



# Polymer Meeting 14

Graz University of Technology

Aug. 30-Sept. 2, 2021



## PROGRAM


## Monday, Aug. 30, 2021 – Morning-Session

10:00-10:15	<b>Opening</b>
	Lecture room <b>P1</b> // Chairman: G. Trimmel
10:15-10:40	<b>IL-1:</b> <i>Strong made weak: Composites with controllable stiffness and shape memory</i> Alexander Bismarck
10:40-11:05	<b>IL-2:</b> <i>Photo-switchable polymer networks</i> Sandra Schlögl
11:05-11:30	<b>IL-3:</b> <i>Additive manufacturing of polymer/composite-metal hybrid structures</i> Sergio T. Amancio-Filho
11:30-11:55	<b>IL-4:</b> <i>Polymer development for 3D printing: highest demands on components require designed materials</i> Klaus Bretterbauer
11:55-12:10	<b>Company talk</b> <i>Shimadzu</i>
60 min	Lunch

# Monday, Aug. 30, 2021 – Afternoon-Session

	Lecture room <b>P1</b> // Chairwoman: K. Stana-Kleinschek	
13:10-13:35	<b>IL-5:</b> <i>Degradable all-aliphatic polyurethane films</i> Jiří Kotek	
13:35-14:00	<b>IL-6:</b> <i>Cationic frontal polymerization</i> Patrick Knaack	
14:00-14:25	<b>IL-7:</b> <i>Cascade use of wood - from boards to fibers and chemicals</i> Andreja Kutnar	
14:25-14:50	<b>IL-8:</b> <i>Lifetime modelling of heritage polymers</i> Matija Strlič	
35 min	Coffee	
	<b>P1</b> // Chairwoman: S. Schlögl	<b>P2</b> // Chairman: S. T. Amancio-Filho
15:25-15:40	<b>CL-A1:</b> <i>High-performance photo-curable adhesives for bone repair</i> Lisa Sinawehl	<b>CL-B1:</b> <i>Polymeric composites and hybrids with 2D nanofillers</i> Mária Omastová
15:40-15:55	<b>CL-A2:</b> <i>Multi-material digital light processing 3D printing based on a dual-curing acrylate-epoxy system: Myth or reality?</i> Ines Cazin	<b>CL-B2:</b> <i>High CNT loading nano and hierarchical composites</i> Neptun Yousefi
15:55-16:10	<b>CL-A3:</b> <i>Frontal photopolymerization of photobleachable resins based on long-chain polyetherpolyol dimethacrylates</i> Catharina Ebner	<b>CL-B3:</b> <i>Influence of filler and matrix on the thermal conductivity and mechanical properties of the composite</i> Nina Wolfsgruber
5 min	Break	
16:15-16:30	<b>CL-A4:</b> <i>Changing morphological features in a semi-crystalline polymer in material-extrusion based additive manufacturing</i> Sandra Petersmann	<b>CL-B4:</b> <i>Optical reflectivity of fiber-reinforced epoxy laminates modified by nanoparticle decorated carbon fibers</i> Lukas Haiden
16:30-16:45	<b>CL-A5:</b> <i>Digital light processing 3D-printing of covalent adaptable networks</i> Elisabeth Rossegger	<b>CL-B5:</b> <i>Polymer electrolyte as separator for structural super-capacitors</i> Olivier Hubert
16:45-17:00	<b>CL-A6:</b> <i>Difunctional low shrinkage monomers performing light-induced cyclopolymerization</i> Larissa Alena Ruppitsch	<b>CL-B6:</b> <i>Functional hierarchical composites for structural applications</i> Michael Feuchter
17:00-17:40	<b>Poster session</b> // even numbers	
17:40-18:25	<b>Public lecture:</b> <i>The Role of Plastics in Navigating the Great Societal Transformation. A story on the future of plastics narrated as "Wag the Dog" puzzle</i> Reinhold W. Lang	
18:25-19:05	<b>Poster session</b> // odd numbers	
19:10-	<b>Conference party</b>	

