# The KONA Award 2021

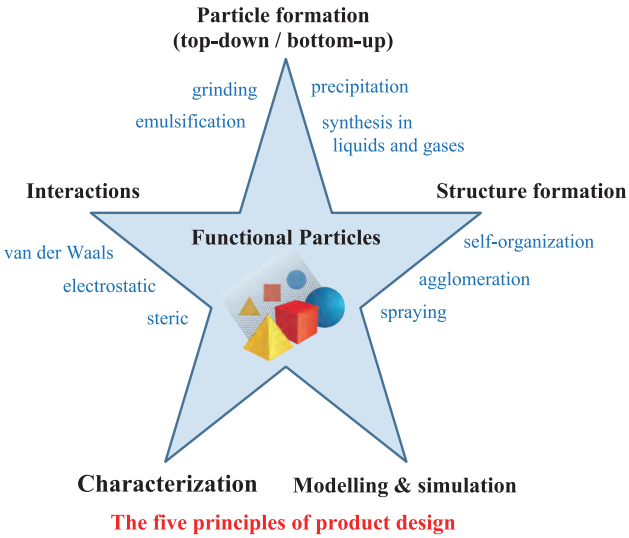
The KONA Award has been presented to the researchers who have greatly contributed to the research and development as well as education in the field of Powder and Particle Science and Technology since 1990. It was given originally by Hosokawa Micron Corporation but now is presented to the researchers from all over the world by the Hosokawa Powder Technology Foundation annually. The application for this award requires a specified recommendation form written in English to be submitted to the President of the Hosokawa Powder Technology Foundation. The award candidates are reviewed by the KONA Award Committee members and the results are reported to the Selection Committee of the Foundation for the nomination of the awardee. It needs to be finally approved at the Board of Directors' meeting of the Foundation. The KONA Award is presented at a ceremony in or outside of Japan with a plaque and a prize of one million yen.

There were three candidates recommended from around the world for The KONA Award 2021, and it has been presented to two researchers this year, namely Professor Wolfgang Peukert of Friedrich-Alexander-University Erlangen-Nuremberg, Germany and Professor Shuji Matsusaka of Kyoto University, Japan. The KONA Award plaque was presented to Prof. Matsusaka at the 54th Symposium on Powder Technology on September 5, 2022 and to Prof. Peukert at the 7th International Conference on the Characterization and Control of Interfaces for High Quality Advanced Materials (ICCCI 2022) in November 2022.

Prof. Peukert has brought particle technology forward like no other European and probably no other professors at all in the last decade. With his forward-looking approaches to focus research activities on particle interactions, he has given particle technology as an engineering discipline a new direction. From the fundamental and in-depth research of individual processes in mechanical process engineering, which was predominant 20 years ago, his influence has clearly shifted the discipline towards process-structure-property relationships and, thus, towards the design of products made of the finest particles, which are often in the nanometer range. He has published his research results in more than 550 refereed publications with over 11800 citations (according to Scopus as of Oct. 10, 2022), whereby he has achieved an extremely high h-index of 57 for the research subject "process engineering".

His pioneering concepts have led to the acquisition of the Cluster of Excellence "Engineering of Advanced Materials – Hierarchical Structure Formation for Functional Devices", which he successfully coordinated for 12 years of funding. He was also awarded the Gottfried Wilhelm Leibniz Prize (1.55 million €) for his scientific achievements. Within the Process-Net association (as part of DECHEMA and VDI/GVC), he has been intensively promoting the subject for many years as chairman of the division "Particle Technology and Product Design". These outstanding achievements are complemented by many other smaller successes and activities.

At the KONA Award presentation ceremony,
President Hosokawa (Left) and 2021 KONA Awardee Prof. Wolfgang Peukert (Friedrich-Alexander-University Erlangen-Nuremberg, Germany).




Selected research achievements for the KONA Award 2021 (Prof. Wolfgang Peukert): Particle based product innovations by understanding and controlling particle interactions.

