

# 2024 Sophia Symposium on Advanced Electrolyte Materials for Energy Storage and Conversion

December 11, 2024

- 10:00            Opening remarks  
Prof. Takashi Okada  
(Vice President for Academic Research Affairs)
- Plenary session 1 (Chair: Yoichi Tominaga)*
- 10:10 – 10:50    Dr. Jonas Mindemark (Uppsala University)  
*Polymer–ion Interactions and Ion Conduction in Polymer Electrolytes:  
A Complicated Story*
- 10:50 – 11:30    Dr. Kan Hatakeyama-Sato (Inst. Science Tokyo)  
*Challenges in Constructing Large Language Models for Chemical  
Reasoning*
- 11:30 – 12:10    Prof. Daniel Brandell (Uppsala University)  
*Discovering Redox-stable Organic Battery Electrodes using AI*
- 12:10 – 13:30    LUNCH
- Plenary session 2 (Chair: Masahiro Yoshizawa-Fujita)*
- 13:30 – 14:10    Prof. Teppei Yamada (The University of Tokyo)  
*Use of Phase Transition for Electrochemical Thermoelectric Conversion*
- 14:10 – 14:50    Prof. Takahiro Ichikawa (Tokyo Univ. of Agri. & Tech.)  
*Design of Advanced Proton Conductive Electrolytes Based on Gyroid  
Nanostructure*
- 14:50 – 15:10    Fika
- Plenary session 3 (Chair: Jonas Mindemark)*
- 15:10 – 15:50    Prof. Yasuhide Inokuma (Hokkaido University)  
*Polyketone-based Synthesis of Ion-receptor Molecules*
- 15:50 – 16:30    Dr. Feng Wang (Linköping University)  
*The Use of Organic Molecules in Perovskite Solar Cells*
- 16:30 – 17:10    Dr. Shi Tang (Umea University)  
*Development of Electrolyte in Light-Emitting Electrochemical Cells*
- 17:30 – 19:30    Banquet (Faculty Club, 17<sup>th</sup> floor, No.6)

## December 12, 2024

### *Plenary session 4 (Chair: Manabu Tanaka)*

9:00 – 9:40 Dr. Kazuhide Ueno (Yokohama National University)

*Ionic Liquid-based Soft Materials for Next Generation Batteries*

9:40 – 10:20 Dr. Kento Kimura (Tokyo Univ. of Agri. & Tech.)

*Development of Salt-Concentrated Solid Polymer Electrolytes Based on Understanding the Correlation between Structure and Electrochemical Properties*

10:20 – 10:40 Fika

### *Plenary session 5 (Chair: Kazuhide Ueno)*

10:40 – 11:20 Dr. Manabu Tanaka (Tokyo Metropolitan University)

*Anion Conductive Polymers: Synthesis, Ion Transport Analysis, and Water Electrolysis Application*

11:20 – 12:00 Dr. Masamichi Nishihara (Kyusyu University)

*The Relationship between the Gas Permeability of Polymer Electrolyte Materials and Their Durability and Fuel Cell Performance*

12:00 – 12:05 Closing remarks  
Masahiro Yoshizawa-Fujita

PM Excursion (Tokyo area)