## Tuesday, Aug. 31, 2021 – Morning Session

	Lecture room <b>P1</b> // Chairman: R. Liska
8:35-9:00	<b>IL-9:</b> <i>Bicontinuous nanophasic amphiphilic polymer conetworks with broad composition range: A novel nanostructured material platform</i> Béla Iván
9:00-9:25	<b>IL-10:</b> <i>Development of devices based on stimuli-responsive polymer thin films deposited by iCVD</i> Anna Maria Coclite
9:25-9:50	<b>IL-11:</b> <i>Fracture of layered polymers</i> Florian Arbeiter
9:50-10:15	<b>IL-12:</b> <i>Raman spectroscopy: A tool for polymer characterization from the macroscopic to the microscopic scale</i> Sabine Hild
35 min	Coffee
	Lecture room <b>P1</b> // Chairman: J. Kotek
10:50-11:15	<b>IL-13:</b> <i>Enzymatic polymerizations – Making polymer synthesis more sustainable</i> Katja Loos
11:15-11:40	<b>IL-14:</b> <i>Additive-manufactured polymer-based biomaterials for regenerative medicine</i> Stefan Baudis
11:40-12:05	<b>IL-15:</b> <i>Viscoelastic modelling of polymer melt flow for thermoplastics and rubber compounds</i> Walter Friesenbichler
12:05-12:30	<b>IL-16:</b> <i>Challenges and approaches for specification-compliant plastics recycling</i> Jörg Fischer 
60 min	Lunch

## Tuesday, Aug. 31, 2021 – Afternoon Session

	<b>P1 // Chairman: C. Paulik</b>	<b>P2 // Chairman: W. Friesenbichler</b>
13:30-13:45	<b>CL-A7:</b> <i>Diels-Alder cycloaddition for the preparation of highly aromatic polyimide copolymers</i> Doris Cristurean	<b>CL-B7:</b> <i>Simulating a multistage polymerization process in a bench-scale setup</i> Gerold Rittenschober
13:45-14:00	<b>CL-A8:</b> <i>Water as monomer: Polymerizing divinyl sulfone and water via oxa-Michael addition</i> Karin Ratzenböck	<b>CL-B8:</b> <i>A hybrid approach for modelling polymer processing problems</i> Wolfgang Roland
14:00-14:15	<b>CL-A9:</b> <i>Preparation of functional polymers for glycan purification based on hydrazone solid phase extraction</i> Davide Ret	<b>CL-B9:</b> <i>Effect of processing and filtering in a two-stage injection molding process on thermos-analytical, rheological, and mechanical properties</i> Ines Traxler
5 min	Break	
14:20-14:35	<b>CL-A10:</b> <i>3D printing of pure phenolic resins by hot lithography</i> Raffael J. B. A. Wolff	<b>CL-B10:</b> <i>Influence of the material on the melt filtration using different screens</i> Kerstin Koller
14:35-14:50	<b>CL-A11:</b> <i>Bottlebrush, high molecular weight poly-phosphazene-g-poly(L-glutamic acid) fully biodegradable polymer therapeutics with enhanced biodistribution profiles</i> Paul Strasser	<b>CL-B11:</b> <i>Modeling of the devolatilization process in an extruder</i> Chi Nghia Chung
14:50-15:05	<b>CL-A12:</b> <i>Exploration of synthetic strategies to access catechol-based monomers for application in bioinspired adhesives</i> Manuel Pühringer	<b>CL-B12:</b> canceled
35 min	Coffee	
	Lecture room <b>P1 // Chairman: I. Lacik</b>	
15:40-16:05	<b>IL-17:</b> <i>Cationic UV-curing of epoxidized biobased resins and composites</i> Marco Sangermano	
16:05-16:30	<b>IL-18:</b> <i>The quest for sustainable polymers - contributions from furan-based polyesters</i> Andreia F. Sousa	
16:30-16:55	<b>IL-19:</b> <i>Binary molecular stamps – a novel data storage technique: imprinting polymers with sequence-defined polymeric templates</i> Oliver Brüggemann	
16:55	Bus ride to the conference dinner	
17:50	<b>Conference dinner – Weinschloss Koarl Thaller</b>	

