

## The 55th Symposium on Powder Technology

The 55th Symposium on Powder Technology organized by the Hosokawa Powder Technology Foundation took place at the Hotel Tokyo Garden Palace in Japan on Monday, September 4, 2023. This event was held by the planning of the Council of Powder Technology, Japan and with the sponsorship of Hosokawa Micron Corporation. The theme of the symposium this year was “Powder Technology Contributing to a Sustainable Society”. There were seven lectures, including three KONA Award commemorative lectures, from basic and applied perspectives. This year’s symposium was held in a hybrid style, allowing both on-site and online participation.

At the beginning, Mr. Yoshio Hosokawa, the president of the Foundation, delivered the opening address mentioning that this symposium has been held almost annually in Osaka or Tokyo since 1968. However, due to the coronavirus pandemic, it was canceled for two years. Last year, a special event was held to commemorate the 30th anniversary of the foundation’s establishment in Osaka, and consequently, this event in Tokyo was for the first time in five years.

Prior to the lectures, the KONA Award presentation ceremony was held, and the plaques of the KONA Award were handed from the president to the two 2022 KONA Awardees; namely, Professor Hidehiro Kamiya, Director and Vice President of Tokyo University of Agriculture and Technology, and Professor Toshitsugu Tanaka of Osaka University. The contents of the symposium are shown below.

In the morning session, Prof. Kamiya and Prof. Tanaka gave the KONA Award 2022 commemorative lectures, in which they introduced their research results on particle adhesion and aggregation behavior in relation with the characterization and control, as well as on the development of discrete particle modeling and simulations of gas–solid two-phase flows, respectively.

The afternoon session began with the commemorative lecture for the KONA Award 2021 by Prof. Shuji Matsusaka of Kyoto University on advanced characterization of fine particles and the development of novel powder handling systems. Then, Prof. Toru Wakihara of the University of Tokyo and Prof. Tohru Sekino of Osaka University discussed a new preparation method for zeolite nanoparticles and its application, along with the creation of photo-physical-chemical functions by controlling the structure of the oxide nanoparticles, respectively, focusing on specific powder materials.

In the final session, Mr. Daisuke Ito of Murata Manufacturing Co., Ltd. and Dr. Aiko Sasai of Hosokawa Micron Corporation talked about the applications of powder technology and nanoparticle processing technology to the development of noteworthy products such as next-generation batteries, and regenerative medicine/cosmetics, respectively. After the end of the lectures, Prof. Hiroyuki Kage, Chairman of the Council of Powder Technology, Japan, gave the closing address, and the symposium concluded successfully.

Subsequently, in the reception hall, a social gathering was held for the first time in four years, allowing the lecturers and attendees to engage in meaningful exchanges in a relaxed atmosphere from beginning to end. The number of participants at this year’s venue was over 100, with nearly 240 in total, including online attendees. The following 56th Symposium is scheduled to be held in Osaka next year.



Opening address by President Yoshio Hosokawa.



For the memory of KONA Award presentation ceremony. (From left: 2022 KONA Awardee, Prof. Hidehiro Kamiya; President Yoshio Hosokawa; 2022 KONA Awardee, Prof. Toshitsugu Tanaka).

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**Theme:** “Powder Technology Contributing to a Sustainable Society”

**Date:** Monday, September 4, 2023

**Place:** Hotel Tokyo Garden Palace

**Opening address** Mr. Yoshio Hosokawa (*President of Hosokawa Powder Technology Foundation, Chairman of Hosokawa Micron Corporation*)

- 2022 KONA Award presentation ceremony

**Session 1** Chaired by Prof. Masayoshi Fuji (*Nagoya Institute of Technology, Japan*)

- Lecture 1 (Special lecture by the 2022 KONA Awardee)

### “Control of Nano and Fine Particles Adhesion and Aggregation Behaviors Based on Characterization and Analysis of Particle Interactions”

Prof. Hidehiro Kamiya (*Graduate School of Engineering, Tokyo University of Agriculture and Technology, Japan*)

- Lecture 2 (Special lecture by the 2022 KONA Awardee)

### “Development of Discrete Element Model and Simulation Method to Predict Granular Flows”

Prof. Toshitsugu Tanaka (*Graduate School of Engineering, Osaka University, Japan*)

**Session 2** Chaired by Emeritus Prof. Kikuo Okuyama (*Hiroshima University, Japan*)

- Lecture 3

### “Advancements in Powder Characterization Methods and Developments in Advanced Powder Handling Technology”

Prof. Shuji Matsusaka (*Graduate School of Engineering, Kyoto University, Japan*)

- Lecture 4

### “Novel Preparation Method of Nano-Sized Zeolite Using Pulverization Technology and Its Application”

Prof. Toru Wakihara (*School of Engineering, The University of Tokyo, Japan*)

- Lecture 5

### “Creation of Photo-physical-chemical Functions of Nanostructured Materials via Various Structure Tuning”

Prof. Tohru Sekino (*SANKEN, Osaka University, Japan*)

**Session 3** Chaired by Honorary Research Advisor, Dr. Hisao Makino (*CRIEPI, Japan*)

- Lecture 6

### “Designs of Ceramic Powders: Toward Next-Generation Batteries”

Mr. Daisuke Ito (*Principal Researcher, Battery Development Department, Device Center, Murata Manufacturing Co., Ltd., Japan*)

- Lecture 7

### “Development and Practical Use of Integrating Regenerative Medicine and Nanotechnology”

Dr. Aiko Sasai (*Pharmaceutical & Beauty Science Research Center, Material Business Division, Hosokawa Micron Corporation, Japan*)

**Closing remarks** Emeritus Prof. Hiroyuki Kage (*Kyushu Institute of Technology, President of Council of Powder Technology, Japan*)



Symposium on Powder Technology.



Get-acquainted Party.