

# Speakers

## 1. KEYNOTE LECTURE

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### Carbon-Neutral Fuel Application for Net-Zero Emission

#### Choongsik Bae

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*Professor, Department of Mechanical Engineering, Korea Advanced Institute of Science and Technology*

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#### Short Biography

Prof. Bae serves as a professor at the Korea Advanced Institute of Science and Technology (KAIST) and leads the Future Transport Power Lab, since 1998. He is also leading the CERC (Combustion Engineering Research Center) as a director. Throughout his academic career, he had the privilege of supervising 34 Ph.D. students and 50 M.S. students. He obtained his B.S. and M.S. in Aerospace Engineering from Seoul National University, Republic of Korea, and Ph.D. in Mechanical Engineering from Imperial College London, United Kingdom, in 1998. He is active in the interaction with the industry that he has worked as a Technical Advisor of Hyundai Motors on the occasion of his sabbatical leave from 2011 to 2012. He has been the Dean of the College of Engineering at KAIST during 2019-2020, working for innovation in engineering education.



Throughout his research career, he made distinguishing research and technological achievements, including 152 international research papers. Several outstanding awards, such as the SAE 'Arch T. Colwell Merit' award in 1997, SAE 'Harry Horning Award' award in 2006, the SAE Fellow obtainment in 2012, and Presidential Commendation in 2022 distinguish what he achieved. Prof. Bae is currently working on the research for transport carbon-neutral transport power, including hydrogen jet formation, hydrogen combustion engine, and e-fuel engine combustion, mobile carbon capture, etc. He also continues research in conventional gasoline engine with the variety of diagnostics such as PIV, LIF, LIBs and optical imaging of in-cylinder flow, mixing and combustion process.

## 2. KEYNOTE LECTURE

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### How do you explain sushi to people who have never seen it? : The opportunities and challenges of marketing new and unfamiliar products/technologies

#### Takeshi Matsui

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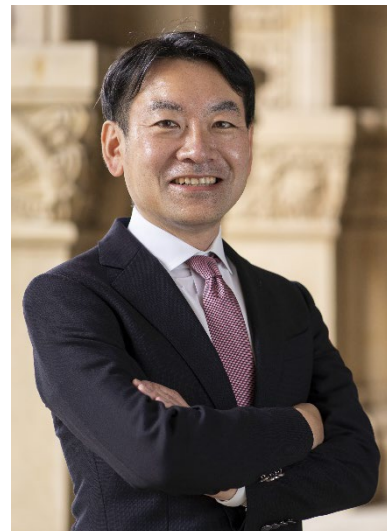
*Professor, Graduate School of Business Administration, Hitotsubashi University,*

*Tokyo Tech Academy of Energy and Informatics, Tokyo Institute of Technology*

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## Short Biography

Takeshi Matsui is a professor of marketing at the Graduate School of Business Administration, Hitotsubashi University, co-appointed as a professor at Tokyo Institute of Technology. His research contributes to the sociology of culture and to the sociological study of markets, especially market creation through linguistic innovation, global marketing of creative products, and the emergence and diffusion of new consumer culture. He has received the Japanese Society of Marketing and Distribution Encouragement Book Award for his first monograph *Language and Marketing: A Social History of the "Healing Boom" in Japan* (Sekigaku-sha 2013). His second research monograph, *Gatekeeping Foreign Cultural Products: Creation of the Japanese Comics Market in the US*, was published by Yuhikaku in 2019 and it is currently being translated into English. He has received the Best First-Time Videography Award at the Association for Consumer Research Film Track 2019 for his videography "ZAKKA: Uncategorized Culture of Uncategorized Goods, An Oral History of Uncategorized Man." In 2022, he started a new project "A Historical Analysis of De-Ethnicization of Japanese Cuisine in the U.S."



