

Editorial

It is our great pleasure to publish a selection of manuscripts presented at the 2004 International Thermal Spray Conference (ITSC 2004) held at Osaka, Japan in this special issue of *Journal of Thermal Spray Technology* (JTST). Some of these manuscripts were awarded a Best Paper award, and some were contributed by promising Asian researchers. The scientific and technical information found in these papers will give engineers, scientists, and managers working in the thermal spraying field answers and clues helpful in their daily work when facing similar problems, as well as give them the enthusiasm necessary to face new practical challenges.

Besides the useful technical information presented at conferences such as ITSC and in this Journal, a new initiative was put in place in Japan to help thermal sprayers in their day-to-day work by providing them a source of well-structured and easily accessible information. This initiative is mostly oriented toward the needs of small and medium manufacturing enterprises (SMEs). Although only SMEs in Japan can benefit from this initiative at the moment, one expects it will expand to other countries in the future.

For many years, SMEs in Japan have been supporting the strong international competitiveness of the Japanese industry by creating high-quality and high-performance products, while being flexible and efficient. Highly developed technologies and expert skills created in SMEs have strongly supported Japan's thermal spraying industry. However, lately SMEs started slowly to lose their competitive edge in the international market due to the pressure to get lower fabrication costs generated by the globalization of the manufacturing industry. Furthermore, the losses of human skills due to the aging work force and the lack of interest of younger generation in carriers in the manufacturing field are eroding the effectiveness of these enterprises.

That is the main reason why Dr. Shingo Hirose, National Institute of Advanced Industrial Science and Technology of Japan (AIST), has developed and organized a new initiative creating a network system constituting both of experts and IT network called "Techno-knowledge Network System." The techno-knowledge network, which is administered by a public research and testing organization, has several functions such as the "Questions & Answers" database with technical data obtained through engineering consultations and guidance at testing and R&D facilities. The network publishes also an electronic bulletin board where expert groups give immediate answers to questions and provide various examples and case data. Dr. Hirose explains, that, through this network, the persons engaged in manufacturing should be able to share information and obtain useful suggestions for the resolution of engineering problems and get effective assistance for creative manufacturing efforts.

The thermal spray field was selected as a case example to develop the IT-based technology support system. The system provides information about expert's skills and knowledge in "digitized" form. For example, Dr. Hirose developed software offering the capabilities of a consultation system and troubleshooting. This software should be offered widely and rapidly to all Japanese SMEs through an internet-based technology information system. Currently the system is still under development, and its functions and capabilities are being optimized through analysis of questionnaires to companies using it. Results about this new initiative were reported, for example, at the ITSC 2005 in Basel, Switzerland.



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