



16. International Summer School

on Advanced Studies of
Polymer Electrolyte Fuel Cells
and Hydrogen

Yokohama National University, 2 - 7 September 2024

General Information

The International Summer School is organized by Yokohama National University (YNU), Japan and Graz University of Technology (TU Graz), Austria in co-operation with internationally recognised experts in the field of fuel cell and hydrogen research. The lectures include fundamental studies and advanced aspects of PEFCs.

GENERAL

- Intensive course on fuel cell and hydrogen R&D
- Certificate of Attendance (without exam)
- Student Poster Session and Student Workshop
- 3 ECTS credits at TU Graz or Yokohama National University credits with written exam

TOPICS OF LECTURES

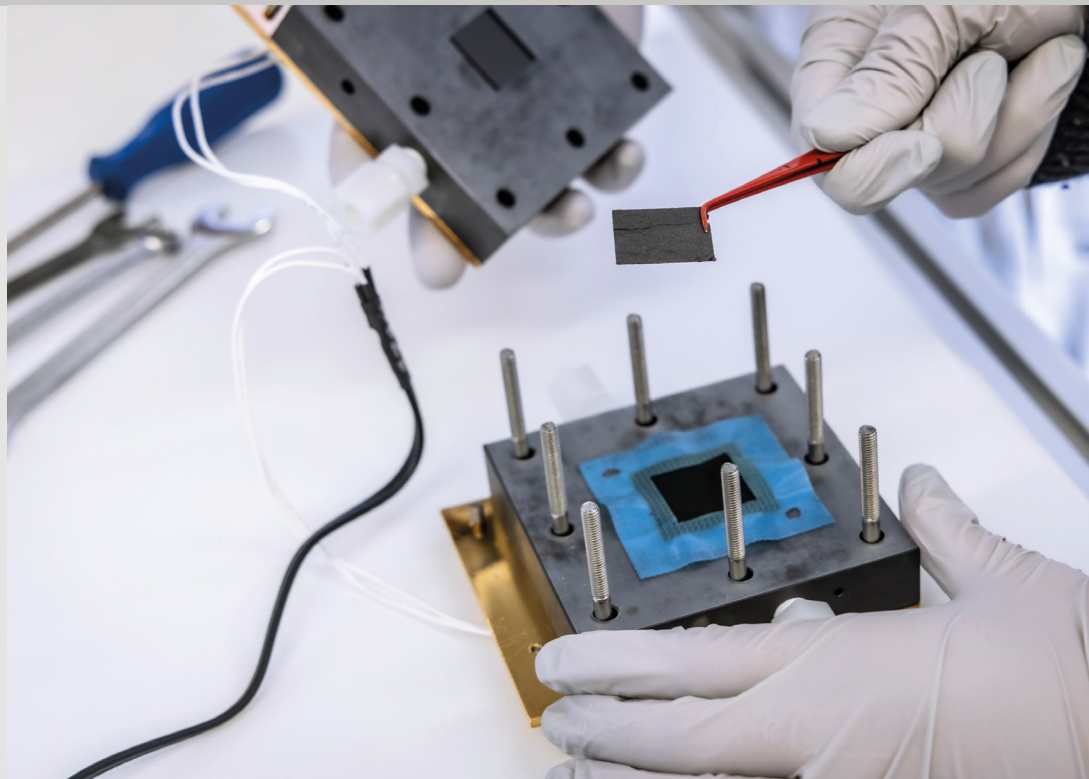
- PEFC Fundamentals
- Hydrogen as Fuel - Fundamentals
- Electrochemistry
- Measurement Techniques
- Advanced Material Studies
- Up-to-date R&D topics
- PEFC Applications

REGISTRATION

No fee for students in natural sciences or technology with confirmation of enrolment and a motivation letter: Please tell us why you would like to participate, what expertise you would like to deepen?

Deadline for registration: 15 July 2024
(limited number of participants!)

Updates about the programme can be found at www.tugraz.at/fcsummerschool



Lunghammer - TU Graz

Contact Persons

ORGANISERS

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LECTURES

Prof. Takuto Araki, Yokohama
Prof. Merit Bodner, Graz
Prof. Bernhard Gollas, Graz
Prof. Aurélien Habrioux, Poitiers
Prof. Tomaž Katrašnik, Ljubljana
Prof. Boniface Kokoh, Poitiers
Prof. Yoshiyuki Kuroda, Yokohama
Dr. Têko Napporn, Poitiers
Prof. Ken-ichiro Ota, Yokohama
Dr. Uwe Reimer, Jülich
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ADMINISTRATION

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16. International Summer School on Advanced Studies of Polymer Electrolyte Fuel Cells



In order to achieve the climate targets by 2040, the energy supply is to be steered in a new direction. Hydrogen will play an important role in this and the areas of fuel cell and hydrogen research will, now and in the coming years, become the focus of political strategies and industrial activities.

This summer school offers an insight into important areas of these technologies and aims to help generate interest and understanding. We welcome students and early career researchers for intensive days of lectures, workshops, networking and socialising. The event covers a broad spectrum of fuel cell and hydrogen research by internationally renowned experts in the field of polymer electrolyte fuel cells and additional lectures on various hydrogen technologies. The individually structured lectures and exercises give participants the opportunity to deal with these topics more intensively and to gain a better understanding through additional interactive exercises.

This interdisciplinary training programme for young scientists started as a cooperation project between Graz University of Technology (TU Graz) and Yokohama National University (YNU) in 2008. The training programme grew rapidly, both in the number of participants and in the number of international experts in the field of fuel cell research involved.

In 1839, Schönbein and Grove described the functional principle of a fuel cell. Since then, a series of fuel cell hypes have repeatedly claimed that fuel cells will soon replace conventional power generation technologies. So why aren't we using fuel cells in our daily lives today? „Economic lifetime“ might be the shortest answer. However, the last decade has shown that the major industrial players have continued their long-term investments into this technology even in times of economic stagnation. In addition, research institutions and universities cover all aspects from basic research to system development to an extent never seen before in history. This will form the basis for finally bringing this interesting, highly efficient and clean technology to market.

Possible applications include portable devices such as laptops, tablets and smartphones, mobile applications such as hybrid vehicles and stationary power plants from the kilowatt to the megawatt class. The most important and advantageous properties of fuel cells are the high efficiencies in energy conversion, the low emissions and, hopefully with further development, the long service life.

Mobile applications are becoming particularly important in fuel cell research and development; however, mobile applications are usually tied to a controversial issue: Hydrogen as fuel. In this training programme, a discourse on hydrogen production, transport and storage technologies will form the basis for an intensive discussion on the advantages and disadvantages of this future fuel. The focus will be on renewable hydrogen, i.e. hydrogen produced from regenerative energy sources.

Prof. V. Hacker and Prof. S. Mitsushima