## 3. KEYNOTE LECTURE

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### **Electrochemical Interface Phenomena: Toward the Development of Next-generation Lithium-ion Batteries**

## Masaaki Hirayama

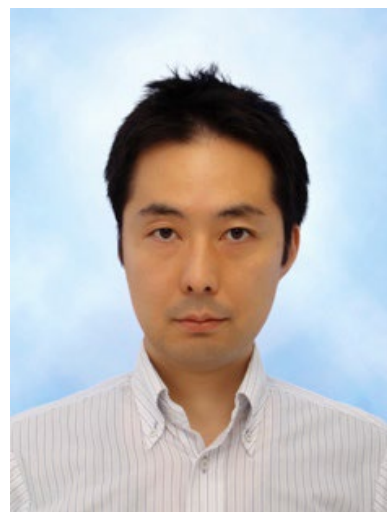
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*Professor, Department of Chemical Science and Engineering, Tokyo Institute of Technology*

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## Short Biography

Masaaki Hirayama received the Ph. D degree in science from the Tokyo Institute of Technology in 2008. Before taking up his position as a full professor in the Department of Chemical Science and Engineering, Tokyo Institute of Technology in 2020, he was an assistant professor (2008-2011) and an associate professor (2011-2020) in the Department of Electronic Chemistry, Tokyo Institute of Technology. Among others, he was a senior science and technology policy fellow, cabinet office, government of Japan (2017-2019). His research interests include the development of ion-conducting solids and understanding of electrochemical interfaces in energy conversion/storage devices. Additional information is available on this website (<http://www.hirayama-cap.mac.titech.ac.jp/en/>).



## 4. INVITED LECTURE

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### **Toward Power Efficient HPC: Analyzing Characteristics of Power Consumption and Optimizations in Supercomputers**

## Ryuichi Sakamoto

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*Associate Professor, School of Computing, Department of Mathematical and Computing Science, Tokyo Institute of Technology*

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### Short Biography

Ryuichi Sakamoto received a Ph.D. from Tokyo University of Agriculture and Technology in 2015. He was a post-doc at The University of Tokyo in 2015-2016, Assistant Professor at The University of Tokyo in 2016-2021. He is an Associate Professor at the Department of Mathematical and Computing Science, Tokyo Institute of Technology from 2021. His research interests are computer architecture, system software for large scale systems, and domain-specific architectures.



## 5. INVITED LECTURE

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### Advanced Materials Development and Simulation of Polymer Electrolyte Electrolyzers and Fuel Cells for Accelerating Decarbonization

## Shawn Litster

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*Professor, Department of Mechanical Engineering, Carnegie Mellon University*

*Email: [litster@andrew.cmu.edu](mailto:litster@andrew.cmu.edu)*

### Short Biography

Shawn Litster is a Professor and the Russell V. Trader Faculty Fellow in the Department of Mechanical Engineering at Carnegie Mellon University in Pittsburgh, PA. He also has a courtesy appointment in the Department of Materials Science and Engineering and is an Energy Fellow in the Scott Institute for Energy Innovation. He received his Ph.D. in mechanical engineering from Stanford University (2008) and his B.Eng. and M.A.Sc. degrees from the University of Victoria in Canada. His current research focus is micro- and nano-scale transport phenomena in energy conversion technologies where electrochemistry and electrokinetics play a dominant role, including fuel cells, electrolyzers, and batteries. His research interests also include multiphase flow in porous media and micro-channels, non-linear dynamics, catalytic gasification, and microfluidic pumping. He is also the director of Carnegie Mellon's X-ray Computed Tomography Facility. In 2019, he received the US DOE's award for fuel cell research and development in recognition of his contribution to the development of platinum-free fuel cells. He is a recipient of Carnegie Mellon's George Tallman Ladd Research Award, a National Science Foundation CAREER award, the University of Victoria's Lieutenant Governor's Silver Medal, and best paper/presentation awards from The Electrochemical Society and the American Society for Mechanical Engineers. He is the author of over 90 journal papers and three book chapters. He is also an inventor for three US patents on fuel cell design.

