, China

F2 May-30 18:10

*STEM and TEM observations of defects distribution of Ge/Si annealed by new heating method using plasma technique

Junji Yamanaka, Chiaya Yamamoto, Kazuki Kamimura, Hiroki Nakaie, Tetsuji Arai, Keisuke Arimoto, Kiyokazu Nakagawa

University of Yamanashi, Japan

F2 May-30 18:30

*Atomic structure and interface layers in thin films oxide heterostructures

Regina Ciano

CNR IOM TASC, Italy

F2 May-30 18:50 Student

The effects of Fe on the microstructure and the interface between hypereutectoid Cu-Al-Fe coatings and steel substrate

Pawee Kucita, Shuncai Wang, Wen-Sheng Li, Marco Starink

University of Southampton, United Kingdom

Session: F3, Venue: (Room: Gallery C)

Interfaces, Grain Boundaries and Structural Characterization Techniques 3

Session Chairs: Douglas Medlin, USA & Pavel Lejcek, Czech Republic

F3 May-31 8:30

*Grain boundary dynamics and grain rotation in aluminum bicrystals

Dmitri Molodov, Luis Barrales-Mora, Jann-Erik Brandenburg

RWTH Aachen University, Germany

F3 May-31 8:50

*Electric conductivity along lattice defects in lithium niobate

Atsutomu Nakamura, Yuho Furushima, Eita Tochigi, Yuichi Ikuhara, Kazuaki Toyoura, Katsuaki Matsunaga

Nagoya University, Japan

F3 May-31 9:10

*The effect of grain boundary segregation on embrittlement and magnetism in metallic systems

Mojmír Šob, Pavel Lejček, Monika Všianská

Masaryk University, Brno, Czech Republic

F3 May-31 9:30

*TEM study of dislocations and stacking faults in low-angle grain boundaries of alumina

Eita Tochigi, Atsutomu Nakamura, Teruyasu Mizoguchi, Naoya Shibata, Yuichi Ikuhara

The University of Tokyo, Japan

F3 May-31 9:50

*Strain rate dependent failure of material interfaces at nano-microscale via nanoimpact experiments

Vikas Tomar

Purdue University West Lafayette, USA

F3 May-31 10:10

*Grain boundary plane orientations in recrystallized high purity aluminum and iron

Weiguo Wang

Fujian University of Technology, China

Coffee / Tea break 10:30 to 11:00

F3 May-31 11:00

*Deformation mechanisms of a Fe-20Mn-3Al-3Si steel with different deformation processes

Cuilan Wu, Xie Pan, Jianghua Chen, Yan Chen, Zhen Liu

Hunan University, China

F3 May-31 11:20

*Novel structures of TiO₂ films prepared by modified hydrothermal method

Hangsheng Yang, Jie Ding, Xiaobin Zhang

Zhejiang University, China

F3 May-31 11:40

*Direct mapping of a periodic array of flux-closure quadrants in strain-mediated ferroelectric PbTiO₃ films

Yinlian Zhu, Yunlong Tang, Xiuliang Ma

Institute of Metal Research, Chinese Academy of Sciences, China

**invited presentation*

F3 May-31 12:00

*Assessment of creep tendencies in Cu-Al thin wires: correlation with pure Cu and Al behaviors

Antoine Gueydan, Eric Hug
CRISMAT laboratory, France

F3 May-31 12:20

Grain boundary engineering of ECAPed OFHC copper

Wen Feng, Junhui Zhang, Sen Yang
Nanjing University of Science and Technology, China

F3 May-31 12:40

*Exploring the interface-induced phenomena in thin film materials using advanced transmission electron microscopy

Zaoli Zhang
Erich Schmid Institute of Materials Science, Austria

F3 May-31 13:00

*Grain boundaries and their junctions by atomistic and mesoscopic simulations

Luis Barrales-Mora
RWTH Aachen University, Germany

F3 May-31 13:20

*Tunability of the domain structure of $\text{Pb}_x\text{Sr}_{1-x}\text{TiO}_3$ thin film capacitors and its effect on the dielectric response

Stephanie Fernandez-Pena, Céline Lichtensteiger, Pavlo Zubko, Christian Weyman, Stefano Gariglio, Jean-Marc Triscone
University of Geneva, Switzerland

Lunch break 13:40 - Sessions restarts at 14:10

Session: F4, Venue: (Room: Gallery C)

Interfaces, Grain Boundaries and Structural Characterization Techniques 4

Session Chairs: Sadahiro Tsurekawa, Japan & Eita Tochigi, Japan

F4 May-31 14:10

* Combination of techniques for microstructure characterization as a tool for optimized and new pipe products
Juliane Mentz, Matthias Frommert, Charles Stallybrass

F4 May-31 14:30

*Exploring the interplay between grain boundary facet junctions and dislocations
Douglas Medlin
Sandia National Laboratories, USA

F4 May-31 14:50

*On interface boundary structures and compositions in aluminum alloys
Linghong Liu, Jianghua Chen, Touwen Fan, Dingwang Yuan, Zhen Liu
Hunan University, China

F4 May-31 15:10

*Nanoindentation study on incipient plasticity in the vicinity of grain boundaries in nickel and sulphur-doped nickel
Sadahiro Tsurekawa
Japan

Coffee / Tea break 15:30 to 16:10

F4 May-31 16:10

The role of structural contribution in grain boundary segregation and cohesion of Ti
Vsevolod Razumovskiy, Lorenz Romaner
Materials Center Leoben Forschung GmbH (MCL), Austria

F4 May-31 16:30

Observation of interactions between crystal defects by applying in situ nanoindentation in a TEM
Ling Zhang, Zhen Chen, Tianlin Huang, Zongqiang Feng
Chongqing University, China

F4 May-31 16:50

* Identification of oxide nano-octahedron and its chemical behaviours in stainless steels
Xiuliang Ma, Shijian Zheng, Yujia Wang, Bo Zhang, Yangtao Zhou
Institute of Metal Research, Chinese Academy of Sciences, China

F4 May-31 17:10

The interface character distribution and intergranular corrosion resistance of duplex stainless steel UNS S32304
Jiangsheng Zhang, Yanli Zhu, Xiaoying Fang, Wenhong Yin, Congxiang Qin
Shandong University of Technology, China

F4 May-31 17:30

B effect on hardenability of high thickness forged steel materials
Sabrina Mengaroni, Andrea Di Schino, Stefano Neri, Massimo Calderini
Centro Sviluppo Materiali, Italy

**invited presentation*

F4 May-31 17:50

*Reactive plasma depositions of gallium nitride thin films on amorphous substrates and their properties

Yuichi Sato

Akita University, Japan

F4 May-31 18:10

*Atomic-scale study on dopant atom segregation in oxide grain boundaries

Naoya Shibata, Eita Tochigi, Yuichi Ikuhara

The University of Tokyo, Japan

F4 May-31 18:30

*Interfaces in functional materials: a pathway to design better properties

Oana Cojocaru-Miredin

Aachen University, Germany

F4 May-31 18:50

Crystal growth under steady shear-flow field on molecular dynamic simulation

Hailong Peng, Thomas Voigtmann, Dieter Herlach

Ruhr-University Bochum, Germany

F4 May-31 19:10 Student

A Study on the microstructural characterization of René 142 deposited atop René 80 processed through scanning laser epitaxy

Amrita Basak, Suman Das

Georgia Institute of Technology, USA

Session: F5, Venue: (Room: Gallery C)

Mg Alloys 1

Session Chairs: Karl U. Kainer, Germany & Patrik Dobron, Czech Republic

F5 June-01 8:30 Keynote

***Improving creep resistance of magnesium alloys**

Norbert Hort, Hajo Dieringa

Helmholtz-Zentrum Geesthacht, Germany

F5 June-01 9:00

***Investigations on hot tearing susceptibility and its mechanism of Mg-Zn-Y alloys**

Liu Zheng

Shenyang University of Technology, Republic of China

F5 June-01 9:20

***From single crystals to textured Mg alloys: Acoustic emission study**

Patrik Dobron, Daria Drozdenko, Jan Bohlen, František Chmelík

Charles University in Prague, Czech Republic

F5 June-01 9:40

***Deformation twinning in HCP metals: Nucleation, growth, and interactions**

Jian Wang

University of Nebraska-Lincoln, USA

F5 June-01 10:00

***Activation stress of slip systems in magnesium single crystals by pure shear test**

Shinji Ando, Kazutaka Fukuda, Yuta Koyanagi, Masayuki Tsushida, Hiromoto Kitahara

Kumamoto University, Japan

F5 June-01 10:20

***Hot deformation behavior and stability criteria of magnesium alloy WE54**

Manuel Carsi, Ignacio Rieiro, Oscar Ruano

CENIM-CSIC, Spain

Coffee / Tea break 10:40 to 11:10

F5 June-01 11:10

***Microstructure, texture and mechanical properties of magnesium alloys under special processing conditions**

Rongshi Chen, Jun Luo, Mingguang Jiang

Institute of Metal Research, Chinese Academy of Sciences, Republic of China

F5 June-01 11:30

Precipitation hardening against slip and twinning in magnesium alloys

Paloma Hidalgo-Manrique, María Teresa Pérez-Prado, Joseph D. Robson

The University of Manchester, United Kingdom

F5 June-01 11:50

***Formation of hydrogen by ball milling of Mg and Mg alloy in sea water**

Kunio Matsuzaki, Takashi Murakami

National Institute of Advanced Industrial Science and Technology(AIST), Japan

**invited presentation*

F5 June-01 12:10

*Development of high-performing extruded magnesium alloy

Hyunkyu Lim, Youngkyun Kim, Bonghwan Kim, Daeguen Kim, Young-Ok Yoon, Shae K. Kim
Korea Institute of Industrial Technology, Republic of Korea

F5 June-01 12:30

*Bending deformation of Mg single crystals by three-point bending tests

Hiromoto Kitahara, Yuta Hirokawa, Masayuki Tsushida, Shinji Ando
Kumamoto University, Japan

F5 June-01 12:50

*Towards the development of Mg alloys formable at room temperature

Jinghuai Zhang, Alireza Zargaran, Jae H. Kim, Jihyun Hwang, Byeong-chan Suh, T. T. T. Trang, Nack Joon Kim
POSTECH, Republic of Korea

F5 June-01 13:10

*Influence of carbon addition on mechanical properties of thixomolded magnesium alloy

Makoto Hino, Yoshiaki Hashimoto, Koji Murakami, Yutaka Mitooka, Teruto Kanadani
Hiroshima Institute of Technology, Japan

Lunch break 13:30 - Sessions restarts at 14:10

Session: F6, Venue: (Room: Gallery C)

Mg Alloys 2

Session Chairs: Mayumi Suzuki, Japan & Manuel Carsi, Spain

F6 June-01 14:10 Keynote

***Microstructure and mechanical properties of twin roll cast magnesium alloy sheets**

Kwang Seon Shin, Sang Jun Park

Seoul National University, Republic of Korea

F6 June-01 14:40

***Microstructural evolution of AZ31 under the application of high density electric current pulses**

Xinli Wang, Meishuai Liu, Nan Wu, Wenbin Dai, Xiang Zhao

Northeastern University, Republic of China

F6 June-01 15:00

***Creep deformation mechanism in Mg-Y and Mg-Y-Zn dilute solid solution alloys**

Mayumi Suzuki, Fumikli Kondo

Toyama Prefectural University, Faculty of Engineering, Japan

F6 June-01 15:20

***Directional solidification structures and room temperature mechanical properties of Mg-Gd magnesium alloys**

Guangyu Yang, Shifeng Luo, Shaojun Liu, Jiahe Wang, Wanqi Jie

Northwestern Polytechnical University, China

Coffee / Tea break 15:40 to 16:10

F6 June-01 16:10

***Research and development of an antibacterial biodegradable Mg alloy for orthopedic applications**

Guangyin Yuan

Shanghai Jiao Tong University, China

F6 June-01 16:30

Investigations on hot tearing susceptibility and its mechanism of Mg-Zn-Y alloys

Zheng Liu, Li Liu, Sibbo Zhang, Zhi Wang, Pingli Mao, Yue Wang

Shenyang University of Technology, China

F6 June-01 16:50

***Effect of rare earth additions on the deformation behavior of magnesium**

Anna Kula, Xiaohui Jia, Raj Mishra, Marek Niewczas

University of Science and Technology, Poland

F6 June-01 17:10

***Revisiting the effect of solidification cooling rate on microstructure of cast magnesium alloys**

Mingxing Zhang, Yahia Ali, Qiuyan Huang

University of Queensland, Australia

F6 June-01 17:30

***Orientation dependent nanoindentation response of single crystalline Mg**

In-Suk Choi

Korea Institute of Science and Technology, Korea

**invited presentation*

F6 June-01 17:50 Student

The effects of interfacial heat transfer coefficient on the microstructure of high-pressure Die-cast magnesium alloy AM60B

Pouya Sharifi, Kumar Sadayappan, Jeff Wood

Western University, Canada

F6 June-01 18:00 Student

Effect of as-rolled microstructure on static recrystallization characteristics and texture evolution during annealing

Jing Su

McGill University, Canada

Session: F7, Venue: (Room: Gallery C)

Mg Alloys 3

Session Chairs: Norbert Hort, Germany & Guangyin Yuan, PR China

F7 June-02 8:30

*Thermo-mechanical treating of magnesium alloys and its influence on cold working plasticity

Bartłomiej Plonka, Piotr Korczak, Krzysztof Remsak

Institute of Non-Ferrous Metals, Poland

F7 June-02 8:50

*Understanding grain size effects in pure Mg polycrystals

Carmen Maria Cepeda-Jiménez, Jon Mikel Molina-Aldareguia, María Teresa Pérez-Prado

IMDEA Materials Institute, Spain

F7 June-02 9:10

*Simultaneous strengthening and toughening of Mg alloys by {10-12} twins

Yunchang Xin, Hong Zhang, Xiaojun Zhou, Qing Liu

Chongqing University, China

F7 June-02 9:30

*Texture development during static recrystallization of Mg-Sn-Al-Zn alloys sheets

Sangbong Yi, Maria Nienaber, Dietmar Letzig, Youngmin Kim

Helmholtz-Zentrum Geesthacht, Germany

F7 June-02 9:50

Effect of alloying element on deformation behavior of binary magnesium alloys

Jihyun Hwang, Byeong-chan Suh, Jae H. Kim, S.Y. Lee, B.J. Lee, Nack J. Kim

POSTECH, Korea

F7 June-02 10:10

Effect of misch metal addition on thermal conductivity and mechanical properties of Mg-4Zn-0.5Ca alloys

Gun-Young Oh, Shae K. Kim, Hyunkyu Lim, Young-Jig Kim

KITECH, Korea

Coffee / Tea break 10:30 to 11:00

F7 June-02 11:00

Casting of an Mg alloy clad strip using a twin roll caster equipped with a scraper

