

7TH POLISH FORUM

SMART ENERGY CONVERSION & STORAGE

4-6.09.2022 OGRODZIENIEC

Program of the 7th Polish Forum

September 4th 2022

15:00 Start of registration

18:00 – 20:00 Buffet dinner

September 5th 2022

8:15 – 8:30 Opening of the Forum

SESSION I – HYDROGEN TECHNOLOGIES, SOLID OXIDE FUEL CELLS chairman: **Janina Molenda**

8:30 – 9:00 **Wojciech Nowak** (AGH University of Science and Technology, Krakow, Poland)
Hydrogen energy transition

9:00 – 9:30 **Konrad Świerczek** (AGH University of Science and Technology, Krakow, Poland)
Oxygen electrode materials for reversible solid oxide cells based on Cu-containing complex perovskites

9:30 – 10:00 **Maria Gazda** (Gdańsk University of Technology, Poland)
Properties of multicomponent oxides based on proton-conducting barium zirconate

10:00 – 10:30 **Mogens Mogensen** (Technical University of Denmark, Denmark)
New combinations in materials for reversible solid oxide cells

10:30 – 11:00 Coffee break

SESSION II – HYDROGEN TECHNOLOGIES, HYDROGEN STORAGE chairman: **Ehrenfried Zschech**

11:00 – 11:30 **Marek Polański** (Military University of Technology, Warsaw, Poland)
Self-shearing reactive milling as a new method of synthesis of solid state hydrogen storage materials

11:30 – 12:00 **Andrzej Budziak** (AGH University of Science and Technology, Krakow, Poland)
Arrangement effect of the hydrogen storage material in tank on rate of heat exchange with environment

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12:00 – 12:15 Kun Zheng (AGH University of Science and Technology, Krakow, Poland)
Symmetric solid oxide fuel cells with high-performance cobalt-free Fe- and W-contained electrodes

12:15 – 12:30 Marcin Kryński (Warsaw University of Technology, Poland)
How polarons and bismuth's lone pairs control diffusion in sodium bismuth titanate – an ab initio study

12:30 – 14:00 Lunch break

SESSION III – SOLAR ENERGY CONVERSION

chairman: Janusz Toboła

14:00 – 14:30 Wojciech Macyk (Jagiellonian University, Krakow, Poland)
Solar to chemical energy conversion – what is the potential of photocatalysis?

14:30 – 15:00 Anita Trenczek-Zajac (AGH University of Science and Technology, Krakow, Poland)
Advanced semiconducting heterostructures for photoelectrochemical water splitting

15:00 – 15:30 Wiesław Stręk (Institute of Low Temperature and Structure Research, Wrocław, Poland)
Laser induced hydrogen generation from water by using graphene foam as photocatalyst

15:30 – 16:00 Philippe Knauth (Aix-Marseille Université, Marseille, France)
Carbon quantum dot catalytic electrodes for the oxygen reduction reaction

16:00 – 16:30 Coffee break

SESSION IV – YOUNG SCIENTISTS SESSION

chairman: Philippe Knauth

16:30 – 17:30 Flash talks: Krystian Mróz, Kamil Urbanek, Mariusz Wtulich, Tadeusz Miruszewski, Krystian Chudzik, Anna Hanc, Katarzyna Walczak, Gabriela Ważny, Mikołaj Nowak

17:30 – 19:00 Poster Session

19:30 Gala dinner

21:30 The tour with torches to Ogrodzieniec Castle (in two groups)

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September 6th 2022

SESSION V – Li-ION BATTERIES AND SUPERCAPACITORS chairmen: Mogens Mogensen, Krzysztof Wojciechowski

- 8:30 – 9:00** **Marcin Molenda** (Jagiellonian University, Krakow, Poland)
Sustainable Li-ion energy storage systems for green transformation
- 9:00 – 9:30** **Władysław Wiczorek** (Warsaw University of Technology, Poland)
Binary salt mixture – novel approach to design electrolytes for Lithium-ion batteries
- 9:30 – 10:00** **Krzysztof Fic** (Poznan University of Technology, Poland)
Novel insertion concepts for hybrid capacitors
- 10:00 – 10:30** **Xu Chaohe** (Chongqing University, China)
Design of functionalized separators for practical application in Lithium-metal batteries
- 10:30 – 11:00** **Coffee break**

SESSION VI – MATERIALS AND THEIR ROLE IN ENERGY CONVERSION STORAGE chairman: Władysław Wiczorek

- 11:00 – 11:30** **Ehrenfried Zschech** (deepXscan, GmbH, Dresden, Germany)
High-resolution X-ray imaging of microcracks in battery electrodes
- 11:30 – 12:00** **Janusz Toboła** (AGH University of Science and Technology, Krakow, Poland)
Interplay of electron structure and entropy improving energy conversion in thermoelectrics and ion batteries
- 12:00 – 12:30** **Krzysztof Wojciechowski** (AGH University of Science and Technology, Krakow, Poland)
High-efficient thermoelectric modules for conversion of low-parametrical heat into electricity
- 12:30 – 12:45** **Closing of the Conference**
- 12:45 – 14:00** **Lunch**