

The Japan Society for Precision Engineering

Introduction of JSPE PRIZES 2021

This award is presented to individuals who have achieved innovation in research, technology, or education in the field of precision engineering and have contributed significantly to its development.

● *Hideki AOYAMA (Keio University)*

Prof. Hideki Aoyama, professor at Keio University, has been consistently engaged in pioneering research and development in manufacturing processes. He aims to achieve not only high technological sophistication in manufacturing through intelligentization and optimization of machine tools but also explore innovative engineering technologies, including CAD/CAM, digital design systems, and digital manufacturing systems, from a comprehensive perspective of the full value chain, beyond aesthetic and engineering design. Moreover, as part of industry-academia collaboration, he has been contributing significantly to nurturing young engineers in mold manufacturing, a crucial technology for manufacturing a wide variety of products.

He is currently promoting cutting-edge research related to systems and product design by analyzing KANSEI of designers/customers using engineering methods and manufacturing systems to realize advanced machining based on engineering theory and experience and knowledge of skilled works.

Through the years, he served as a board member, an auditor, and a vice president (2018–2019) of the Japan Society for Precision Engineering (JSPE) and has made outstanding contributions towards its development. He promoted the activation of personnel exchange and is also actively involved with other academic societies, and served as the president of the Japan Society for Die and Mould Technology (2016–2017), the secretary of a technical committee of the Japan Machine Tool Builders' Association, and held many other important positions.

Through his efforts, he has contributed immensely toward the growth of manufacturing technologies in both academia and industry in Japan, in addition to notable pioneering activities in JSPE over the years. In recognition of his achievements, we hereby present this year's JSPE Prize to Prof. Hideki Aoyama.



Fig. 1. Lecture by Prof. Hideki Aoyama

● *Shigeru KIRINO (Crystal Optics Inc.)*

Mr. Shigeru Kirino started as a polishing technician at HORIBA, Ltd. at the age of 15 in 1964 and learned precision polishing technology for various materials, including optical single crystals. In 1985, at the age of 36, he founded Crystal Optics and started as an individual hand lapping craftsman. He has since undertaken ultra-precision polishing of every kind of materials such as metals, non-metals, and ceramics, with mastered expertise and craftsmanship.

The first major working product developed at Crystal Optics was the stainless-steel precision gas flow controller, widely used in the semiconductor industry. The company's aptitude to meet such strict accuracy requirement from industries has further helped them expand their business while improving customer satisfaction.

His investments in cutting-edge machinery and measurement instruments, especially for large-sized work materials, have helped the company establish overall advanced precision machining processes, which cover cutting, grinding, polishing, and measurement by one company with their own technologies while continuously chasing frontiers in the state-of-the-art technologies.

The company's outstanding works have helped advance science and technology frontline; representative works include large-diameter lightweight glass mirrors for satellites, large stainless-steel mirrors for fusion reactors, and the world's largest lithium triborate single crystal substrate for LFEX laser. Recently, the areas of application have expanded to advanced medical fields such as regenerative medicine.

His excellent contribution to precision engineering

has been based on craftsmanship from physical experience combined with knowledge of engineeringly quantifying and visualizing while nurturing successor craftsmen and engineers with advanced skills. The JSPE prize is presented to Mr. Shigeru Kirino, considering his contributions to advancing Japanese manufacturing technology and precision engineering.



Fig. 2. Lecture by Mr. Shigeru Kirino

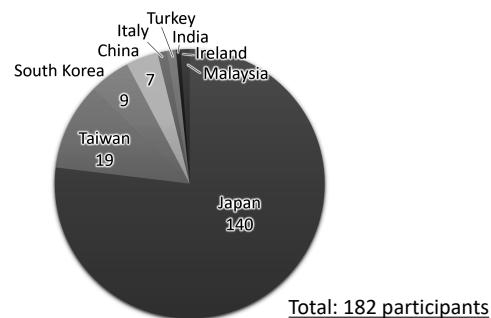


Fig. 3. JSPE PRIZES 2021 Ceremony, left: Mr. Shigeru Kirino, center: Prof. Kiyoshi Takamasu, the president of JSPE, right: Prof. Hideki Aoyama

Report of the International Symposium on Upcoming Prominent ENgineering solutions (ISUPEN)

The International Symposium on Upcoming Prominent ENgineering solutions (ISUPEN) was held online on August 31, 2021. The symposium aimed to strengthen cooperation with related overseas organizations and further promote the internationalization of JSPE. In this symposium, innovative R & D cases investigated by researchers and engineers in the field of precision engineering were introduced to identify prominent engineering solutions for various recent social issues. The direction in which precision engineering should move toward to form an international community in the future was also discussed. The symposium consisted of 6 invited lectures and 12 oral presentations including ones by up-and-coming young researchers who will contribute to future precision engineering. The symposium program is posted on the next page.

There were more than 180 registrations from 9 countries and regions. There were many vigorous discussions, and the symposium was successfully closed. The organizing committee would like to express our sincere gratitude to the attendees.



Number of participants by region

Organizing committee

Chair	Kazutoshi Katahira	RIKEN
Yukie Nagai	Tokyo Metropolitan University	
Takazo Yamada	Nihon University	
Daisuke Matsuura	Tokyo Institute of Technology	
Soo Hyeon Kim	The University of Tokyo	
Tatsuya Sugihara	Osaka University	
Ryo Koike	Keio University	
Masakazu Soshi	University of California Davis	
Atsuko Murakoshi	Sumitomo Heavy Industries, Ltd.	

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Machine Tool Engineering Foundation