Toshio Haga

Osaka Institute of Technology, Japan

F7 June-02 11:20

Analysis of electric pulsing effect on mechanical behaviour of magnesium alloy

Se-Jong Kim

Korea Institute of Materials Science, Korea

F7 June-02 11:40

Analysis of microtexture development and deformation heterogeneity in the weld region of friction stir welded AZ31 Mg alloy

Min-Seong Kim, Ji-Hyun Hwang, Amol B. Kale, Shi-Hoon Choi

Sunchon National University, Korea

**invited presentation*

F7 June-02 12:00

Revealing the mechanism of magnesium oxidation with a synchrotron light

Sandra Gardonio, Mattia Fanetti, Matjaz Valant, Dmytro Orlov

Lund University, Sweden

F7 June-02 12:20

New high performance non-flammable magnesium alloys for wrought applications

Young Min Kim, Yohan Go, Su Mi Jo, Sung Hyuk Park, Ha Sik Kim, Chang Dong Yim, Bong Sun You

Korea Institute of Materials Science, Korea

F7 June-02 12:40 Student

Deformation behavior of extruded ZN11 magnesium plate

Daria Drozdenko, Klaudia Horváth, Jan Bohlen, Sangbong Yi, Patrik Dobroň

Charles University in Prague, Czech Republic

F7 June-02 12:50 Student

Study of growth kinetics of deformation twins in AZ31 magnesium alloy

Wenwen Wei, Erwin Povoden-Karadeniz, Ernst Kozeschnik

TU Wien, Austria

Lunch break 13:00 - Sessions restarts at 14:10

Session: F8, Venue: (Room: Gallery C)

Composites (MMC, CMC/Nanocomposites/Syntactic and Foams) 1

Session Chairs: Gen Sasaki, Japan & Parakash Parasivamurthy, India

F8 June-02 14:10 Keynote

***Metal matrix composites developed by severe plastic deformation: challenges and stakes**

Marie Noelle Avettand Fenoel, Roland Taillard

Unité Matériaux Et Transformations (UMET), France

F8 June-02 14:40

***Manufacturing of aluminum metal matrix cast composites with carbon based additives for thermal management applications**

Alexander Katz-Demyanetz, Rosario Squatrito, Ivan Todaro, Shai Essel, Henning Zeidler, Menachem Bamberger

Technion - Israel Institute of Technology, Israel

F8 June-02 15:00

*** Experimental Investigation of Influence of High Strength Fiber Reinforcement on Concrete**

Prakash Parasivamurthy

Dayananda College of Engineering, India

F8 June-02 15:20

***Effect of nature of chemical linker on the formation of a zeolitic layer on zirconia substrates**

Adriana Medina Ramirez, Alicia Amairani Flores Diaz

University of Guanajuato, Division de Ciencias Naturales y Exactas, Mexico

Coffee / Tea break 15:40 to 16:10

F8 June-02 16:10

***Influence of material microstructure and thermal residual stresses on macroscopic fracture parameters and elastic properties of metal-ceramic composites**

Michal Basista, Witold Węglewski, Kamil Bochenek

Institute of Fundamental Technological Research of the Polish Academy of Sciences, Poland

F8 June-02 16:30

***Enhanced mechanical properties of bulk graphene/aluminum composites with a bio-inspired nanolaminated structure**

Qiang Guo

Shanghai Jiao Tong University, China

F8 June-02 16:50

***An overview on perlite-metal syntactic foam**

Thomas Fiedler, Mehdi Taherishargh, Irina Belova, Graeme Murch

The University of Newcastle, Australia

F8 June-02 17:10

***High performance magnesium based composites containing nano-length scale/amorphous/hollow reinforcements**

Manoj Gupta

National University of Singapore, Singapore

F8 June-02 17:30

***Effect of CNT distribution on mechanical and physical properties of CNT reinforced aluminum matrix composites**

Zong-yi Ma, Zheng-yu Liu, Bo-lv Xiao, Wen-guang Wang

Institute of Metal Research, Chinese Academy of Sciences, China

**invited presentation*

F8 June-02 17:50

*Effect of preparation conditions of TiB₂ particle dispersed Al composites on microstructure

Gen Sasaki

Hiroshima University, Japan

F8 June-02 18:10

*Fabrication of composite structures of Nd-doped laser crystals and diamond crystals by use of the room-temperature-bonding technique

Ichiro Shoji

Chuo University, Japan

F8 June-02 18:30

*High toughness and self-lubricative carbon nanotubes-ceramic composites

Alicia Weibel, Christophe Laurent, Claude Estournès, Alain Peigney

Université Toulouse III - Paul Sabatier, France

Session: F9, Venue: (Room: Gallery C)

Composites (MMC, CMC/Nanocomposites/Syntactic and Foams) 2

Session Chairs: Manoj Gupta, Singapore & Zong-Yi Ma, PR China

F9 June-03 8:30 Keynote

***Spark plasma sintering of ceramic powders: from evidence of specific effects to the elaboration of complex architectures and shapes**

Claude Estournes, Rachel Marder, Rachman Chaim, Geoffroy Chevallier, Charles Manière, Lise Durand
CNRS CRIMAT, France

F9 June-03 9:00

***Physical properties of aluminum-carbon composites fabricated by semi-liquid route**

Jean-Francois Silvain, Gang Li, Akira Kawasaki, Yong Feng Lu
ICMCB-CNRS, France

F9 June-03 9:20

***Liquid composite moulding: A widely used group of FRPC processing techniques, but still a challenging topic**

Ralf Schledjewski, Harald Grössing
Montanuniversität Leoben, Austria

F9 June-03 9:40

Pore-structure adjustment and mechanical property of porous TiAl alloy prepared using titanium hydride and aluminium compact

Hui Wang
University of Science & Technology Beijing, China

F9 June-03 10:00

***Metal matrix composites as environment-friendly protective coatings**

Luca Magagnin, Roberto Bernasconi, Alessandro Tucci, Luca Nobili
Politecnico di Milano, Italy

F9 June-03 10:20

Effect of interfacial thermal resistance on effective thermal conductivity in aluminum matrix composites

Kenjiro Sugio, Rio Yamada, Yong-Bum Choi, Gen Sasaki
Hiroshima University, Japan

F9 June-03 10:40

Preparation and squeeze casting of nano-SiC/A356 composite assisted with ultrasonic vibration process

Shulin Lü, Pan Xiao, Shusen Wu, Xiaogang Fang
Huazhong University of Science and Technology, China

F9 June-03 11:00

Integrated defect classification in manufacturing of carbon fibre reinforced thermoplastic polymer matrix composites

Michael Fischlschweiger, Alexander Stock, Markus Thurmeier
OTTRONIC Regeltechnik GmbH, Austria

F9 June-03 11:20

Precipitation process of silver nanowire in borosilicate glass by solid-state ion exchange assisted with forward and reverse electric fields

Souta Matsusaka, Hiroki Aoyama, Hirofumi Hidai, Akira Chiba, Noboru Morita
Chiba University, Japan

**invited presentation*

G2 May-30 17:50

*Enthalpy recovery and aging dynamics measurements reveal a stick-slip mechanism of atomic motion during physical aging of a fragile metallic glass

Isabella Gallino

Saarland University, Germany

G2 May-30 18:10

*Toughen and harden metallic glass by designing statistical and spatial heterogeneities

Mo Li, Yongwei Wang

Georgia Institute of Technology, USA

Session G

Room: Gallery B

Session: G1, Venue: (Room: Gallery B)

Metallic Glasses/ Bulk Metallic Amorphous Materials 1

Session Chairs: Junji Saida, Japan & Zhaoping Lu, China

G1 May-30 10:30 Keynote

*** Phase formation and properties of advanced metastable metallic materials**

Jürgen Eckert

Erich Schmid Institute of Materials Science, Austria

G1 May-30 11:00

***Dendrite growth kinetics in undercooled melts of Zr-based alloys**

Dieter Herlach, Raphael Kobold, Peter Galenko, Stefanie Koch, Haifeng Wang

Ruhr-University Bochum, Germany

G1 May-30 11:20

***Preparation of high corrosion resistance Ni-based amorphous alloy and their thermal spray coatings**

Kenji Amiya

Kanisai Center, Institute for Materials Research, Tohoku University, Japan

G1 May-30 11:40

***A comparative study of molecular motion cooperativity in polymeric and metallic glass forming liquids**

Masaru Aniya, Masahiro Ikeda, Sahara S

Kumamoto University, Japan

G1 May-30 12:00

***Quantitative atomistic analysis of mechanical relaxation in metallic glasses**

Michael Atzmon

University of Michigan, USA

G1 May-30 12:20

***Fatigue properties including fatigue free in bulk metallic glasses**

Kazutaka Fujita, Wei Zhang, Baolong Shen, Kenji Amiya, Chaoli Ma, Nobuyuki Nishiyama, Yoshihiko Yokoyama

National Institute of Technology, Ube College, Japan

G1 May-30 12:40

***Phonon excitations in Pd_{42.5}Ni_{7.5}Cu₃₀P₂₀ bulk metallic glass by inelastic x-ray scattering**

Shinya Hosokawa, Koji Kimura, Masanori Inui, Yukio Kajihara, Tetsu Ichitsubo, Hidemi Kato, Kazuhiro Matsuda, Satoshi Tsutsui, Alfred Baron

Kumamoto University, Japan

G1 May-30 13:00

***Structural change in melt-quenching Ni-Zr glassy alloy due to the deuterium absorption**

Keiji Itoh, Junji Saida, Alex Hannon, Emma Barney

Okayama University, Japan

Lunch break 13:20 - Sessions restarts at 14:10

Session: G2, Venue: (Room: Gallery B)

Metallic Glasses/ Bulk Metallic Amorphous Materials 2

Session Chairs: Eun Soo Park, Korea & Paul Voyles, USA

G2 May-30 14:10 Keynote

***Process-property relations in bulk metallic glasses**

Jörg F. Löffler

ETH Zurich, Switzerland

G2 May-30 14:40

***Structural rejuvenation for improved properties in metallic glasses**

Junji Saida, Rui Yamada, Masato Wakeda, Shigenobu Ogata

Tohoku University, Japan

G2 May-30 15:00

Local atomic symmetry in metallic liquids and glasses

Maozhi Li

Renmin University of China, China

G2 May-30 15:20

***Ultrahigh-strength bulk metallic glasses**

Ran Li, Tao Zhang

Beihang University, China

Coffee / Tea break 15:40 to 16:10

G2 May-30 16:10

***Enhancement of toughness by cooling rate control in bulk metallic glasses**

Ka Ram Lim, Seon Yong Park, Young Sang Na

Korea Institute of Materials Science, Korea

G2 May-30 16:30

***Development of novel Mo-Ni-Si-B metallic glass with high sustainability**

Jinwoo Kim, Joon Seok Kyeong, Moon-Ho Ham, Andrew M. Minor, Do Hyang Kim,

Eun Soo Park

Seoul National University, Korea

G2 May-30 16:50

***Rapid solidification effects in powder metallurgy**

Andrew Mullis

University of Leeds, United Kingdom

G2 May-30 17:10

***Magneto-impedance effect in soft-magnetic metallic glass nanowire and microwire**

Koji Nakayama

Tohoku University, Japan

G2 May-30 17:30

***Glass-forming ability and crystallization behavior of Al-Ni-La alloys with other element additions**

Jiaojiao Yi, Wanqiang Xu, Jinfu Li, Michael Ferry, Akihisa Inoue

Shanghai Jiao Tong University, China

**invited presentation*

G2 May-30 17:50

Enthalpy recovery and aging dynamics measurements reveal a stick-slip mechanism of atomic motion during physical aging of a fragile metallic glass

Isabella Gallino

Saarland University, Germany

Session: G3, Venue: (Room: Gallery B)

Metallic Glasses/ Bulk Metallic Amorphous Materials 3

Session Chairs: Yoji Shibutani, Japan & Michael Atzmon, USA

G3 May-31 8:30

*Atomic structure and dynamics of bulk metallic glasses

Paul Voyles

University of Wisconsin-Madison, USA

G3 May-31 8:50

*Surface structural changes of Pd-Cu-Ge metallic glass thin films upon glass transition and crystallization

Tokujiro Yamamoto

Utsunomiya University, Japan

G3 May-31 9:10

*Atomistic prediction of relaxation state tuning of metallic glass by pressurized thermal loading process

Masato Wakeda, Narumasa Miyazaki, Shigenobu Ogata

Osaka University, Japan

G3 May-31 9:30

*A practical anodic and cathodic curve intersection model to understand multiple corrosion potentials of Fe-based glassy alloys in OH⁻ contained solutions

Weimin Wang

Shandong University, China

G3 May-31 9:50

*Metallic glass composite with good tensile ductility, high strength and large elastic strain limit

Fu-Fa Wu

Liaoning University of Technology, China

G3 May-31 10:10

*Fatigue endurance limit and crack growth behavior of a high-toughness Zr₆₁Ti₂Cu₂₅Al₁₂ bulk metallic glass

Jian Xu, Zhen-Qiang Song, Qiang He, Evan Ma

Institute of Metal Research, Chinese Academy of Sciences, China

Coffee / Tea break 10:30 to 11:00

G3 May-31 11:00

*Enhanced fatigue-properties of high strength aluminium alloy by coating with metallic glass thin films

Jason Shian-Ching Jang, Peggy Pei Hua Tsai, Tsung-Hsiung Li, Kai-Ti Hsu, Jacob Chih Ching Huang

National Central University, Taiwan

G3 May-31 11:20

*Effects of Au and Pd additions on plastic deformation of Zr-Cu-Ni-Al bulk metallic glasses

Tohru Yamasaki, Yuta Mukai, Kazutaka Fujita, Kenji Amiya, Hidemi Kato

University of Hyogo, Japan

G3 May-31 11:40

*Research on the crystallization kinetics and glass-forming ability of a Ti-based bulk metallic glass

Ke-Fu Yao, Pan Gong, Jia-Lun Gu

Tsinghua University, China

**invited presentation*

G3 May-31 12:00

*Fracture and strength of bulk metallic glasses

Zhefeng Zhang, Ruitao Qu, Zengqian Liu

IMR, China

G3 May-31 12:20

*Influence of small Cu addition on the crystallization behavior of soft magnetic FeCoBSiNb bulk metallic glass

Mihai Stoica, Parthiban R, Ivan Kaban, Sergio Scudino, Jonathan Wright, Jürgen Eckert

Leibniz Institute for Solid State and Materials Research Dresden, Germany

G3 May-31 12:40

*Properties of mechanically rejuvenated Zr-based metallic glass

Koichi Tsuchiya, Jian Qiang, Fanqiang Meng, Karin Dahmen, Seiichiro Ii, Peter Liaw