At the KONA presentation ceremony, President Hosokawa (Left) and 2021 KONA Awardee Prof. Shuji Matsusaka (Kyoto Univ., Japan).

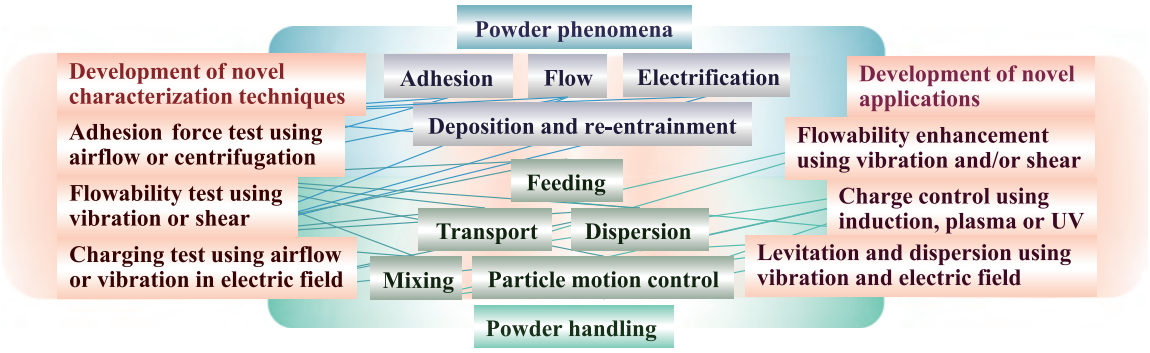
Prof. Shuji Matsusaka has been conducting research at Kyoto University focusing on powder technology, particularly with regards to the advanced characterization of fine particles in gases, for 32 years. This area of study covers a number of fundamentally related topics including electrostatic charging, deposition and re-entrainment, adhesion and agglomeration, and powder flowability and mechanics. He has used the characterization methods to develop novel powder handling systems for feeding, transport, and particle motion control systems. Furthermore, he established the theory and control method of particle charging based on contact potential difference in an external electric field.

He also developed novel methods using atmospheric pressure plasma jets and the photoelectric effect arising from ultraviolet radiation. In addition, he established a dynamic model for particle deposition layers formed in gas-solid pipe flow, considering simultaneous particle deposition and re-entrainment. Applying the airflow method, he developed a system measuring the adhesive strength distribution of fine particles to characterize different adhesion forces including van der Waals forces and electrostatic forces. To analyze and evaluate the flowability of highly cohesive powders, he invented the vibration shear method, which was effective for micro-feeding of nanoparticles and micron-sized particles. Furthermore, he developed the constant-volume shear method and the vibration-induced fluidization method for characterization and applications.

For the above achievements, he was awarded the APT Distinguished Paper Award in 2018, Best Paper Award of the Society of Powder Technology, Japan in 2018, SCEJ Award for Outstanding Research Achievement in 2018, Best Paper Award of the Imaging Society of Japan in 2010, Distinguished Achievement Award of the Information Center of Particle Technology, Japan in 2002, Best Paper Award of the Society of Powder Technology, Japan in 2002, Iinoya Award of the Japan Association of Aerosol Science and Technology in 1995, among other awards.

In recognition of his research achievements, he was appointed as Editor-in-Chief of Advanced Powder Technology. During his tenure, he elevated the journal to a top ranking in the field by increasing the impact factor from 1.6 (2013) to 4.2 (2019). To achieve this objective, he made effective use of the financial support provided by the Japanese government and established overseas editorial boards in Europe and North America. He has been a longstanding proponent of various international programs.

Prof. Matsusaka is an acknowledged world leader in powder technology and has made significant contributions to the formation of a global network of researchers in the field.




Selected research achievements for the KONA Award 2021 (Prof. Shuji Matsusaka): Advanced characterization of fine particles and the development of novel powder handling systems.