# Wednesday, Sept. 1, 2021 – Morning Session

	Lecture room <b>P1</b> // Chairman: C. Slugovc	
8:55-9:20	<b>IL-20:</b> <i>New trends in functional porous and permeable polymer materials for sustainability and life sciences</i> Benjamin Carbonnier	
9:20-9:45	<b>IL-21:</b> <i>Porous polymers prepared by ring-opening polymerization</i> David Pahovnik	
9:45-10:10	<b>IL-22:</b> <i>Compensation of volumetric shrinkage by expanding monomers</i> Frank Wiesbrock	
30 min	Coffee	
	<b>P1</b> // Chairman: R. Kargl	<b>P2</b> // Chairman: C. Slugovc
10:40-10:55	<b>CL-A13:</b> <i>A novel mechanical meta-material with customizable stiffness distribution</i> Mathias Fleisch	<b>CL-B13:</b> <i>Hypercrosslinked polymers for visible-light-driven CO<sub>2</sub> photoreduction</i> Robert T. Woodward
10:55-11:10	<b>CL-A14:</b> <i>Investigation of shape memory-assisted self-healing of thiol-acrylate vitrimers</i> Walter Alabiso	<b>CL-B14:</b> <i>Understanding intermolecular bonding in organic materials and its impact on electronic properties</i> Egbert Zojer
11:10-11:25	<b>CL-A15:</b> <i>Bismuth- and pyrylium-based onium salts as initiators for radical induced cationic frontal polymerization</i> Roland Taschner	<b>CL-B15:</b> <i>Hypercrosslinked polyHIPEs as Pd-catalyst supports</i> Hande Barkan-Öztürk
5 min	Break	
11:30-11:45	<b>CL-A16:</b> <i>Curing of epoxidized plant oils with solid acid hardener</i> Markus Schwaiger	<b>CL-B16:</b> <i>Anti-adhesive organosilane coatings functionalized with markers for visibility-on-demand</i> Christine Bandl
11:45-12:00	<b>CL-A17:</b> <i>3D printing and stabilization of nanofibrillated cellulose-alginate scaffolds by different crosslinking methods</i> Tamilselvan Mohan	<b>CL-B17:</b> <i>Water-borne model epoxy varnishes for <math>\mu\text{m}</math>-thin adhesive bonding of electrical steel laminates</i> Gernot M. Wallner
12:00-12:15	<b>CL-A18:</b> <i>Plastic or elastic: Fungi-derived composite nanopapers with tunable properties</i> Andreas Mautner	<b>CL-B18:</b> <i>Activation of polyamide fibers for subsequent metallization</i> Carolin Gleißner
12:15-12:30	<b>CL-A19:</b> <i>Catalytic metal bonding of phosphinated cellulose and formation of nanocellulose in the process</i> Philip Verdross	<b>CL-B19:</b> <i>A study on the mechanism of blistering of pigmented organic coatings in warm-humid environments</i> Barbara Obereigner
60 min	Lunch	



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## Wednesday, Sept. 1, 2021 – Afternoon Session

	<b>P1 // Chairman: D. Pahovnik</b>	<b>P2 // Chairwoman: S. Hild</b>
13:30-13:45	<b>CL-A20:</b> <i>Biomimetic models of the aortic arch for surgical planning</i> Rupert Kargl	<b>CL-B20:</b> <i>Software-based simulation and method optimization for polymer- and nanoparticle separations by Field-Flow Fractionation</i> Gerhard Heinzmann
13:45-14:00	<b>CL-A21:</b> <i>Balancing strength and ductility – Tough and transparent nanopapers through mercerisation</i> Florian Mayer	<b>CL-B21:</b> <i>Effect of sequence blockiness on the retention behavior of gradient copolymers with various liquid chromatographic techniques</i> Blaž Zdovc
14:00-14:15	<b>CL-A22:</b> <i>Fully bio-based high-performance composite</i> Andrea Todorovic	<b>CL-B22:</b> <i>Degradation of monomers during hydroxyl-terminated polyester synthesis and their influence on the polymer structure</i> Viktoria Kreuzer
5 min	Break	
14:20-14:35	<b>CL-A23:</b> <i>Solvent and operating condition effects on the reaction rates of typical lignin bond cleavage during organosolv pretreatment</i> Tina Ročnik	<b>CL-B23:</b> <i>Differential Scanning Calorimetry with pressure cell for determining the polymer crystallinity changes in presence of gaseous penetrant</i> Martina Kukrálová
14:35-14:50	<b>CL-A24:</b> <i>Bio-Pulping: Delignification and hybridisation of lignocellulosic material utilising fungi</i> Kathrin Weiland	<b>CL-B24:</b> <i>Sulfonation of unsaturated polyester – analytical challenges due to solubility change</i> Klara M. Saller
14:50-15:05	<b>CL-A25:</b> <i>Bio-based polymers for transport packaging – possibilities &amp; limitations</i> Nadine Wild	<b>CL-B25:</b> <i>Integrative material characterization of crystalline nanocellulose reinforced filaments for fused filament fabrication</i> Helena Weingrill
30 min	Coffee	
	Lecture room <b>P1 // Chairman: W. Kern</b>	
15:35-16:00	<b>IL-23:</b> <i>Impact of counterions on the propagation rate coefficient in radical polymerization of ionized monomers</i> Igor Lacík	
16:00-16:25	<b>IL-24:</b> <i>Improving the quality of recycled polymer waste through advanced mechanical sorting</i> Gernot Oreski	
16:25-16:50	<b>IL-25:</b> <i>Engineering catalytic conversion pathways of lignocellulose to functional alcohol or carboxylic monomers</i> Blaž Likozar	
16:50-17:15	<b>IL-26:</b> <i>Modeling macro-effects of micro-structures</i> Martin Pletz	
17:15-17:40	<b>IL-27:</b> <i>Polyheterocyclics by hydrothermal synthesis</i> Miriam M. Unterlass	