NIMS, Japan

Lunch break 13:10 - Sessions restarts at 14:10

Session: G4, Venue: (Room: Gallery B)

Metallic Glasses/ Bulk Metallic Amorphous Materials 4

Session Chairs: Juergen Eckert, Austria & Jason S. C. Jang, Taiwan

G4 May-31 14:10

*Multiaxial stress states of Zr-base bulk metallic glasses by elastic-plastic finite element analyses

Yoji Shibutani, Bo Pan

Osaka University, Japan

G4 May-31 14:30

Evaluation of coating thickness on the cutting sharpness and durability of Zr-based metallic glass thin film coated surgical blades

Peggy Pei Hua Tsai, Tsung-Hsiung Li, Kai-Ti Hsu, Jason Shian-Ching Jang, Jinn P. Chu, Jyh-Wei Lee

National Central University, Taiwan

G4 May-31 14:50

Effect of Ga additions on the glass formation and mechanical behavior of Ti₄₀Zr₁₀Cu₃₆-xPd₁₄Gax (x = 2-10 at. %)

bulk metallic glasses

Supriya Bera, Ramasamy Parthiban, Mihai Stoica, Mariana Calin, Jürgen Eckert

IFW Dresden, Germany

G4 May-30 15:10

*Rapid solidification effects in powder metallurgy

Andrew Mullis

University of Leeds, United Kingdom

Coffee / Tea break 15:30 to 16:00

G4 May-30 16:00

Granulation of bulk metallic glass forming alloys as a feedstock for thermoplastic forming and their compaction into bulk samples

David Geissler, Jacob Grosse, Sven Donath, David Ehinger, Mihai Stoica, Jürgen Eckert, Uta Kühn

IFW Dresden, Germany

G4 May-30 16:20

Anelastic behaviour of amorphous TiAl measured by in-situ electron scattering

Rohit Sarkar, Christian Ebner, Jagannathan Rajagopalan, Christian Rentenberger

University of Vienna, Austria

G4 May-30 16:40

*Dependence of film thickness and laser annealing parameters on the optical and electrical properties of ITO/metallic glass alloy bi-layer films

H. K. Lin, P. F. Chung, J. C. Huang

National Pingtung University of Science and Technology, Taiwan

G4 May-30 17:00

*Hydrogen transport properties through Ni-Nb-Zr amorphous metallic ribbons and hydrogen effect on their mechanical properties

Jin-Yoo Suh, Yakai Zhao, Jae-il Jang

Korea Institute of Science and Technology, Korea

**invited presentation*

G4 May-30 17:20

*Understanding glass formation from the atomic structure perspective in metallic glasses

X. J. Liu, Z. P. Lu

University of Science and Technology Beijing, China

Session: G5, Venue: (Room: Gallery B)

Materials Under Extreme Conditions 1

Session Chairs: Sven Vogel, USA & Yusheng Zhao, USA

G5 June-01 8:30 Keynote

***The role of microstructure in creep strength of 9-12%Cr steels**

Rustam Kaibyshev, Roman Mishnev, Alexandra Fedoseeva, Nadezhda Dudova

Belgorod State University, Russia

G5 June-01 9:00

***New trends in high-pressure chemistry of materials**

Hubert Huppertz

Universität Innsbruck, Austria

G5 June-01 9:20

***Radiation effects in ionic crystals: To create or not to create metallic colloids?**

Igor Alencar

Universidade Federal do Rio Grande do Sul, Brazil

G5 June-01 9:40

***Materials research at University of Nevada, Las Vegas**

Andrew Cornelius

University of Nevada, Las Vegas, USA

G5 June-01 10:00

***Pressure Tuned Insulator-Metal Transition in Mott systems**

Yang Ding

Argonne National Laboratory, USA

G5 June-01 10:20

***Exploring materials through time-resolved X-ray powder diffraction experiment during fast compression**

Lars Ehm, Melissa Sims

Stony Brook University, USA

Coffee / Tea break 10:40 to 11:10

G5 June-01 11:10

***Mixed-valence vanadates at high pressures**

Andrzej Grzechnik

RWTH Aachen University, Germany

G5 June-01 11:30

***New trends of materials synthesis and science under ultra-high pressures using diamond anvil cell**

Masashi Hasegawa, Ken Niwa, Yuichi Shirako

Nagoya University, Japan

G5 June-01 11:50

***High pressure synthesis of boron nitride polymorphic phases and their applications**

Taniguchi Takashi

NIMS, Japan

**invited presentation*

G5 June-01 12:10

*Phase transformations driven by the severe plastic deformation

Boris Straumal, Andrei Mazilkin, Yulia Ivanisenko, Askar Kilmametov, Brigitte Baretzky

Institute of Solid State Physics RAS, Russia

G5 June-01 12:30

*Development of chalcogen-excess metal chalcogenides with using high-pressure synthesis technique

Ayako Yamamoto

Shibaura Institute of Technology, Japan

G5 June-01 12:50

*Ion irradiation effects on nanocluster precipitation in steels

Zhongwu Zhang, C. T Liu, X-L. Wang, Mike Miller

Harbin Engineering University, China

G5 June-01 13:10

*Dynamic recrystallization mechanism of coarse grained oxide dispersion strengthened ferritic steel

Rosalía Rementería, Maria M. Aranda, Carlos Capdevila Montes

CENIM-CSIC, Spain

Lunch break 13:30 - Sessions restarts at 14:10

Session: G6, Venue: (Room: Gallery B)

Materials Under Extreme Conditions 2

Session Chairs: Masashi Hasegawa, Japan & Rustam Kaibyshev, Russia

G6 June-01 14:10 Keynote

***Reactions and pressure-induced phase transitions in the diamond anvil cell**

Bjoern Winkler

Goethe University, Germany

G6 June-01 14:40

***New materials from extreme conditions processing**

Ulrich Häussermann

Stockholm University, Sweden

G6 June-01 15:00

***Deep ultraviolet photodetector based on sulphur-doped cubic boron nitride thin film**

Yubo Lee, Jiawei Zhong, Chaolun Sun, Xiao Wang, Hangsheng Yang, Milne William

Zhejiang University, China

G6 June-01 15:20

***Nano-sized surface structures and bubbles in W exposed to high flux D plasma**

Wei Liu, Yuzhen Jia, Guang-Nan Luo, Ben Xu, Shilian Qu, Chun Li, Thomas Morgan, Gregory De Temmerman

Tsinghua University, China

Coffee / Tea break 15:40 to 16:10

G6 June-01 16:10

***Spectroscopic studies on graphite and graphene under high pressure**

Atsuko Nakayama

Niigata University, Japan

G6 June-01 16:30

***High pressure synthesis of new transition metal nitrides with using laser-heated diamond anvil cell**

Ken Niwa, Toshiki Terabe, Yuichi Shirako, Shunsuke Muto, Kazuyoshi Tatsumi, Tatsuya Mizui, Kazuo Soda, Masashi Hasegawa

Nagoya University, Japan

G6 June-01 16:50

***Dynamic tensile extrusion behavior of metals (Cu, IF-Steel, and Ta)**

Kyung-Tae Park, Leeju Park, Hack Jun Kim, Seok Bong Kim

Hanbat National University, Korea

G6 June-01 17:10

***Understanding chemical reactions of small molecules at extreme conditions by means of high pressure pair distribution function analysis**

Nadine Schrodtt, Lkhamsuren Bayarjargal, Wolfgang Morgenroth, Björn Winkler

Goethe University Frankfurt, Germany

G6 June-01 17:30

***High-pressure synthesis of skutterudite-type thermoelectric materials**

Chihiro Sekine

Muroran Institute of Technology, Japan

**invited presentation*

G6 June-01 17:50

*Difference of development of local structure with high-pressure between early and late transition metal oxides

Yuichi Shirako, Ken Niwa, Masashi Hasegawa, Jianshi Zhou

Nagoya University, Japan

G6 June-01 18:10

*High pressure neutron study of energy materials

Yusheng Zhao

University of Nevada, Las Vegas, USA

Session: G7, Venue: (Room: Gallery B)

Materials Under Extreme Conditions 3

Session Chairs: Bjoern Winkler, Germany & Wei Liu, P. R. China

G7 June-02 8:30 Keynote

***Neutrons for materials characterization under extreme conditions**

Sven Vogel, Edith Bourret-Courchesne, Matt Reiche, Adrian Losko, Anton Tremsin
Los Alamos National Laboratory, USA

G7 June-02 9:00

***Effect of cryomilling on the microstructure, high temperature compression and creep properties of oxide dispersion strengthened steel**

Kee-Ahn Lee, Jin-Han Gwon, Jeoung-Han Kim
Andong National University, Korea

G7 June-02 9:20

***Elasticity and plasticity of earth's mantle minerals under pressure**

Carmen Sanchez-Valle
WWU Muenster, Germany

G7 June-02 9:40

***High temperature optical spectroscopy characterizations of semiconductor materials**

Yong Zhang
UNC Charlotte, USA

G7 June-02 10:00

***Effect of powder outgazing conditions on mechanical and microstructural properties of oxides dispersed strengthened steel foreseen for nuclear applications**

Denis Sornin, Pierre-François Giroux, Damien Fabrègue, Pauline Mas
CEA, France

G7 June-02 10:20

The wet and hot corrosion behavior of iron aluminides

Vera M. Marx, Martin Palm
Max-Planck-Institut für Eisenforschung GmbH, Germany

Coffee / Tea break 10:40 to 11:10

G7 June-02 11:10

Effect of severe plastic deformation behaviour of aluminium alloys on friction surfacing process characteristics

Stefanie Hanke, Tobias Bucken, Jorge F. dos Santos
Helmholtz-Zentrum Geesthacht, Germany

G7 June-02 11:30

***Novel elastic properties of iron carbide at extreme conditions**

Catherine McCammon, Clemens Prescher, Ilya Kупenko, Konstantin Glazyrin, Anastasia Kantor, Valerio Cerantola, Rudolf Rüffer, Aleksandr Chumakov, Leonid Dubrovinsky
Universität Bayreuth, Germany

G7 June-02 11:50

***Low temperature impact on glass and carbon composite laminates**

Valentina Lopresto, Antonio Langella, Giancarlo Caprino
University of Naples, Italy

**invited presentation*

G7 June-02 12:10

*The possible role of grain boundary complexions on the diffusion of silver through SiC in TRISO nuclear fuel particles

Felix Cancino Trejo, Eddie Lopez-Honorato, Romelia Salomon Ferrer, Ross Walker

CINVESTAV, Mexico

Lunch break 13:20 - Sessions restarts at 14:10

Session H

Room: Hall 1b

Session: H1, Venue: (Room: Hall 1b)

Nanomaterials for Structural and Energy Applications 1

Session Chairs: Leon Shaw, USA & Mineo Hiramatsu, Japan

H1 May-30 10:30 Keynote

***Optimization of fabrication routes for ferritic ODS steel cladding tubes: Metallurgical approach combined with thermo-mechanical simulations**

Roland Logé, Denis Sornin, Katia Mocellin, Abdellatif Karch, Esteban Vanegas-Marquez, Benjamin Hary, Louise Toualbi, Yann de Carlan
EPFL, Switzerland

H1 May-30 11:00

***Nanotechnology for aluminum mechanical properties improvement**

Konstantin Borodianskiy, Michael Zinigrad
Ariel University, Israel

H1 May-30 11:20

***Metallic muscles: Nanoporous materials at work**

Jeff DeHosson
University of Groningen, The Netherlands

H1 May-30 11:40

***Imprinting strain in nanostructured ferroelectric ceramics using spark plasma sintering: New strategy towards properties control**

Catherine Elissalde, Gilles Philippot, Marjorie Albino, Romain Epherre, Geoffroy Chevallier, Yannick Beynet, Charles Manière, Alicia Weibel, Alain Peigney, Michaël Josse, Marco Deluca, Cyril Aymonier, Claude Estournès, Mario Maglione
ICMCB-CNRS, France

H1 May-30 12:00

***Vertical free-standing ferromagnetic MnAs/semiconducting InAs heterojunction nanowires**

Shinjiro Hara
Hokkaido University, Japan

H1 May-30 12:20

***Exploring the thermal, mechanical, and radiation stability of nanocrystalline metals via in-situ transmission electron microscopy**

Khalid Hattar, Daniel Bufford, Brittany Muntiferling
Sandia National Labs, USA

H1 May-30 12:40

***Nanoplatfrom based on vertical nanographene for green technology applications**

Mineo Hiramatsu, Hiroki Kondo, Masaru Hori
Meijo University, Japan

H1 May-30 13:00

***Infrared solar cells using plasma processed semiconducting single-walled carbon nanotubes thin films**

Toshiro Kaneko, Toshiki Akama, Toshiaki Kato
Tohoku University, Japan

**invited presentation*

H1 May-30 13:20 Student

Electrodeposited molybdenum oxide films and patterned submicrometer motifs: structure and mechanical properties

Alberto Quintana, Aïda Varea, Miguel Guerrero, Santiago Suriñach, Maria Dolors Baró, Jordi Sort, Eva Pellicer

Universitat Autònoma de Barcelona, Spain

Lunch break 13:30 - Sessions restarts at 14:10

Session: H2, Venue: (Room: Hall 1b)

Nanomaterials for Structural and Energy Applications 2

Session Chairs: Claude Estournes, France & Kei Ameyama, Japan

H2 May-30 14:10 Keynote

***Hierarchical design and synthesis of nanomaterials to enable high capacity rechargeable battery electrodes**

Leon Shaw

Illinois Institute of Technology, USA

H2 May-30 14:40

***Reactive Nanosystems: Billion Atom Reactive and Quantum Molecular Dynamics Simulations**

Priya Vashishta

University of Southern California, USA

H2 May-30 15:00

***Local deformation and fracture investigated using in situ electron microscopy**

Daniel Kiener, Peter Imrich, Subin Lee, Jiwon Jeong, Eric Hintsala, Ruth Treml, Sang Ho Oh

Montanuniversität Leoben, Austria

H2 May-30 15:20

***Nanoparticles-supported carbon nanowalls for green energy applications**

Hiroki Kondo, Mineo Hiramatsu, Masaru Hori

Nagoya University, Japan

Coffee / Tea break 15:40 to 16:10

H2 May-30 16:10

***High strength - high conductivity carbon nanotube - copper composite wires prepared by spark plasma sintering and room-temperature wire drawing**

Christophe Laurent, Claire Arnaud, Florence Lecouturier, David Mesguich, Nelson Ferreira, Geoffroy Chevallier, Alicia Weibel, Claude Estournès

