



The Japan Society for Precision Engineering

Introduction of JSPE PRIZE 2008

Seido KODA (OKK Corporation)

Since Seido KODA joined the OKK Corporation in 1971, he has consistently worked on research and development related to machine tool technology and manufacturing technology. He also actively presented the research results at academic meetings of the Japan Society for Precision Engineering (JSPE), the Japan Society of Mechanical Engineers (JSME), the Japan Society for Abrasive Technology (JSAT), etc. and contributed to the dissemination of technologies related to machine tools as well as contributing to the education of researchers and engineers in machine tool related fields. These research and development activities have resulted in applications for many patents and the publication of various papers. These achievements also won many prizes including the Hyogo Prefectural Science Award in 1981, the Invention Prize of the National Commendation for Invention in 1982, the Japan Society of Advanced Production Technology Technical Award in 1993 and the JSPE Prize in 2003.

He has filled various posts in academic societies including being an official and a commissioner of the JSPE, the JSME, the JSAT, etc. In the JSPE, he served as a director, a trustee, a deputy manager of a branch office, etc. He also served as an organizer of machine tool related sessions in the academic meetings of various societies including the JSPE and played an important role in academic activities as well as revitalizing research and development activities through industry-university cooperation.

In parallel to these activities, he also trained young engineers by being actively involved in educational activities, for example conducting lectures on machine tools, machine design and drawing based

on his practical experiences as a corporate worker, in many universities; Kobe University, Osaka University, the Himeji Institute of Technology, the Graduate School of the Kyushu Institute of Technology, the Osaka Electro-Communication University and Kansai University.

These accomplishments have been highly praised and he was given the title of fellow by the JSPE and the JSME. He greatly contributed to the development of the academic societies and the industry.

Toshiro HIGUCHI (the University of Tokyo)

Toshiro HIGUCHI engaged in numerous research and development activities and had various achievements in the field of precision engineering, particularly in the field of electro-mechanics control technology including micro actuators which use piezo actuators, magnetic bearings, linear motors and electrostatic force application technology, as well as in biological micro machining. In particular, his highly original achievements have been recognized in the fields related to precision positioning systems which use impact force, micro manipulation technology application for food industry and cell manipulation devices, and so on.

He started working as a lecturer at the Institute of Industrial Science, the University of Tokyo, in 1977 and became a professor in the institute in 1991. He is currently a professor in the Graduate School of Engineering, the University of Tokyo. In addition to being engaged in research and educational activities at the university, He has been serving as a leader for mechatronics related projects at the Kanagawa Academy of Science and Technology since 1992 and is working to put the research results into practical use in industry. He also established Nano Control Co., Ltd. which is a venture business originated at a university in 2002. He is actively involved in the business as a manager of the company, which manufactures and sells piezo actuators and precision positioning devices.

These research and development received many prizes including the Machine Tool Engineering Foundation Award (the Paper Award), the JSPE Prize (now called the JSPE Best Paper Award), the Technical Innovations Awards of the Robotics Society of Japan, the 12th Shimoji Prize of the Japanese Material Handling Society, the IEEE MHS2007 Best Paper Award and the IFToMM Award of Merit. The research results also led to the achievement of at



Fig.1 Awarding of JSPE PRIZE

least eight patent registrations overseas. As stated above, he has made great engineering and industrial contributions to the field of precision engineering.



Fig.2 Awarding of JSPE PRIZE

Introduction of JSPE Young Engineer Award 2008

Masahiro OKANE (Mitsubishi Electric Corporation)

Development of MSCoating that is Coating Technology using Electrical Discharge

Masahiro OKANE received the award for a new coating technology using pulse discharge. This coating technology does not cause deformation of the base material as seen in conventional overlay welding and the coating does not easily exfoliate which is the case with plating and thermal spray. The technology enables the creation of films having various functions and is used for turbine blades in aircraft engines. This achievement was recognized as deserving of the JSPE Young Engineer Award because this unconventional and new technology is expected to be used in the fields of automobile, industrial machinery, health care, etc. in addition to the aircraft industry, as well as being expected to contribute to industry development as an innovative technology which will replace thermal spray and welding.

Naoki KAWADA (Tokyu Car Corporation), Shinichi SHIRAISHI (Gunma University)

Development of Monitoring System for Laser Welding System of Stainless Steel Sheets

- Examination of Diagnosis Technology of Laser Welding System -

They received the award for a technology which is designed to capture various types of process parameter information as optical signals using

multiple optical sensors at laser welding processing factories. Information on the optimum processing conditions for a mass production line is recognized as optical signals using the pattern recognition technique. Signal factors which deviate from optimum processing conditions are detected in real time and this enables the detection of abnormal process parameters in machinery such as laser power, welding speed and processing gas conditions. This is a monitoring technology which tries to utilize quality engineering for production control in laser welding at the practical level. This achievement was recognized as deserving of the JSPE Young Engineer Award because the technology is expected to be applied to laser welding systems for stainless steel plates and to contribute to the advancement of other processing systems.

Mineo UENO, Ryoichi NAKANO, Takahiro OGURA (Nagamine Manufacturing Co., Ltd.)

The development of 5 μ m diameter ceramic nozzle by ceramic injection molding method

They received the award for a technology of micro nozzles manufacturing using the ceramics injection molding method which utilizes precision mold technology. They succeeded in producing molded components through injection molding using molds which can endure the molding pressure. They also developed a grinding technology for molded components and a high accuracy profile control technology for ceramics. These enabled the manufacturing of ceramic micro nozzles with a nozzle hole diameter of five micrometers, which has been difficult to manufacture in the past. This achievement was recognized as deserving of the JSPE Young Engineer Award because the technology is expected to realize high-performance ceramic dispenser nozzles and mounter nozzles, which are conventionally made of metals or plastics, and therefore to increase the added value of micro nozzles.



Fig.3 Awarding of JSPE Young Engineer Award