# Thursday, Sept. 2, 2021 – Morning Session

	Lecture room <b>P1</b> // Chairman: B. Ivan	
8:35-9:00	<b>IL-28:</b> <i>Digital materials – Vision or reality?</i> <i>Applicability of micromechanical modeling for material design</i> Zoltan Major	
9:00-9:25	<b>IL-29:</b> <i>Environmental impact of the textiles sector and the role of bio-based resources</i> Avinash P. Manian	
9:25-9:50	<b>IL-30:</b> <i>Tricks with polyHIPEs: Combined templating approaches for hierarchical porosity</i> Peter Krajnc	
9:50-10:15	<b>IL-31:</b> <i>Processing of fibre-reinforced polymer composites based on phenomenological models</i> Ewald Fauster	
30 min	Coffee	
	<b>P1</b> // Chairman: J. Fischer	<b>P2</b> // Chairman: E. Fauster
10:45-11:00	<b>CL-A26:</b> <i>Investigation on the recycling of biobased polymers on the example of PHBV</i> Sabine Stockenhuber	<b>CL-B26:</b> <i>Destiny of drag reducing agents in turbulent pipe flows</i> Hans Werner Müller
11:00-11:15	<b>CL-A27:</b> <i>Effect of different experimental setups on the removal efficiency of surface and matrix contamination in PE-LD</i> Konstanze Kruta	<b>CL-B27:</b> <i>Impact of silver seed formation on electroless copper deposition for conductive textiles</i> Christian Biermaier
11:15-11:30	<b>CL-A28:</b> <i>Poison study based on chemically recycled plastic waste impurities and their influence on the performance of Ziegler-Natta catalysts</i> Daniel Christian Pernusch	<b>CL-B28:</b> <i>Hydrophobically modified copolymer associations - A promising path to improve drag reduction?</i> Emina Muratspahic
5 min	Break	
11:35-11:50	<b>CL-A29:</b> <i>The influence of the sample preparation steps on the properties of pre-treated polyolefin waste – Problems &amp; Solutions</i> M. Hassan Akhras	<b>CL-B29:</b> <i>Viscosity reduction of magnesium alkyls used for Ziegler-Natta catalysts</i> Julia Schwarz
11:50-12:05	<b>CL-A30:</b> <i>Recycling of multilayer films from food packaging</i> Kateřina Plevová	<b>CL-B30:</b> <i>Effects of different process parameters on improved comonomer incorporation distribution in Ziegler-Natta catalysis</i> Lukas Göpperl
12:05-12:20	<b>CL-A31:</b> <i>Comparison of chromatographic, spectroscopic, thermal, and mechanical measurement techniques for polyethylene recyclate characterization</i> Paul J. Freudenthaler	<b>CL-B31:</b> <i>Application of hybrid modeling in polymer processing</i> Ursula Stritzinger
70 min	Lunch // in parallel: <b>Board meeting</b>	

## Thursday, Sept. 2, 2021 – Afternoon Session

	Lecture room <b>P1</b> // Chairman: P. Krajnc
13:30-13:55	<b>IL-32:</b> <i>Thermal conductive, electrical insulating polymer compounds using material extrusion additive manufacturing for electronic parts</i> Clemens Holzer
13:55-14:20	<b>IL-33:</b> <i>Exploring thiol based photochemistry for the additive manufacturing of medical devices</i> Thomas Griesser
14:20-14:45	<b>IL-34:</b> <i>Fracture mechanical design of new photopolymers for additive manufacturing</i> Jürgen Stampfl
14:45-15:00	<b>Award ceremony</b>
15:00-15:10	<b>Closing</b>