Université Toulouse, France

H2 May-30 16:30

***Characterization of light emission from Si quantum dots with Ge core**

Seiichi Miyazaki

Nagoya University, Japan

H2 May-30 16:50

***Nanoscale transformation toughening of the hardest oxide: Nanocrystalline bulk SiO₂ stishovite**

Norimasa Nishiyama, Fumihiro Wakai, Kimiko Yoshida

DESY, Germany

H2 May-30 17:10

***Fabrication of nano/micro structure of III-V semiconductors by anodic etching and their application**

Sachiko Ono, Hidetaka Asoh

Kogakuin University, Japan

H2 May-30 17:30

***Nanostructured transition metal oxides: Application in conversion and storage of energy**

Mireille Richard-Plouet, Luc Brohan

CNRS, France

**invited presentation*

H2 May-30 17:50

*Nanostructure-driven control of defects in GaN grown by the Na flux method

Akira Sakai, Hirotada Asazu, Shotaro Takeuchi, Yoshiaki Nakamura, Masayuki Imanishi, Mamoru Imade, Yusuke Mori
Osaka University, Japan

H2 May-30 18:10

Modeling and experimental results in core-shell ferroelectric ceramics

Jean-Michel Kiat

CNRS-Centrale Supelec, France

Session: H3, Venue: (Room: Hall 1b)

Nanomaterials for Structural and Energy Applications

Session Chairs: Seiichi Miyazaki, Japan & Priya Vashista, USA

H3 May-31 8:30 Keynote

***Recent findings in bulk nanostructured materials produced by SPD processing**

Ruslan Valiev

Ufa State Aviation Technical University, Russia

H3 May-31 9:00

***Fluctuation of position and energy of a fine particle in plasma nanofabrication**

Masaharu Shiratani, Kazunori Koga

Kyushu University, Japan

H3 May-31 9:20

***InGaAs quantum wells and wires embedded in GaAs for high-efficiency solar cells**

Masakazu Sugiyama

The University of Tokyo, Japan

H3 May-31 9:40

***Ni-Fe alloy nanoparticles for hydrogen and syngas production by steam reforming of biomass tar**

Keiichi Tomishige

Tohoku University, Japan

H3 May-31 10:00

***Alloy anodization towards the structural and compositional design of nanostructured oxide layers**

Hiroaki Tsuchiya, Min-Su Kim, Yuki Otani, Toshiaki Erami, Shinji Fujimoto

Osaka University, Japan

H3 May-31 10:20

***Catalytic properties of Ni₃Sn intermetallic nanoparticles fabricated by thermal plasma process**

Ya Xu, Shiyu Ma, Jianxin Zhang, Masahiko Demura, Toshiyuki Hirano

National Institute for Materials Science, Japan

Coffee / Tea break 10:40 to 11:00

H3 May-31 11:00

***Materials development for the realization of carbon-neutral energy cycles**

Miho Yamauchi

Kyushu University, Japan

H3 May-31 11:20

***Magneto-electric switching of interfacial spins toward magnetic recording/memory**

Yu Shiratsuchi

Osaka University, Japan

H3 May-31 11:40

A solid-state chemistry approach to design spinel cobalt oxides with high electronic conductivity for the positive electrode of asymmetric aqueous supercapacitors

Liliane Guerlou-Demourgues, G r me Godillot, Pierre-Louis Taberna, Laurence Croguennec, Michel M n trier, Lydie Bourgeois, Fran ois Weill, Patrice Simon, Claude Delmas

Institut de Chimie de la Mati re Condens e de Bordeaux (ICMCB)-CNRS, France

H3 May-31 12:00

*Driven mixing and nanostructure formation of metallic multilayers with repeated cold rolling and folding

Rainer Hebert

University of Connecticut, USA

H3 May-31 12:20

*Nano-oxides derived from hydrotalcites as catalysts for dry methane reforming reaction – effect of [Ni(EDTA)]²⁻ adsorption time

Patrick Da Costa, Radoslaw Debek, Monika Motak, Maria Elena Galvez, Teresa Grzybek

UPMC, France

H3 May-31 12:40

*Use of carbon nanocoil as a catalyst support in fuel cell

Yoshiyuki Suda

Toyohashi University of Technology, Japan

H3 May-31 13:00

*Magneto-structural stability of magnetic shape memory alloys quenched from high-temperature

J. Iñaki Pérez-Landazábal, Vicente Recarte, Vicente Sánchez-Alarcos, Silvia Larumbe, Cristina Gómez-Polo, O. Agustín Lambri, F. Guillermo Bonifacich, David Merida, J. Ángel García, Iraultza Unzueta, Fernando Plazaola

Public University of Navarra and INAMAT, Spain

Lunch break 13:20 - Sessions restarts at 14:10
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Session: H4, Venue: (Room: Hall 1b)

Nanomaterials for Structural and Energy Applications

Session Chairs: Rainer Hebert, USA & Dorte Juul Jensen, Denmark

H4 May-31 14:10 Keynote

*** Surface modifications for engineering the Properties of Inorganic Two-dimensional Nanostructured materials**
S. C. Scharma

Dayananda Sagar College of Engineering, India

H4 May-31 14:40

***Nanostructure and thermal stability of the oxide dispersion strengthened ferritic steel PM2000 after dynamic plastic deformation**

Zhenbo Zhang, Nairong Tao, Oleg Mishin, Wolfgang Pantleon

Technical University of Denmark, Denmark

H4 May-31 15:00

***Gate stack technology for silicon carbide based metal-oxide-semiconductor devices**

Takuji Hosoi

Osaka University, Japan

H4 May-31 15:20

***Materials tuning of titania nanotubes for enhancing physical-photochemical multifunctions**

Tohru Sekino

Osaka University, Japan

Coffee / Tea break 15:40 to 16:10

H4 May-31 16:10

***Spatio-temporal behaviors of atmospheric-pressure dielectric barrier discharge plasma jets for reactive interactions with materials**

Yuichi Setsuhara, G. Uchida, A. Nakajima, K. Kawabata, K. Takenaka

Osaka University, Japan

H4 May-31 16:30

***Fabrication of ductile bulk nanocrystalline Ni-W and Fe-Ni alloys by electrodeposition**

Yorinobu Takigawa, Isao Matsui, Tokuteru Uesugi, Kenji Higashi

Osaka Prefecture University, Japan

H4 May-31 16:50

***Towards highly efficient wavelength-stable red light-emitting diodes using Eu-doped GaN**

Yasufumi Fujiwara, Tomohiro Inaba, Brandon Mitchell, Takanori Kojima, Atsushi Koizumi

Osaka University, Japan

H4 May-31 17:10

***Decoration and doping of graphene by RF sputtering and atomic layer deposition processes**

Nadhira Laidani, Hafeez Ullah, Ruben Bartali, Victor Micheli, Flavio Rossi, Gloria Gottardi

Fondazione Bruno Kessler, Italy

H4 May-31 17:30

***A new carbon phase constructed by long-range ordered amorphous carbon clusters from compressing fullerene solvates**

Bingbing Liu

State Key Lab for Superhard Materials, China

**invited presentation*

Session: H5, Venue: (Room: Hall 1b)

Welding /Joining of Advanced Materials and FSW/P

Session Chairs: Masahiro Fukumoto, Japan & Emanuella Cerri, Italy

H5 June-01 8:30 Keynote

*** Joining techniques by sintering of nanoparticles derived from metal oxides**

Akio Hirose, Tomokazu Sano, Tomo Ogura

Osaka University, Japan

H5 June-01 9:00

***Mechanical analyses of welding in practical field**

Kwang Choi, GyuBaek An

POSCO, Korea

H5 June-01 9:20

***Deformation behavior of inhomogeneous layered microstructure**

Vivek Pancholi

IIT Roorkee, India

H5 June-01 9:40

***Effect of IMC interlayer on mechanical property of dissimilar metal joint made by FSW**

Masahiro Fukumoto, Morihiko Yamaguchi, Toshiaki Yasui

Toyohashi University of Technology, Japan

H5 June-01 10:00

***Linear friction welding of IN718 to Ti6Al4V**

Priti Wanjara, Javad Gholipour, Kosuke Watanabe, Koji Nezaki

National Research Council Canada, Canada

H5 June-01 10:20

***Properties of friction stir processed Al-alloy, nanoparticle reinforced composites**

Adrian Gerlich, F. Khodabakhshi, S. Sahraeinejad, A.H. Kokabi, H. Izadi

University of Waterloo, Canada

Coffee / Tea break 10:40 to 11:10

H5 June-01 11:10

Friction stir welding of a 5024 alloy subjected to cold rolling

Diana Yuzbekova, Anna Mogucheva, Rustam Kaibyshev

Belgorod State University, Russia

H5 June-01 11:30

***Microstructure and mechanical properties of friction stir welded 40 mm thick Al-Zn-Mg (A7N01-T5) alloy plate**

Changshu He, Jian Liu, Daquan Yang, Wenxiao Li, Xiang Zhao, Liang Zuo

Northeastern University, China

H5 June-01 11:50

***Solidification cracking susceptibility for dissimilar weld metal of austenitic metals**

Kota Kadoi, Kenji Shinozaki, Motomichi Yamamoto

Hiroshima University, Japan

**invited presentation*

H5 June-01 12:10

*Resistance upset welding of ODS steel fuel claddings - experimental and simulation approach

Brendan Le Gloannec, Olivier Doyen, Cédric Pouvreau, Angéline Poulon-Quintin

CEA, France

H5 June-01 12:30

*Friction stir welding on light-weight metal – aluminum alloy Al6061

Bilal Mansoor

TAMU Doha, Qatar

H5 June-01 12:50

*Effects of hybrid structures on the stress reduction and thermal properties of the joints in electronics devices

Michiya Matsushima, Noriyasu Nakashima, Satoshi Nishioka, Shinji Fukumoto, Kozo Fujimoto

Osaka University, Japan

H5 June-01 13:10

*Measurement of residual stresses in linear friction welded in-service Inconel 718 superalloy by neutron diffraction

Lukas Bichler, Mathew Smith, Spiro Yannacopoulos, Priti Wanjara, Dimitry Sediako

University of British Columbia, Canada

Lunch break 13:30 - Sessions restarts at 14:10

Session: H6, Venue: (Room: Hall 1b)

Welding /Joining of Advanced Materials and FSW/P

Session Chairs: Akio Hirose, Japan & Raj Shabadi, France

H6 June-01 14:10

*Self-consistent thermomechanical model of friction stir welding

Patricio Mendez, Jordan Tsui, Alberto Missael Solis Serrano, Karem Tello

University of Alberta, Canada

H6 June-01 14:30

*Evaluation of solidification crack susceptibility in laser beam welds of reduced activation ferritic/martensitic steel F82H

Hiroaki Mori, Takaya Hitomi, Masakazu Shibahara, Hideo Sakasegawa, Takanori Hirose, Hiroyasu Tanigawa

Osaka University, Japan

H6 June-01 14:50

*Dissimilar metal joining of A5052 aluminium alloy and AZ31 magnesium alloy using laser brazing

Tomo Ogura

Osaka University, Japan

H6 June-01 15:10

*Diffusion brazing of single crystal aerospace superalloys using composite powder as interlayer material

Olanrewaju Ojo

University of Manitoba, Canada

Coffee / Tea break 15:30 to 16:00

H6 June-01 16:00

Quantitative evaluation of reheat cracking susceptibility by in-situ observation and measurement using laser confocal microscope

Lina Yu

Osaka University, Japan

H6 June-01 16:20

*Microstructural Changes During Creep Process of Friction Stir Welded AZ31B-H24

Michael Regev, Mohamad El Mehtedi, Stefano Spigarelli

ORT Braude College, Israel

H6 June-01 16:40

*Electron beam welding of the softmartensitic steel 1.4317 (CA6NM)

Yassar Ghanimi, Norbert Enzinger

Andritz AG, Austria

H6 June-01 17:00

*Quantitative evaluation of aging embrittlement cracking susceptibility in weld metal of heat-resistant alloys

Kazuyoshi Saida

Osaka University, Japan

H6 June-01 17:20

*Development of the strongest welding consumables

Ronald Schnitzer, Phillip Haslberger, Daniel Schwarz, Wolfgang Ernst, Norbert Enzinger

voestalpine Böhler Welding Austria GmbH, Austria

**invited presentation*

H6 June-01 17:40

*Influence of corrosive conditions on the mechanical performance of flow drill screw joints between light metals

Carmen S. Scholz, Gundolf Kopp, Horst E. Friedrich

DLR Institute of Vehicle Concepts, Germany

H6 June-01 18:00

*Robotic friction stir welding and online trajectory corrections

Sandra Zimmer-Cevret, Ben Attar, Langlos Abba, Leonard H. Bigot

Paris Tech and Institut de Soudure, France

H6 June-01 18:20 Student

Numerical and experimental investigation on dissimilar friction stir welded butt joints made of AA7020-T651 and AA6060-T6

Hugo Robe, Landry Giraud, Amevi Tongne, Jean-Michel Bergheau, Christophe Desrayaud, Philippe Bocher, Eric Feulvarch

LTDS, France

Session: H7, Venue: (Room: Hall 1b)

Welding /Joining of Advanced Materials and FSW/P

Session Chairs: Norbert Enzinger, Austria & Aferdita Vevecska Priftaj, Albania

H7 June-02 8:30

The energy balance of GMAW processes and its quantification

Gerald Wilhelm

Lorch Schweißtechnik GmbH, Germany

H7 June-02 8:50

*Microstructure evolution of AA 6061-T6 weld joints in ultrasonic vibration enhanced friction stir welding

ChuanSong Wu, G.K. Padhy, S. Gao

Shandong University, China

H7 June-02 9:10

*Development of a parameter window for fibre-laser beam welding of aluminium-lithium alloy without filler material

Stefan Riekehr, Camilla Carrarin, Josephin Enz, Volker Ventzke, Nikolai Kashaev

Helmholtz-Zentrum Geesthacht GmbH, Germany

H7 June-02 9:30

Thermal Effect during Electromagnetic Pulse Welding Process

Thaneshan Sapanathan, Dmitrii Chernikov, Rija Nirina Raelison, Kang Yang, Vladimir Gluschenkov, Nicolas Buiron, Mohamed Rachik

Sorbonne universités, Université de technologie de Compiègne, France

H7 June-02 9:50

*Simulation of roll bonding and further rolling of roll bonded material including bond strength development

Matthias Schmidtchen, Rudolf Kawalla

TU Bergakademie Freiberg, Germany

H7 June-02 10:10

*Microstructural Characterization and Mechanical Properties of Stainless Steel Inlay Welded Dissimilar Materials

Young Sik Pyun and Seky Chang.

