



The Japan Society for Precision Engineering

Introduction of JSPE PRIZES 2009

Akimitsu NAGAE (Yamazaki Mazak Corp.)

Akimitsu Nagae has been heavily involved in the development of machine tools since entering the Yamazaki Mazak Corporation in 1971. In 1981, he and his team successfully developed a turning center equipped with the interactively programmed MAZATROL T1 CNC system. In the same year, he led the development of the flexible manufacturing system (FMS), an unmanned operation system for the production of machine tools components at the Oguchi Plant, followed in 1983 by the development of the flexible manufacturing system at the Minokamo Plant, which at that time produced 250 CNC turning centers each month. The research and development results of these two FMS plants were compiled into a thesis entitled Development of large scale FMS, earning him a doctorate in engineering in 1986.

In 1989, he led the development of the INTEGRGX CNC turning center which incorporated machining center functions. He was the first to develop volume production of these CNC multi-tasking machines and became one of the key figures making it possible for Japan to maintain its position as a world leader in the field of CNC machine tools. Dr. Nagae is now involved in the development of intelligent machines, which will possess the capability of sensing and monitoring the operational and processing conditions of machine tools as well as the condition of the tools themselves and the environments surrounding them, and then analyze and make decisions on how to achieve optimum processing.

Throughout his career, Dr. Nagae has also been active in academic societies and organizations. He headed the Manufacturing & Machine Tool Division of The Japan Society of Mechanical Engineers, chaired the Technical Committee of the Japan Machine Tool Builders' Association and was head of a branch office of The Japan Society for Precision Engineering. He has been an organizer for sessions related to machine tools at conferences and symposiums held by The Japan Society of Precision Engineering and other organizations. Such undertakings have allowed him to fulfill an important role in providing impetus to the activities of academic organizations and to machine tool research jointly undertaken by industry, government and academia. Dr. Nagae has endeavored to educate young engineers by applying his practical experience in the business world to conducting lectures on production systems at such

venues as Osaka University and the Nagoya Institute of Technology.

More than 30 years of devotion to the activities described above have resulted in Dr. Nagae making monumental contributions in the fields of engineering and industry.



Fig. 1 Awarding of JSPE PRIZE

Takahisa MASUZAWA (Masuzawa Micromachining Technology Consulting)

Takahisa Masuzawa's significant contributions to explaining electrical discharge machining phenomena and to the establishment of circuit theory of electrical discharge pulse generators have made him an instrumental force in bringing Japan's electrical discharge machining technology to the forefront in the world today. He became a pioneer in the field of micromachining, recognizing early on that electrical discharge machining was suited to micromachining.

In particular, he developed the wire electrical discharge grinding method (WEDG method) for machining rods of just a few microns in diameter. He then developed a micro electrical discharge machine for precision hole machining by suppressing run-out from polarity reversals after on-the-machine forming of tool electrodes using the WEDG method. The machine is based on the principles of the on-the-machine forming of tools advocated by Masuzawa in which, after the electrical discharge machining of a tool, the subsequent electrical discharge machining, milling, ultrasonic machining, electrochemical machining, blanking, electroplating, polishing, assembly, form measurements and other processes are carried out on the same machining apparatus.

These achievements earned him the Science and Technology Prize by the Ministry of Education,

Culture, Sports, Science, and Technology, recognizing his paramount status as a person of merit in the field of science and technology, and he has also been the recipient of numerous other academic organization awards, including the JSPE Hasunuma Memorial Award. He chaired the Japan Society of Electrical-Machining Engineers, and was Director of the Japan Society for Precision Engineering and of the Japanese Society of Die and Mould Technology. His achievements have also been highly recognized abroad, leading him to become a visiting professor at numerous overseas universities and to become a department head at The International Academy for Production Engineering (CIRP).

Since retiring from The University of Tokyo, Professor Masuzawa has continued to do consulting related to micromachining. For the purpose of transmitting technology and instructing others, he developed an electrical discharge machining device that allows micro-holes to be created with the ease of a hand drill, and he continues to disseminate this technology on a

broad basis both at home and abroad.

The contributions to technology and industry in the field of micromachining that Professor Masuzawa has made throughout his career are immense.



Fig. 2 JSPE PRIZE winner speech

International Conference on Precision Engineering

ICoPE2010 & 13th ICPE

28 – 30 July 2010, Singapore

An international conference on precision engineering will be organized in Singapore from 28 to 30 July 2010 under the banner of ICoPE2010 and 13th ICPE Conferences. The conference is jointly organized by the Singapore Institute of Manufacturing Technology (SIMTech), the Japan Society for Precision Engineering (JSPE), Nanyang Technological University (NTU), and the National University of Singapore (NUS).

ICPE (International Conference on Precision Engineering) is the biannual conference of JSPE. Since the first ICPE held in Tokyo Japan in 1974, ICPE conferences have focused on state-of-the-art production and precision engineering and is always forward-looking towards next-generation technologies. ICoPE 2010 is the fourth in the series of the international conferences on precision engineering (ICoPE) held in Singapore. The first three ICoPE conferences were organised in 1995, 2000, and 2004 respectively.

The objective of this joint ICoPE2010 and 13th ICPE conference is to provide an excellent platform to update and discuss the latest advances in precision engineering-related fields by researchers and engineers from research laboratories, academia and industry. The conference covers a wide range of topics ranging from precision machining to biomedical manufacturing. The conference proceedings will be published in the periodical “**Key Engineering Materials**” which is indexed in many databases, and is monitored by all major abstract media. Some selected papers of extended, updated or rewritten versions will be published in international journals: Precision Engineering, International Journal of Manufacturing Science and Technology, and Journal of JSPE.

The conference will be held in the 5-star Grand Copthorne Waterfront Hotel Singapore www.grandcopthorne.com.sg. Over 200 abstracts have so far been submitted to the conference by authors from all over the world. You are welcome to participate in the conference. You may visit the conference website www.simtech.a-star.edu.sg/icope2010 for more detailed information about the event.