Sun Moon University, Korea

Coffee / Tea break 10:30 to 11:00

H7 June-02 11:00

*Influence of cross section on the parameters for linear friction welding of high-strength chains

Gerald Rath, Franz Fuchs, Norbert Enzinger

Graz University of Technology, Austria

H7 June-02 11:20

*Effect of focusing condition on molten area in micro-welding of glass by picosecond pulsed laser

Yasuhiro Okamoto, Imaduddin Helmi Wan Nordin, Motoki Ota, Togo Shinonaga, Akira Okada

Okayama University, Japan

H7 June-02 11:40

Recent advancements towards industrialization of magnetic pulse welding

Prabu Manoharan, Aurélien Robineau, Surendar Marya, Guillaume Racineux

Institut de Soudure, France

**invited presentation*

H7 June-02 12:00

Experimental investigation of welding parameters on automatic TIG welding of aluminium 5083 plate

Peethambaran K M, John Tharappel Devasia, Praveen V.V

Government College of Engineering, Kannur, India

H7 June-02 12:20

Electron beam welding of high strength quenched and tempered steel

Marek Weglowski, Sylwester Blacha, Dymek Stanislaw, Mateusz Kopuscianski

Institute of Welding, Poland

H7 June-02 12:40 Student

Technical challenges in narrow-gap root pass welding during tandem and hybrid laser-arc welding of a thick martensitic stainless steel

Fatemeh Mirakhorli, Xinjin Cao, Tan Pham, Priti Wanjara, Jean-Luc Fihey

École de Technologie Supérieure, Canada

H7 June-02 12:50 Student

Temperature field evolution during flash butt welding of railway rails

Leonhard Weingrill, Norbert Enzinger

Graz University of Technology, Austria

Lunch break 13:10 - Sessions restarts at 14:10
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Session: H8, Venue: (Room: Hall 1b)

Welding /Joining of Advanced Materials and FSW/P

Session Chairs: Kazuyoshi Saida, Japan & Stefan Riekehr, Germany

H8 June-02 14:10

*Interfacial microstructure of 3A21 aluminum alloy/mild carbon joint by magnetic pulse welding

Lin Liu

Huazhong University of Science and Technology, China

H8 June-02 14:30

*Anodization behaviour of friction stir processed aluminium surface composites

Rajashekhara Shabadi, Visweswara Gudla, Ambat Rajan, Flemming Jensen, Aude Simar

Université Lille, Sciences et Technologies, France

H8 June-02 14:50

*Welding of automotive aluminium alloys by laser wobbling process

Giuseppe Barbieri, Francesco Cognini, Massimo Moncada, Antonio Rinaldi, Gabriele Lapi

ENEA, Italy

H8 June-02 15:10

*IN792 DS superalloy: Optimization of EB welding and post-welding heat treatments

Giuseppe Barbieri, Peiman Soltani, Saulius Kaciulis, Roberto Montanari, Alessandra Varone

ENEA, Italy

Coffee / Tea break 15:30 to 16:00

H8 June-02 16:00

*Development of advanced flux cored wires for modern thermal power plants

Susanne Baumgartner, Daniel Schwarz, Ronald Schnitzer

Voestalpine Böhler Welding Austria GmbH, Austria

H8 June-02 16:20

*Solid state welding of different material – a comparison between steel/aluminum and copper/aluminum

Jean Pierre Bergmann

TU Ilmenau, Germany

H8 June-02 16:40

*Fracture surface characterisation of friction stir processed magnesium alloy after mechanical tests

Emanuela Cerri, Maria Teresa Di Giovanni, Tiziano Rimoldi, Luigi Cristofolini

University of Parma, Italy

H8 June-02 17:00

Microstructure and residual stress in rotary friction welded dissimilar metals (Al7020-T6/316L)

Weimin Gan, Michael Hofmann, Volker Ventzke, Christian Randau, Yuanding Huang, Armin Kriele, Emad Maawad, Heinz-Guenter Brokmeier, Martin Mueller

Helmholtz-Zentrum Geesthacht, Germany

H8 June-02 17:20

*Thermal joining of highly conductive bonds by means of reactive multilayered Al-Ni nanofoils

Georgios Theodossiadis

Technische Universität München, Germany

**invited presentation*

H8 June-02 17:40

Cooling curve based estimation of mechanical properties in high strength steel welds

Rahul Sharma, Uwe Reisgen

RWTH Aachen University, Germany

H8 June-02 18:00

Tensile stress analyses through digital image correlation of single lap joints of high strength steel and aluminum alloy using adhesive bonding

P.A.M.G.P. Bamberg, U. Reisgen, B. Marx, J.D.V. Barbosa and R.S. Coelho

SENAI CIMATEC, Institute of Innovation for Forming and Joining of Materials, Brazil

H8 June-02 18:20 Student

Evaluation of weld parameters on the mechanical properties of friction stir welded dissimilar Al alloy lap joints

Michael Booth, Olga Gopkalo, Xu Liu, Brad Diak, Adrian Gerlich

University of Waterloo, Canada

Session I

Room: Hall 11a

Session: I1, Venue: (Room: Hall 11a)

Materials Performance 1

Session Chairs: Roberto Montanari, Italy & Blythe Clark, USA

I1 May-30 10:30 Keynote

***Fatigue life extension by crack repair using double stop-hole technique**

Majid R. Ayatollahi, S.M.J. Razavi, Christof Sommitsch, Christian Moser

Iran University of Science and Technology, Iran

I1 May-30 11:00

***Residual stress measurements on IN718 fatigue specimens using X-ray diffraction techniques**

Yifei Gao, Wang Shulan

CISRI, China

I1 May-30 11:20

***Innovative experimental approaches and physical measurement methods for fatigue monitoring and life assessment**

Tilmann Beck, Marcus Klein, Marek Smaga, Frank Balle, Dietmar Eifler

TU Kaiserslautern, Germany

I1 May-30 11:40

Novel concepts for the application of magnesium sheets and profiles in crash loaded vehicle areas

Horst E. Friedrich, Elmar Beeh, Ping Zhou, Philipp Straßburger, Thomas Grünheid, William Altenhof, Michael Worswick, Samuel Kim

DLR-Institute of Vehicle Concepts, Germany

I1 May-30 12:00

***Functional materials deposition by magnetron sputtering**

Marie-Paule Besland

Institut des Matériaux Jean Rouxel (IMN), France

I1 May-30 12:20

***Thermal plasticity index of nanostructured N-based coatings on HSS 6-5-2 (1.3343) tool steel**

Marcello Cabibbo, Stefano Spigarelli, Nicola Clemente, Farayi Musharavati

Università Politecnica delle Marche, Italy

I1 May-30 12:40

***Optimal deformation hardening in lead base anodes for copper electrowinning for an appropriate working life**

Carlos Camurri, Claudia Carrasco, Yasmil maril

University of Concepcion, Chile

I1 May-30 13:00

***Characterization of void-dominated ductile failure in pure Ta**

Blythe Clark

Sandia National Labs, USA

I1 May-30 13:20

***SPD processed materials mechanical properties determination with the use of miniature specimens**

Jan Dzugan, Pavel Konopik, Radek Procházka, Zuzanka Trojanova

COMTES FHT, Czech Republic

Lunch break 13:40 - Sessions restarts at 14:10

Session: I2, Venue: (Room: Hall 11a)

Materials Performance 2

Session Chairs: Jilt Sietsma, Netherland & Xiao-Wu Li, PR China

I2 May-30 14:10 Keynote

***Revision of ISO 27306 for CTOD toughness correction for constraint loss**

Fumiyoshi Minami, Mitsuru Ohata

Osaka University, Japan

I2 May-30 14:40

***In-situ Atomic Resolution Transmission Microscopy Study on mechanical property of Low Dimensional Materials under Strain Manipulation**

Ze Zhang

Zhejiang University, China

I2 May-30 15:00

***High-voltage scanning-transmission electron microscopic observation of labyrinth structure developed by cyclic deformation in a [001] copper single crystal**

Toshiyuki Fujii, Takahiro Kajita, Tomotaka Miyazawa, Shigeo Arai

Tokyo Institute of Technology, Japan

I2 May-30 15:20

***Unraveling the age hardening response in U-Nb alloys**

Robert Hackenberg, Geralyn Hemphill, Robert Forsyth, Pallas Papin, Ann Kelly, Tim Tucker, Robert Aikin, Jr., David Alexander, Mike Lopez, Amy Clarke

Los Alamos National Laboratory, USA

Coffee / Tea break 15:40 to 16:10

I2 May-30 16:10

***Pre-hardened engineering and tool steel**

Per Hansson, Magnus Andersson

SSAB Special Steels, Sweden

I2 May-30 16:30

***Deformation dilatometry to study the mechanical stability of austenite at different temperatures**

Javier Hidalgo Garcia, Jilt Sietsma, Maria Jesus Santofimia Navarro

TU Delft, The Netherlands

I2 May-30 16:50

***Prestrain memory on subsequent cyclic behavior of FCC metallic materials presenting different dislocation slip character**

Clément Keller, Gael Marnier, Lakhdar Taleb

Material Physics Group, Rouen, France

I2 May-30 17:10

***Morphology evolution of grain boundary carbide in Inconel alloy 690 after grain boundary engineering**

Hui Li, Shuang Xia, Bangxin Zhou

Shanghai University, China

**invited presentation*

I2 May-30 17:30

*Fatigue deformation and damage behavior of Fe-18Cr-18Mn-0.63N high nitrogen austenitic stainless steel

Xiao-Wu Li, Chen-Wei Shao, Feng Shi

Northeastern University, China

I2 May-30 17:50

*Evaluation of the hardening capacity of low-alloyed steels quenched by HPGQ in vacuum furnaces

Bozidar Liscic, Bozo Smoljan

Croatian Academy of Sciences and Arts, Croatia

I2 May-30 18:10

*Influence of the composition and sintering conditions on the thermomechanical properties of SPSed carbides

Alexandre Maitre, Nicolas Pradeilles, Guy Antou, Remy Belon, Mathias Georges

Laboratory SPCTS, France

I2 May-30 18:30

*Non conventional mechanical testing of thick Al-Li alloys sheets welded by Solid State Capacitor Discharge (SS-CDW) for aeronautical applications

Giovanni Maizza, Roberto Cagliero

Politecnico di Torino, Italy

I2 May-30 18:50

Local residual stress depth distribution in the inner gearing of a case hardened sliding collar

Jens Gibmeier, J. Rebelo-Kornmeier

Karlsruhe Institute of Technology, Germany

I2 May-30 19:10

Lightweight sandwich structures in innovative vehicle design under crash load cases

Simon Brueckmann, Horst E. Friedrich, Michael Kriescher, Gundolf Kopp, Michael Wissler, Roman Gätzi

Institute of Vehicle Concepts, German Aerospace Center, Germany

Session: I3, Venue: (Room: Hall 11a)

Materials Performance 3

Session Chairs: Fumiyoshi Minami, Japan & Zhefeng Zhang, PR China

I3 May-31 8:30 Keynote

***Anelastic phenomena preceding the melting of pure metals and alloys**

Roberto Montanari, Alessandra Varone

University of Rome Tor Vergata, Italy

I3 May-31 9:00

***Fundamental aspects of rolled zn alloy sheet formability: Structure-property and failure mode relationships**

George Pantazopoulos, Anagnostis Toulfatzis, Athanasios Vazdirvanidis, Andreas Rikos

ELKEME S.A., Greece

I3 May-31 9:20

***Doping nanocrystalline alloys to improve strength and toughness**

Timothy Rupert

University of California, USA

I3 May-31 9:40

***Linking microstructural evolution and friction in metals**

Michael Chandross, Shengfeng Cheng, Nicolas Argibay

Sandia National Laboratories, USA

I3 May-31 10:00

***Fabrication of high porosity mullite foams and their properties**

Toru Shimizu, Harumi Furue, Kunio Matsuzaki

AIST, Japan

I3 May-31 10:20

***Advanced evaluation of fatigue phenomena using non-destructive testing methods**

Peter Starke, Christian Boller

Saarland University, Germany

Coffee / Tea break 10:40 to 11:00

I3 May-31 11:00

***3-D dynamic explicit FE-analysis of Charpy impact test**

Yasuhito Takashima, Tsunehisa Handa, Fumiyoshi Minami

Osaka University, Japan

I3 May-31 11:20

Relationship between microstructure and mechanical properties in Q&P-steels

Richard Thiessen

ThyssenKrupp Steel Europe AG, Germany

I3 May-31 11:40

***Tensile deformation mechanisms of Cu-Al alloys with high strength and good ductility**

Yanzhong Tian, Nobuhiro Tsuji, Zhefeng Zhang

Institute of Metal Research, Chinese Academy of Sciences, China

**invited presentation*

I3 May-31 12:00

*Influence of heat treatments on the behavior of maraging steels in phenomena of hydrogen embrittlement

Renzo Valentini, Arianna De Marco, Bernardo Disma Monelli, Massimo De Sanctis

University of Pisa, Italy

I3 May-31 12:20

Improving intergranular corrosion and stress corrosion cracking resistance in a high-nitrogen austenitic stainless steel through GB-CD optimization

Feng Shi, Pengcheng Tian, Zhihao Ye, Chunming Liu, Xiaowu Li

Northeastern University, China

I3 May-31 12:40

*Uniaxial tensile behavior of Cu-Al alloys subjected to low-cycle pre-fatigue deformation

Ying Yan, Na Peng, Cheng-Jun Qi, Wei-Wei Guo, Meng-Qi Zhang, Xiao-Wu Li

Northeastern University, China

I3 May-31 13:00

A study on the metallurgical factors for development of creep resistance of alloy 617 at 950°C

Ji-Won Lee, Hyun Uk Hong

Changwon National University, Korea

I3 May-31 13:20 Student

Effect of the secondary phase precipitation on the corrosion resistance of different duplex stainless steels

Luca Pezzato, M. Lago, M. Breda, K. Brunelli, I. Calliari

University of Padova, Italy

I3 May-31 13:30 Student

Multilayer thin films: How residual stresses influence the fracture properties

Ruth Tremel, Darjan Kozic, Ronald Schönggrundner, Roland Brunner, Hans-Peter Gänser, Daniel Kiener

Montanuniversität Leoben, Austria

Lunch break 13:40 - Sessions restarts at 14:10

Session: I4, Venue: (Room: Hall 11a)

Materials Performance 4

Session Chairs: **Tillmann Beck, Germany & George Pantzopoulos, Greece**

I4 May-31 14:10

Influence of the microstructure on the shot peening of automotive springs

Konstantinos Goulas, Carlos Jimenez Pena, Maria-Giuseppina Mecozzi, Roumen Petrov, Jilt Sietsma
Delft University of Technology, The Netherlands

I4 May-31 14:30

*Fatigue deformation and crack growth behavior of Fe-Mn-C-(Al) TWIP steels

Lihe Qian, Penghui Ma, Shuai Liu, Pengcheng Guo, Jiangying Meng, Fucheng Zhang
Yanshan University, China

I4 May-31 14:50

*The behaviour of graphitized steels in machining processes

Hans Roelofs, Nicolas Renaudot, Darko Smolenicki, Jens Boos, Fredy Kuster
Swiss Steel AG, Switzerland

I4 May-31 15:10

An experimental investigation of the microforming process of high-purity thin metallic sheets

Pierre-Antoine Dubos, Eric Hug, Gwendoline Fleurier
ENSICAEN, France

Coffee / Tea break 15:30 to 16:10

I4 May-31 16:10

Deformation behaviour of BCC metals investigated by small- and macro-scale testing techniques

Reinhard Fritz, Alexander Leitner, Verena Maier, Daniel Kiener
Montanuniversität Leoben, Austria

I4 May-31 16:30

Effect of Ni on the coefficient of thermal expansion and Young's modulus of Fe-Ni-Nb-Ti Invar alloys

Kazuma Ito, Kaori Kawano, Yasuaki Tanaka
Nippon Steel Sumitomo Metal Corporation, Japan

I4 May-31 16:50

Effect of red scale on the bendability of ultra-high-strength steel

Antti Kaijalainen, Mia Liimatainen, Severi Anttila, Vili Kesti, Pasi Suikkanen, David Porter
University of Oulu, Centre for Advanced Steels Research, Finland

I4 May-31 17:10

Evaluation of rolling contact fatigue by using an X-ray diffraction ring analyzer

Naoya Kamura, Takumi Fujita, Toshihiko Sasaki
NTN Corporation, Japan

I4 May-31 17:30

Short-time procedure to quantify the cyclic hardening potential of metallic materials by cyclic hardness tests - PhyBaL-CHT

Marcus Klein, Kramer Hendrik, Tillmann Beck, Dietmar Eifler
TU Kaiserslautern, Germany

**invited presentation*

I4 May-31 17:50

Deformation behavior analysis of the single-phase ferritic steel using by the digital image correlation method and crystal plasticity fast Fourier transform method

Sunao Sadamatsu, Jun Heshikiri, Hiroaki Tsuruzono, Yoshitaka Adachi

Kagoshima University, Japan

I4 May-31 18:10

Damage healing and twinning mechanisms of a nano-grained high-nitrogen austenitic stainless steel processed by electropulsing treatment

Huajie Yang, Fuyuan Dong, Yunrui Ma, J. D. Guo, Zhefeng Zhang

Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences, China

I4 May-31 18:30

Mechanical behaviour of materials during creep with changing loads

Riccardo Donnini, Giuliano Angella, Maurizio Maldini, Dario Ripamonti

CNR-IENI, Chemistry and Materials Science, Italy

I4 May-31 18:50

Introduction of a new class of creep resistant engine materials based on the Al-Si-Mn-Mo system: creep properties and microstructure

Amir Rezaei Farkoosh

McGill University, Canada

I4 May-31 19:10

Long-term performance analysis of geomembrane considering stress cracking resistance

Han-Yong Jeon

Inha University, Korea

I4 May-31 19:30 Student

Fatigue crack growth in forged and flow formed IN718

Costa Coleman, Martin Bache, Carl Boettcher

Swansea University, United Kingdom

I4 May-31 19:40 Student

Microstructural and micromechanical characterization of damage initiation in DP steels

Fady Archie, Stefan Zaefferer

Max-Planck-Institut für Eisenforschung GmbH, Germany

Session: I5, Venue: (Room: Hall 11a)

Ultra Fine - Grained Materials 1

Session Chairs: Hyoung Seop Kim, Korea & Nobuhiro Tsuji, Japan

I5 June-01 8:30 Keynote

***The development of superplasticity in ultrafine-grained magnesium alloys**

Roberto Figueiredo, Megumi Kawasaki, Terence Langdon

University of Southampton, United Kingdom

I5 June-01 9:00

***Mechanically driven martensite formation in ultra-strong pearlitic steel**

G. Dehm, S. Djaziri, Y.J. Li, A. Nematollahi, C. Kirchlechner, B. Grabowski, J. Neugebauer, D. Raabe, S. Goto

Max-Planck-Institute, Germany

I5 June-01 9:20

***Scaling-up the high pressure torsion for processing of ultrafine-grained billets**

Yulia Ivanisenko, Roman Kulagin, Andrey Mazilkin, Brigitte Baretzky, Horst Hahn

Karlsruhe Institute for Technology, Germany

I5 June-01 9:40

***Combination of strength and ductility in nanotwinned austenitic 304 stainless steels**

Nairong Tao, H.Y. Yi, F.K. Yan, K. Lu

Institute of Metal Research, Chinese Academy of Sciences, China

I5 June-01 10:00

***Microstructure evolution and deformation mechanisms of harmonic structure designed materials**

Kei Ameyama

Ritsumeikan University, Japan

I5 June-01 10:20

***Magnetic hardening of iron and FeCo alloys via severe plastic deformation and bulk metal forming**

Enrico Bruder, Thorsten Gröb, Clemens Müller

TU Darmstadt, Germany

Coffee / Tea break 10:40 to 11:10

I5 June-01 11:00

***Grain boundary hardening and dislocation pile-ups: The effect of misorientation**

Rafael Schouwenaars

Universidad Nacional Autonoma de Mexico, Mexico

I5 June-01 11:20

***Deformation induced lattice defects and their recovery in nanoscale carbon-rich ferrite lamellae of cold-drawn pearlitic steel wires**

Yuzeng Chen

Northwestern Polytechnical University, China

I5 June-01 11:40

***Effects of deformation induced vacancies in SPD processed nanomaterials**

Michael Zehetbauer

University of Vienna, Faculty of Physics, Austria

**invited presentation*

I5 June-01 12:00

*Microstructure and mechanical properties of Nb alloyed steel processed by hot equal channel angular extrusion

Akira Yanagida, Ryo Aoki, Masataka Kobayashi

Tokyo Denki University, Japan

I5 June-01 12:20

*Flow behavior of severely deformed titanium at elevated temperatures

Guney Guven Yapici, Seyed Vahid Sajadifar

Ozyegin University, Turkey

I5 June-01 12:40

Superplastic behavior of hot rolled Al-Mg-Sc sheets joined by friction stir welding

Sergey Malopheyev

Belgorod State University, Russia

I5 June-01 13:00

The role of preliminary heat treatment in the formation of ultrafine-grained structure in the implementation of the combined process rolling

Abdrakhman Naizabekov, Sergey Lezhnev, Yevgeniy Panin, Irina Volokitina

Kazakh National Technical University, Kazakhstan

I5 June-01 13:20 Student

On the influence of microstructure and thermally activated processes on anomalous yielding point phenomena during nanoindentation

Oliver Renk, Anton Hohenwarter, Reinhard Pippan

Austrian Academy of Sciences, Austria

Lunch break 13:30 - Sessions restarts at 14:10

Session: I6, Venue: (Room: Hall 11a)

Ultra Fine - Grained Materials 2

Session Chairs: Yi Huang, UK & Praveen Kumar, India

I6 June-01 14:10 Keynote

***Shear stress and hydrostatic pressure effect in severe plastic deformation**

Hyoungh Seop Kim

POSTECH, Korea

I6 June-01 14:40

Formation of new metastable phases and intermetallics in magnesium-based systems by high-pressure torsion

***Kaveh Edalati**, Hoda Emami, Etsuo Akiba, Zenji Horita

Kyushu University, Japan

I6 June-01 15:00

***Corrosion behavior of Al-7Si alloy processed by high-pressure torsion**

Xue Wang, Mengyan Nie, Chuan Ting Wang, Shun Cai Wang, Nong Gao

University of Southampton, United Kingdom

I6 June-01 15:20

***Fatigue and fracture of ultrafine-grained and nanocrystalline materials**

Anton Hohenwarter, Thomas Leitner, Bernhard Völker

Montanuniversität Leoben, Austria

Coffee / Tea break 15:40 to 16:10

I6 June-01 16:10

***Recovery or non-recovery in Al-0.1 Mg and Al-1 Mg alloy during high-pressure torsion processing**

Yi Huang, Justine Millet, Nian Xian Zhang, Pedro H.R. Pereira, Terence G. Langdon

University of Southampton, United Kingdom

I6 June-01 16:30

Microstructure evolution induced by sliding-based surface mechanical treatments – application to pure copper

Guillaume Kermouche, David Tumbajoy, cedric courbon, Joel Rech, Yinyin Zhang, Richard Chromik

Ecole des Mines de Saint-Etienne, France

I6 June-01 16:50

***Resolving the strength**

Praveen Kumar, Megumi Kawasaki, Terence Langdon

Indian Institute of Science, India

I6 June-01 17:10

Continuous high pressure tube shearing process

Rimma Lapovok, Yuri Estrin

Deakin University, Australia

I6 June-01 17:30

***Effect of grain refinement and nanosized precipitates on the self-organized dynamics of dislocations in Al-Mg alloys**

Tatiana Lebedkina, Mikhail Lebyodkin, Daria Zhemchuzhnikova, Rustam Kaibyshev

Universite de Lorraine, France

**invited presentation*

I6 June-01 17:50

*Dislocation density of ultrafine grained Cu fabricated by severe plastic deformation

Yoji Miyajima

Tokyo Institute of Technology, Japan

I6 June-01 18:10

*Heterogeneous nano-structures in austenitic and duplex stainless steels developed by heavy cold rolling and the specific mechanical properties

Hiromi Miura, M. Kobayashi, N. Sugiura, N. Yoshinaga

Toyohashi University of Technology, Japan

I6 June-01 18:30

*Enhanced strength and ductility by architecturing laminate structures of alternative fine and coarse grain sizes

Xiaoxu Huang

Chongqing University, China

I6 June-01 18:50

Evolution of plastic zone size at a crack tip with ultra-fine grains in metastable austenite

Arnaud Macadre, Toshihiro Tsuchiyama, Setsuo Takaki

I2CNER - Kyushu University, Japan

Session: I7, Venue: (Room: Hall 11a)

Ultra Fine - Grained Materials 3

Session Chairs: Michael Zehetbauer, Austria & Hiromi Miura, Japan

I7 June-02 8:30 Keynote

***Microscale mechanical behaviour of unique ultrafine-grained materials**

Megumi Kawasaki, Jae-il Jang, Byungmin Ahn, Terence Langdon

Hanyang University, Korea

I7 June-02 9:00

***Effect of the severe plastic deformation on magnetic properties in superconductors**

Terukazu Nishizaki, Kaveh Edalati, Zenji Horita, Tadahiro Akune, Nobuyoshi Sakamoto, Tsutomu Nojima, Satoshi Iguchi, Takahiko Sasaki

Kyushu Sangyo University, Japan

I7 June-02 9:20

***Evolution of ni structure under ecap and dcap and further annealing**

Vladimir Popov, Elena Popova, Dmitriy Kuznetsov, Alexey Stolbovsky, Gerrit Reglitz, Sergiy Divinski, Gerhard Wilde, Evgeniy Shorohov

M.N. Miheev Institute of Metal Physics, Russia

I7 June-02 9:40

***Kinetics of submicrocrystalline structure formation in a Cu-Cr-Zr alloy during large plastic deformation**

Iaroslava Shakhova, Andrey Belyakov, Rustam Kaibyshev

Belgorod State University, Russia

I7 June-02 10:00

***Effect of SPD processing technique on grain refinement and properties of an austenitic stainless steel**

Marina Tikhonova, Iaroslava Shakhova, Ruslan Valiev, Rustam Kaibyshev, Andrey Belyakov

Belgorod State University, Russia

I7 June-02 10:20

Role of microstructure on mechanical properties of ultrafine grained Cu processed by different ECAP pass-numbers

Masahiro Goto, Seung-zeon Han, Junichi Kitamura, Takaei Yamamoto, Terutoshi Yakushiji, Jee-hyuk Ahn, Testuya Fujimura

Oita University, Japan

Coffee / Tea break 10:40 to 11:00

I7 June-02 11:00

***Potential application in micro-forming technology with ultrafine-grained materials**

Jie Xu, Debin Shan, Bin Guo, Terence G. Langdon

Harbin Institute of Technology, China

I7 June-02 11:20

***Tailored severe plastic deformation by a novel repetitive continuous extrusion forming (R-Conform process) in Al alloy**

Xiankun Ji, Hui Zhang, Fulin Jiang, Xiangxin Kong, Dingfa Fu

Hunan University, China

**invited presentation*

17 June-02 11:40

*Transparent fluoride ceramics for laser applications

Michel Mortier, Pierre Aballea, Akiko Suganuma, Julia Sarthou, Patrick Gredin, Gilles Patriarche, Frédéric Druon, J Hostalrich, Patrick Georges
CNRS, France

17 June-02 12:00

*Analysis of excellent mechanical properties balance of 0.1%C-2%Si-5%Mn ultrafine fresh martensite and ferrite austenite steels

Shiro Torizuka, Mia Kumakura, Hiroki Adachi, Akihiro Maeda, Toshihiro Hanamura
University of Hyogo, Japan

17 June-02 12:20

*Special twinning behaviours induced by dynamic plastic deformation

YanJun Li, Shenbao Jin, Knut Marthinsen
Norwegian University of Science and Technology, Norway

17 June-02 12:40

Investigation of annealing behavior of ultrafine-grained aluminum processed by different cooling rates after hot rolling

Pei-Ling Sun, Chia-Hao Chang
National Sun Yat-sen University, Taiwan

17 June-02 13:00

Deformation induced strong and stable nanolaminated structures in nickel

Hong Wang Zhang, K. Lu
Yanshan University, China

17 June-02 13:20 Student

Structural evolution of Cu-Fe alloys deformed by high pressure torsion

Jinming Guo, Julian Rosalie, Zaoli Zhang
Austrian Academy of Sciences, Austria

Lunch break 13:10 - Sessions restarts at 14:10

Session: I8, Venue: (Room: Hall 11a)

Ultra Fine - Grained Materials 4

Session Chairs: **Megumi Kawasaki, Korea & Marcello Cabibbo, Italy**

I8 June-02 14:10 Keynote

***Plasticity induced grain boundary migration**

Reinhard Pippan, Oliver Renk, Marlene Kapp, Bo Yang, Verena Maier, Pradipta Ghosh, Anton Hohenwarter
Austrian Academy of Sciences, Austria

I8 June-02 14:40 Keynote

***Mechanically-induced grain coarsening in gradient nano-grained copper**

Lei Lu

IMR, CAS, China

I8 June-02 15:10

***Nanostructured Cu-based shape memory alloys obtained by high-pressure torsion**

Gabriel A. López, Iñaki López-Fereño, Boris B. Straumal, Askar R. Kilmametov, Mariano Barrado, K. I. Kolesnikova,
Horst Hahn, Brigitte Baretzky, María L. Nó, Jose San Juan
University of the Basque Country, Spain

I8 June-02 15:30

***Manufacturing of ODS RAFM Steel: Mechanical and Microstructural Characterization**

Claudio Testani, Paolo Emilio Di Nunzio, Ilaria Salvatori
Centro Sviluppo Materiali S.p.A, Italy

Coffee / Tea break 15:50 to 16:20

I8 June-02 16:20

Near-threshold fatigue crack growth behavior of ultrafine-grained metals

Thomas Leitner, Anton Hohenwarter, Reinhard Pippan
Montanuniversität Leoben, Austria

I8 June-02 16:40

Quantitative evaluation of creep curve in compression by strain acceleration and transition objective index

Hiroyuki Sato, Yutaro Maeda
Hirosaki University, Japan

I8 June-02 17:00

Interface of ultrafine grained Al/Mg multilayered disks prepared by high pressure torsion

Xiaoguang Qiao, Xingyu Zhang, Mingyi Zheng, Chao Xu, Shigeharu Kamado, Ying Chen, Nong Gao, Marco J Starink
Harbin Institute of Technology, China

I8 June-02 17:20

Microstructure refinement in the CoCrFeNiMn high entropy alloy under plastic straining.

Nikita Stepanov, Nikita Yurchenko, Dmitry Shaysultanov, Margarita Klimova, Sergey Zharebtsov, Gennady Salishchev
Belgorod State University, Russia

I8 June-02 17:40

Electrochemical behaviors of biomedical nano-grained β -type titanium alloys

Hakan Yilmazer, Burak Dikici, Mitsuo Niinomi, Masaaki Nakai, Huihoung Lui, Yoshikazu Todaka, Ahmet Nuri Ozcivan
Yildiz Technical University, Turkey

**invited presentation*

18 June-02 18:00

Extraordinary structural stability and hardness by decomposition of metastable nanocrystalline solid solutions

Andrea Bachmaier, Jörg Schmauch, Hisham Aboulfadl, Mohammad Zamanzade, Andreas Verch, Christian Motz
Austrian Academy of Sciences, Austria

18 June-02 18:20

Shock-induced reaction characteristics of an Al/Ni composite processed via accumulative roll-bonding

Chuan Ting Wang

Nanjing University of Science & Technology, China

18 June-02 18:40

On the strength effects in hydrogenated palladium subjected to HPT processing

Daria Setman, Wolfgang Röss, Andreas Grill, Erhard Schafner, Yuzeng Chen, Reiner Kirchheim, Michael Zehetbauer
University of Vienna, Austria

18 June-02 19:00

Microstructural and mechanical comparison of Ti and Ti-alloys after severe plastic deformation

Bernhard Völker, Nilolaus Jäger, Anton Hohenwarter, Reinhard Pippan

Montanuniversität Leoben, Austria

Session J

Room: Hall 10

Session: J1, Venue: (Room: Hall 10)

Modelling and Simulation 1 (Prof. W. Bleck Symposium)

Session Chairs: Ernest Kozeschnik, Austria & Sylvain Dancette, France

J1 May-30 10:30 Keynote

***On the calculation and impact of phase boundary energies on precipitate kinetics in complex alloys at high temperatures**

Bernhard Sonderegger, Ernst Kozeschnik
Graz University of Technology, Austria

J1 May-30 11:00

***Multi-scale modelling of advanced steel processing**

Matthias Militzer
The University of British Columbia, Canada

J1 May-30 11:20

***Cinematographic observation of GTAW arc and weld pool surface phenomena in the presence of Marangoni convection**

Jean-Luc Fihey, Bruce Hazel
École de Technologie Supérieure, Canada

J1 May-30 11:40

***Irreversible thermodynamics applied to diffusional phase transformations**

Ernst Gamsjäger, Volkmar Kircher
Montanuniversität Leoben, Austria

J1 May-30 12:00

***Modelling of diffusion limited growth in multicomponent systems**

Charles-Andre Gandin, Gildas Guillemot
MINES ParisTech, France

J1 May-30 12:20

Nonlinear optimization methods for the determination of heat source model parameters

Udo Hartel, Alexander Ilin, Steffen Sonntag, Vesselin Michailov
Robert Bosch GmbH, Germany

J1 May-30 12:40

***Tension density as counter force to the Lorentz force density**

Hiroo Nozaki, Masato Senami, Kazuhide Ichikawa, Akitomo Tachibana
Kyoto University, Japan

J1 May-30 13:00

***Kinetic analysis of densification by grain-boundary sliding/diffusion**

Byung-Nam Kim
National Institute for Materials Science, Japan

J1 May-30 13:20

***Analytical-numerical modelling approach for calculation of the structural distortions after welding and thermal straightening**

Vesselin Michailov, Nikolay Doynov
BTU CS, Germany

Lunch break 13:30 - Sessions restarts at 14:10

Session: J2, Venue: (Room: Hall 10)

Modelling and Simulation 2 (Prof. W. Bleck Symposium)

Session Chairs: Elena Pereloma, Australia & Marciej Pietrzyk, Poland

J2 May-30 14:10

*First-principles local-energy and local-stress calculations of materials interfaces

Masanori Kohyama, Shingo Tanaka, Yoshinori Shiihara

AIST, Japan

J2 May-30 14:30

*Surface effects on L10 ordering processes in nanostructured intermetallics with magnetic anisotropy: Atomistic simulation

Rafal Kozubski, Sylwia Brodacka, Mirosław Kozłowski, Christine Goyhenex, Graeme E. Murch

Jagiellonian University in Krakow, Poland

J2 May-30 14:50

*Metamodel of a thermodynamic simulation applied to multiscale modelling

Piotr Macioł, Łukasz Sztangret, Danuta Szeliga

AGH University of Science and Technology, Poland

J2 May-30 15:10

Application of Thermo-Calc TCFE7 to high-alloyed mottled cast iron

Armin Paar, Leonel Elizondo, Michael Brandner, Thomas Trinkl, Bernhard Sonderegger, Coline Beal, Christof Sommitsch

Eisenwerk Sulzau-Werfen, R. & E. Weinberger AG, Austria

Coffee / Tea break 15:30 to 16:10

J2 May-30 16:10

*Computer system for comprehensive optimization of material processing technologies

Maciej Pietrzyk

AGH University of Science and Technology, Poland

J2 May-30 16:30

*Coupling of computational thermodynamics with kinetic models for predictive simulations of materials properties

Erwin Povoden-Karadeniz, Ernst Kozeschnik

TU Wien, Austria

J2 May-30 16:50

*A model for strain hardening, recovery, recrystallization and grain growth with applications to forming processes of nickel base alloys

Hermann Riedel, Jiri Svoboda

Fraunhofer IWM, Germany

J2 May-30 17:10

*Quench sensitivity of Al-Mg-Si and Al-Zn-Mg-Cu alloys. Part 1 experiments

Benjamin Milkereit, Christoph Schick, Yong Zhang, Paul A Rometsch, Olaf Kessler

University of Rostock, Germany

J2 May-30 17:30

*Quench sensitivity of Al-Mg-Si and Al-Zn-Mg-Cu alloys. Part 2 predictive modelling

Marco J. Starink, Benjamin Milkereit, Yong Zhang, Paul A Rometsch

University of Southampton, United Kingdom

**invited presentation*

J2 May-30 17:50

*Multiscale modeling of deformation and fracture in polymers

Yoshitaka Umeno, Atsushi Kubo, Nobuhiro Yoshikawa

The University of Tokyo, Japan

J2 May-30 18:10

*Paracrystalline materials and high-entropy alloys

Shaoqing Wang

Institute of Metal Research, CAS, China

J2 May-30 18:30

Physical simulation of industrial hot rolling of steels

Fulvio Siciliano, Brian Allen, Vinod Kumar, David Ferguson

DSI-Dynamic Systems Inc, USA

Session: J3, Venue: (Room: Hall 10)

Modelling and Simulation 3 (Prof. W. Bleck Symposium)

Session Chairs: Mahesh Somani, Finland & Yoshitaka Umeno, Japan

J3 May-31 9:00

*Multiscale modeling of solidification

Menghuai Wu, Andreas Ludwig, Abdellah Kharicha

University of Leoben, Austria

J3 May-31 9:20

*Solidification of Al-Pb alloy under the effect of micro-alloying element Ti and C

Jiuzhou Zhao, Qian Sun, Hongxiang Jiang

Institute of Metal Research, Chinese Academy of Sciences, China

J3 May-31 9:40

*Multiphysics and multiscale modeling of solidification in casting processes

Miha Založnik, Hervé Combeau

Institut Jean Lamour, CNRS - Université de Lorraine, France

J3 May-31 10:00

*Cellular automaton modeling of ferrite growth in ternary Fe-C-Mn alloys

Chengwu Zheng, Wenxiong Chen, Dianzhong Li

Institute of Metal Research Chinese Academy of Sciences, China

J3 May-31 10:20

Bridging the gap between ab initio and large scale studies – a Monte Carlo study of Cu precipitation in Fe

Alice Redermeier, David Reith, Tobias Kerscher, Raimund Podlousky, Ernst Kozeschnik

TU Wien, Austria

Coffee / Tea break 10:40 to 11:00

J3 May-31 11:00

*Image based modeling of plasticity in polycrystals: From 2D to 3D

Sylvain Dancette

INSA Lyon, Université de Lyon, France

J3 May-31 11:20

*Experimental study and thermokinetic modelling of carbides precipitation sequences in 2,25Cr-1Mo bainitic steel

Caroline Toffolon-Masclét, Sylvain Dépinoy, Anne-Françoise Gourgues-Lorenzon, Ernst Kozeschnik, Bernard Marini, François Roch

CEA, France

J3 May-31 11:40

Multiscale micromechanical modelling for advanced high strength steels including both the TRIP and TWIP effect

Su Leen Wong, Franz Roters

Max-Planck-Institut für Eisenforschung, Germany

J3 May-31 12:00

*Hybrid quantum/classical simulations for dopant segregation and optical response of nanomaterials

Kenji Tsuruta

Okayama University, Japan

**invited presentation*

J3 May-31 12:20

*Modelling of phase separation under electropulsing processing

Rongshan Qin

Imperial College London

J3 May-31 12:40

*Phase-field modeling of metal oxidation at elevated temperatures

Youhai Wen

US Department of Energy – NETL, Albany, USA

J3 May-31 13:00

*Physical modeling of chosen metallurgical processes

Mariola Saternus, Tomasz Merder, Jacek Pieprzyca

Silesian University of Technology, Poland

J3 May-31 13:20 Student

Continuous modelling of dislocation cores using a mechanical theory of dislocation fields

Kodjovi Gbemou, Jean-Marc Raulot, Vincent Taupin, Claude Fressengeas

University of Lorraine, France

Lunch break 13:30 - Sessions restarts at 14:10

Session: J4, Venue: (Room: Hall 10)

Modelling and Simulation 4 (Prof. W. Bleck Symposium)

Session Chairs: Roland Loge, Switzerland, & Jean-Luc Fihey, Canada

J4 May-31 14:10

Modeling of the hot rolling: towards the industrial applicability

Kirill Khlopkov, Geord Paul, Thomas Baron

ThyssenKrupp Steel Europe AG, Germany

J4 May-31 14:30

*Precipitation and recrystallization interaction in Nb microalloyed steels

Hyun Seong Noh, Yong Jae Yu, Kwang Soon Jang, Kyung Jong Lee

Hanyang University, Korea

J4 May-31 14:50

Material modelling and fracture behaviour of thin film systems

Darjan Kozic, Ruth Treml, Ronald Schönggrundner, Daniel Kiener, Thomas Antretter, Hans-Peter Gänser, Roland Brunner

Materials Center Leoben, Austria

J4 May-31 15:10

DFT simulations of dislocations with mixed character in BCC metals

Lorenz Romaner, Gunther Schöck

Materials Center Leoben Forschung GmbH, Austria

Coffee / Tea break 15:30 to 16:10

J4 May-31 16:10

Phase field modelling of bainite formation in low carbon steels

Maria Giuseppina Mecozzi, Jilt Sietsma

Delft University of Technology, The Netherlands

J4 May-31 16:30

Iron-water interface under electrochemical condition

Norio Nunomura, Satoshi Sunada

University of Toyama, Japan

J4 May-31 16:50

Modelling and simulation of Q&P steels

Georg Paul, Richard Thiessen

ThyssenKrupp Steel Europe, Germany

J4 May-31 17:10

A statistical methodology to reconstruct nucleation pathways in the Fe-Cu system

Lin Qin, Alice Redermeier, Ernst Kozeschnik, Christoph Dellago

TU Wien, Austria

J4 May-31 17:30

Finite element modelling of powder densification during spark plasma sintering process

Joseph Diatta, Guy Antou, Mathias Georges, Nicolas Pradeilles, Alexandre Maitre

SPCTS laboratory, France

**invited presentation*

J4 May-31 17:50

*The numerical simulation of precipitates dissolution interacting with grain boundary

Gou Kijima

JFE-Steel, Japan

J4 May-31 18:10

*Low temperature spinodal decomposition of virgin martensite in steels: an atomic-scale mean-field model

Phillipe Maugis, M. Goune, M. Dumont, D. Kandaskalov, S. Chentouf, S. Cazottes, H. Zapolsky, F. Daniox

Aix-Marseille University, France

Session: J5, Venue: (Room: Hall 10)

Modelling and Simulation 5 (Prof. W. Bleck Symposium)

Session Chairs: Matthias Militzer, Canada & Rogshen Qin, UK

J5 June-01 8:30

*Modelling grain coarsening in the framework of rational extended thermodynamics

Lukas Kertsch, Dirk Helm

Fraunhofer IWM, Germany

J5 June-01 8:50

Modelling and simulation of pore formation in chromium steels during creep

Mohammad Reza Ahmadi, Bernhard Sonderegger, Surya Deo Yadav, Cecilia Maria Poletti

Graz University of Technology, Austria

J5 June-01 9:10

Modelling the local microstructure properties due to multi-pass welding

Gancho Genchev, Nikolay Doynov, Ralf Ossenbrink, Vesselin Michailov

Brandenburg University of Technology, Germany

J5 June-01 9:30

Mathematical modelling of steel quenching

Božo Smoljan, Dario Iljkić, Lovro Štic, Zvonimir Kolumbić

University of Rijeka, Croatia

J5 June-01 9:50

Prediction of crack initiation and growth from white-etching areas in bearing steels

Isaac Toda-Caraballo, Gael Guetard, Hanwei Fu, Pedro Rivera-Diaz-del-Castillo

The University of Cambridge, United Kingdom

J5 June-01 10:10

Practical use of computer model STAN 2000 for improvement and creation of regimes of steels hot rolling on mill 2000 of SEVERSTAL

Alexey Ogoltsov, Dmitry Sokolov, Semen Sokolov, Alexander Vasilyev

Severstal, Russia

Coffee / Tea break 10:30 to 11:00

J5 June-01 11:00

Applicability of interatomic potentials for Fe-C systems to simulate martensitic transformations with molecular dynamics

Shivraj Karewar, Maria Santofimia, Jilt Sietsma

TU Delft, The Netherlands

J5 June-01 11:20

Artificial intelligence approach to predict strain-stress curve of steels

Yoshitaka Adachi

Kagoshima University, Japan

J5 June-01 11:40

Quantitative understanding of anomalous slip in bcc metals

Jinbo Yang, Zhenjun Zhang, Ziya Xia, Zhefeng Zhang

Institute of Metal Research, Chinese Academy of Sciences, China

**invited presentation*

J5 June-01 12:00

Effect of chlorine atoms for development of aluminum corrosion

Jun Yamashita, Norio Nunomura

YAZAKI Corporation, Japan

J5 June-01 12:20

Simultaneous precipitation and recrystallization during hot deformation of Ti, Nb and V micro-alloyed steel

Heinrich Buken, Pavel Sherstnev, Ernst Kozeschnik

TU Vienna, Austria

J5 June-01 12:40

Damage modelling in a gamma-TiAl alloy during hot deformation

Dilek Halici, Daniel Huber, Cecilia Poletti

Graz University of Technology, Austria

J5 June-01 13:00

Solidification of immiscible alloys under the effect of a direct current

Hongxiang Jiang, Jiuzhou Zhao

Institute of Metal Research, Chinese Academy of Sciences, China

Lunch break 13:20 - Sessions restarts at 14:10

Session: J6, Venue: (Room: Hall 10)

Neutron Scattering and X-Ray Studies of Advanced Materials 1

Session Chairs: Shinji Kohara, Japan & Thomas Connolley, UK

J6 June-01 14:10 Keynote

***Structural evolution of metals at high temperature, pressure and plastic deformation: In-situ and real-time investigations with neutron and synchrotron quantum beams**

Klaus-Dieter Liss

Australian Nuclear Science and Technology Organisation, and University of Wollongong, Australia

J6 June-01 14:40

***Study on strain distribution in high-temperature superconducting coils by using synchrotron X-ray diffraction**

Xinzhe Jin, Kozo Osamura, Shutaro Machiya, Kentaro Kajiwara, Takahisa Shobu, Hideaki Maeda

RIKEN, Japan

J6 June-01 15:00

***Structure of a non-glass forming oxide liquid**

Shinji Kohara

National Institute for Materials Science, Japan

J6 June-01 15:20

***Microstructure analysis of magnesium-based foams through X-ray micro-computed tomography**

Qizhen Li

Washington State University, USA

Coffee / Tea break 15:40 to 16:10

J6 June-01 16:10

*** Development of dislocation densities under uniaxial loading in Ni 201 and SS 316**

Ondrej Muransky, Levente Balogh, Minh Tran, Mark Daymond

ANSTO, Australia

J6 June-01 16:30

***Misorientation measurement of individual grains in fatigue of polycrystalline alloys by diffraction contrast tomography using ultrabright synchrotron radiation**

Yoshikazu Nakai, Daiki Shiozawa, Ryota Nakao, Naoya Asakawa, Shoichi Kikuchi

Kobe University, Japan

J6 June-01 16:50

***Structural study of the electrolyte material Li₂S-P₂S₅ glasses at SPring-8**

Koji Ohara, Akio Mitsui, Masahiro Mori, Yohei Onodera, Yoshiharu Uchimoto, Zempachi Ogumi

Japan Synchrotron Radiation Research Institute, Japan

J6 June-01 17:10

***Structure and ionic conductivity of Na-P-S superionic conductors studied by neutron and X-ray scattering**

Yohei Onodera, Hiroshi Nakashima, Toshiya Otomo, Toshiharu Fukunaga

Kyoto University, Japan

J6 June-01 17:30

*** High speed X-ray stress measurement with a monolithic SOI pixel detector**

Toshihiko Sasaki, Shingo Mitsui, Toshinobu Miyoshi, Yasuo Arai

Kanazawa University, Japan

**invited presentation*

J6 June-01 17:50 Student

Phase progression during reactive sintering of NiTi using in situ neutron diffraction

Dan Cluff, Stephen Corbin, Michael Gharghouri

Dalhousie University, Canada

Session: J7, Venue: (Room: hall 10)

Neutron Scattering and X-Ray Studies of Advanced Materials 2

Session Chairs: **Klaus –Dieter Liss, Australia & Peter Staron, Germany**

J7 June-02 8:30 Keynote

***Mapping the precipitation kinetics in compositional space: a combinatorial approach to microstructure characterization**

Alexis Deschamps, Frederic De Geuser
Grenoble Institute of Technology, France

J7 June-02 9:00

***Picosecond time-resolved X-ray diffraction studies on phase-transition dynamics under non-equilibrium high pressures**

Kazutaka Nakamura
Tokyo Institute of Technology, Japan

J7 June-02 9:20

***High speed in-situ X-ray tomography applied to advanced materials processing and development**

Robert C. Atwood, Nghia T. Vo, Peter D. Lee, S. Karagadde, Mahmoud Mostafavi, Michael Drakopoulos
Diamond Light Source, United Kingdom

J7 June-02 9:40

***Order and disorder in some photovoltaic materials**

Davor Balzar
University of Denver, USA

J7 June-02 10:00

Load partition and microstructural evolution during hot tensile tests of unreinforced and TiC particle reinforced in Ti-6Al-6V-2Sn

David Canelo Yubero, Guillermo Requena, Cecilia Poletti
Graz University of Technology, Austria

J7 June-02 10:20

***Measurement of stress field in deformed material at the micron scale: Combining Laue microdiffraction with digital image correlation, and related accuracy**

Olivier Castelnau, Fengguo Zhang, Johann Petit, Michel Bornert, Odile Robach, Jean-Sebastien Micha
CNRS, France

Coffee / Tea break 10:40 to 11:10

J7 June-02 11:10

***Lattice strain measurement and simulation for non-proportional biaxial deformation**

David Collins, Tomiwa Erinosho, Fionn Dunne, Richard Todd, Angus Wilkinson
University of Oxford, United Kingdom

J7 June-02 11:30

***In-situ x-ray observations of the effect of ultrasound on liquid and semi-solid metal alloys**

Thomas Connolley, Chuangan Wang, Feng Wang, Mahmoud Mostafavi, Ahmet Cinar, Dmitry Eskin, Jiawei Mi
Diamond Light Source, United Kingdom

**invited presentation*

J7 June-02 11:50

*In-situ experiments for the study of advanced welding processes using high-energy X-rays

Peter Staron, Jie Liu, Nikolai Kashaev, Luciano Bergmann, Jorge F. dos Santos, Norbert Huber, Malte Blankenburg, Norbert Schell, Martin Müller, Andreas Schreyer
Helmholtz-Zentrum Geesthacht, Germany

J7 June-02 12:10

*Neutron and synchrotron studies on self healing of creep damage in Fe-based alloys

Niels van Dijk
TU Delft, The Netherlands

J7 June-02 12:30

*X-ray diffraction in nano-objects: effect of electron density modulation in the surrounding media

Emil Zolotoyabko
Technion, Israel

J7 June-02 12:50

*Heat treatments and hot forming of titanium aluminide alloys studied by in situ synchrotron radiation experiments

Andreas Stark, Marcus Rackel, Michael Oehring, Norbert Schell, Lars Lottermoser, Andreas Schreyer, Florian Pyczak
Helmholtz-Zentrum Geesthacht, Germany

Lunch break 13:10 - Sessions restarts at 14:10
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Session: J8, Venue: (Room: Hall 10)

Neutron Scattering and X-Ray Studies of Advanced Materials 3

Session Chairs: Toshihiko Sasaki, Japan & Christian Klinkenberg, Germany

J8 June-02 14:10

*Application of diffraction-amalgamated grain-boundary tracking to deforming aluminium polycrystals

Hiroyuki Toda, Masakazu Kobayashi, Kyosuke Hirayama

Kyushu University, Japan

J8 June-02 14:30

*Neutron studies of geometrically frustrated layered manganese oxides

Donna Arnold, Laura Vera Stimpson

University of Kent, United Kingdom

J8 June-02 14:50

In situ synchrotron radiation diffraction during hot compression at 350°C of ZK40 (Gd,Nd) magnesium alloys

Ricardo Henrique Buzolin, Domonkos Tolnai, Chamini Mendis, Andreas Stark, Norbert Schell, Norbert Hort, Haroldo Cavalcanti Pinto, Karl Ulrich Kainer

University of São Paulo, Brazil

J8 June-02 15:10

Behavior of tubes from Zr-based alloys under prolonged neutron irradiation

Yuriy Perlovich, Margarita Isaenkova, Vladimir Fesenko, Olga Krymskaya, Gennadiy Kobylanskiy, Yuriy Goncharenko

National Research Nuclear University MEPhI, Russia

Coffee / Tea break 15:30 to 16:00

J8 June-02 16:00

Effects of T4 heat treatment on residual stress in friction stir welding metal matrix composites: neutron diffraction and multiscale modeling

Xingxing Zhang

Institute of Metal Research, Chinese Academy of Sciences, China

J8 June-02 16:20

X-ray and neutron scattering studies of the 9% Ni cryogenic steel and its weld joint

Sara Hany, Benoit Duponchel, Antoine Aboukaïs, Eugène Bychkov, Edmond Abi Aad

ULCO, France

J8 June-02 16:40

*Recent advances in real-time studies of metal solidification under external fields

Jiawei Mi

University of Hull, United Kingdom

J8 June-02 17:00

Small-angle X-ray scattering contrast imaging in grating-based X-ray interferometry

Wataru Yashiro

Tohoku University, Japan

J8 June-02 17:20 Student

Strain induced martensitic transformation in Austempered Ductile Iron (ADI)

Xiaohu Li, Michael Hofmann, Patrick Saal, Markus Hölzel

FRM2-Garching, Germany

**invited presentation*

Session K

Room: Hall 3

Session: K3, Venue: (Room: Hall 3)

Texture of Materials 1

Session Chairs: Werner Skrotzki, Germany & Laszlo Toth, France

K3 May-31 8:30 Keynote

***Effect of high temperature deformation on the texture development in alloys and oxides**

Hiroshi Fukutomi

Yokohama National University, Japan

K3 May-31 9:00

Crystallography and self-accommodation of martensitic transformation in epitaxial Ni-Mn-Ga thin film

Yang Bo, Zongbin Li, Yudong Zhang, Gaowu Qin, Claude Esling, Xiang Zhao, Liang Zuo

Northeastern University, China

K3 May-31 9:20

***Effects of cross-rolling on deformation texture evolution in unalloyed titanium**

Osamu Umezawa, Norimitsu Koga

Yokohama National University, Japan

K3 May-31 9:40

***Formation of transformation textures enhanced by deformation**

Ping Yang, Ting Jin, Louwen Zhang, Kai Li, Weimin Mao

University of Science and Technology Beijing, China

K3 May-31 10:00

Microstructure evolution during high pressure torsion of W-20Cu bimetallic composite

Pradipta Ghosh, Anna Chavez Rodriguez, Karoline Kourmout, Reinhard Fritz, Daniel Kiener, Reinhard Pippan

Erich Schmid Institute of Material Science, Austria

K3 May-31 10:20

The influence of the deformed texture components on Cube-oriented grains formation during recrystallization of AA1050 aluminium alloy

Magdalena Maria Miszczyk, Jagoda Poplewska, Henryk Paul

Polish Academy of Sciences, Institute of Metallurgy and Materials Science, Poland

Coffee / Tea break 10:40 to 11:10

K3 May-31 11:10

***Rapid measurement of texture of metals by time-of-flight neutron diffraction at iMATERIA and its applications**

Yusuke Onuki, Akinori Hoshikawa, Shigeo Sato, Toru Ishigaki

Ibaraki University, Japan

K3 May-31 11:30

***Recrystallization twinning during primary recrystallization in stable single crystals of fcc metals**

Henryk Paul, Magdalena Miszczyk, Julian Driver, Piotr Drzymala

Polish Academy of Sciences, Institute of Metallurgy and Materials Science, Poland

K3 May-31 11:50

***Stress relaxation characteristics of oxygen-free copper and Cu-Ni-Si alloy sheets subjected to continuous cyclic bending**

Yoshimasa Takayama, Tasuku Sasaki, Sharifah Norhafizah, Hideo Watanabe

Utsunomiya University, Japan

**invited presentation*

K3 May-31 12:10

*The limits of grain fragmentation in severe plastic deformation

Laszlo S. Toth

Universite de Lorraine, France

Lunch break 13:10 - Sessions restarts at 14:10

Session: K4, Venue: (Room: Hall 3)

Texture of Materials 2

Session Chairs: Masahiko Demura, Japan & Hirofumi Inoue, Japan

K4 May-31 14:10 Keynote

***Texture: The “fingerprint” of deformation mechanisms in nanomaterials**

Werner Skrotzki, Andy Eschke, Aurimas Pukenas, Tamas Ungar, Bertalan Jóni, Laszlo Tóth, Julia Ivanisenko
TU Dresden, Germany

K4 May-31 14:40

***Mechanism of recrystallization texture evolution during solution treatment for age-hardenable Al-Mg-Si alloy sheets fabricated by cold rolling and asymmetric warm rolling**

Hirofumi Inoue

Osaka Prefecture University, Japan

K4 May-31 15:00

***Effect of buffer layer on microstructure, crystallographic texture and magnetic properties of Co/Cu multilayers**

Leng Chen, Wei Li, Xiaowen Peng

University of Science and Technology Beijing, China

K4 May-31 15:20

***Computational analysis of irregular rolling deformation in Nickel Aluminide single crystals**

Masahiko Demura, Dierk Raabe, Franz Roters, Toshiyuki Hirano

The University of Tokyo, Japan

Coffee / Tea break 15:40 to 16:10

K4 May-31 16:10

***Evolution of recrystallization textures in cold-rolled commercially pure aluminium**

Dong Nyung Lee

Seoul National University, Korea

K4 May-31 16:30

***Analysis of recrystallization behavior of hot-deformed austenite reconstructed from EBSD orientation maps of lath martensite**

Manabu Kubota, Kohsaku Ushioda, Goro Miyamoto, Tadashi Furuhashi

Nippon Steel Sumitomo Metal Corp., Japan

K4 May-31 16:50

*** Weighted individual crystallographic orientations capturing a given texture**

Florian Bachmann, Jean-Jacques Fundenberger, Helmut Schaeben

TU Bergakademie Freiberg, Germany

K4 May-31 17:10 Student

Microstructure and texture evolution in nickel during accumulative roll bonding

Jiaqi Duan, Michael Ferry, Quadir Zakaria

University of NSW, Australia

K4 May-31 17:20 Student

The effect of final annealing heating rate to the abnormally growth grains in the Fe-3%Si steel

Fatayalkadri Citrawati, Md Zakaria Quadir, Paul Munroe

University of NSW, Australia

**invited presentation*

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