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In The News

New Literature

New Cold Spray Publication: The Cold Spray Materials Deposition Process: Fundamentals and Applications

This new book, published by Woodhead Publishing, Ltd. (edited by V.K. Champagne, U.S. Army Research Laboratory), examines the fundamentals of the cold spraying process, assesses how the technique can best be applied in practice, and describes portable and stationary cold spray systems.

The cold spray process produces dense, low-oxide coatings that can be used in such diverse applications as corrosion control and metals repair. It has emerged as an important alternative to thermal spray coating techniques in certain areas. This book reviews both the fundamentals of the process and how it can best be applied in practice.

The first part of the book discusses the development of the process together with its advantages and disadvantages compared with thermal spray coating techniques. Part 2 reviews key process parameters such as powders, nozzle design, particle temperature and velocity, and particle/substrate interaction. It also describes portable and stationary cold spray systems. The final part of the book discusses how the cold spray process can be applied in such areas as improved wear, corrosion protection, electromagnetic interference shielding, and repair of damaged components.

For further information see: www.woodheadpublishing.com.

The Science and Engineering of Thermal Spray Coatings, Second Edition, Published

The Science and Engineering of Thermal Spray Coatings, second edition, by Lech Pawlowski, explores the physics and chemistry of thermal spraying with coverage of feedstock materials, prespray treatments, postspray treatments, and the various spray techniques currently in use. This entirely rewritten second edition also covers the advanced methods of coating characterization describing measurements of mechanical, electrical, physical, and chemical properties. The book concludes with a lengthy chapter on thermal spray applications including aeronautics and space, automobiles, ceramics, chemicals, civil engineering, decorative coatings, electronics, energy generation and transport, iron and steel, medicine, mining, and the nuclear industries. The book follows on the success of the first edition, published in 1995, and describes new topics in thermal spray technology such as nanostructured deposits, the cold spray method, and advanced mathematical methods of process modeling.

Lech Pawlowski has been Professor of Surface Engineering at Ecole Nationale Supérieure de Chimie de Lille (ENSCL) in France since 1999. His research work is primarily focused on different aspects of thermal spraying and laser treatment of materials. His current research is focused on suspension plasma sprayed ceramic coatings. Dr. Pawlowski has worked in the thermal spray industry as a project manager, consultant, and managing director in Germany, Italy, and France. His research appointments have included positions at the University of Stuttgart (Germany), Monash University (Melbourne, Australia), and the University of Trento (Italy). He has lectured on topics such as surface treatment, technology of powder manufacturing and industrial chemistry.

Recent Conferences

Cold Spray 2007

ASM International's Thermal Spray Society (TSS) and ASB Industries, Barberton, OH, cosponsored a two-day conference, ''Cold Spray 2007'' on October 8–9, in Akron, OH. This intensive two-day meeting followed Cold Spray 2002 and Cold Spray 2004 meetings held earlier and featured 17 presentations from cold spray experts around the globe and a keynote lecture by Victor Champagne of Army Research Lab., Aberdeen, MD. The meeting also featured a panel discussion, in which academic, research, and industrial experts elaborated their views, followed by a question-answer session involving the entire audience.

This international event was attended by more than 170 participants from 15 countries, allowing the attendees to receive updates on global R&D programs and also network with world's top experts. The meeting also featured a tabletop exhibition, in which eight organizations exhibited their products and services. In order to cater to the demands of cold sprayers around the globe, a poster session was introduced at the last minute, in which a total of eight technical posters were presented.

As a part of the meeting, ASB Industries sponsored the industrial visit to their facility, where attendees witnessed demonstration of high-pressure (CGT Kinetiks 4000 system, Germany) and low-pressure (SST Portable System, Canada) cold spray systems, as well as

Victor Champagne of Army Research Lab

J. Karthikeyan of ASB Industries

A section of the audience

Poster presentations

the DESY high-pressure nitrogen supply system of Linde Gas.

This conference report was prepared by Dr. J. Karthikeyan of ASB Industries.

Report on 50th Anniversary Events of Japan Thermal Spraying Society

The 50th anniversary of Japan Thermal Spraying Society (JTSS) was celebrated on the first day of the spring meeting of JTSS held on June 6 and 7, 2007, in Osaka. The anniversary events consisted of a commemorative ceremony, commemorative lectures, and a celebration party. More than 150 people participated in the anniversary events.

JTSS was founded in 1957 when 35 years had passed since thermal spray technology had been introduced in Japan. The first president of the society was Dr. M. Tagaya, a professor emeritus of Osaka University. A foundational aim of JTSS was to develop thermal spraying in Japan both in the engineering and academic aspects. Many of the activities that JTSS is now engaged in started shortly after its foundation, such as the annual meetings, publication of journals and handbooks, standardization, qualification of ''Thermal Spray Technique Manager,'' and so on. The society president is Dr. Kazuo Ueno, deputy director of Energy Technology Research Institute of the National Institute of Advanced Industrial Science and Technology (AIST). The current members of the society consist of more than 80 thermal spraying or related companies and 400 individual engineers and researchers.

Honored guests were invited to the commemorative ceremony from domestic societies related to thermal spraying such as the Japan Thermal Sprayers Association, the Thermal Spray Division of the High Temperature Society of

"Kagami-biraki" ceremony

Japan, and the Japan Association of Corrosion Control. Anniversary congratulatory messages were sent from ASM Thermal Spray Society, the German Welding Society, the China Surface Engineering Association, the Korea Thermal Spraying Society, and the Institute of Materials, Singapore. In the commemorative ceremony, awards were given to those who contributed greatly to the management of JTSS over the last 15 years.

The commemorative lectures were planned to give a view of thermal spraying in terms of industry, science, and new thermal spray processes. The topics were:

- Current Situation of Thermal Spray Technology/Industry in Japan, K. Tani (Tocalo Co., Ltd.)
- Current Understanding and Future Subject on Thermal Spraying, M. Fukumoto (Research & Planning Division in JTSS)
- Participation in the Research and Development of HVOF and Cold Spray and My Ambition for Thermal Spray, K. Sakaki (Shinshu University)
- Thermal Plasma Processes as Thermal Spraying Technology, Y. Ando (Ashikaga Institute of Technology)

Honored guests and the anniversary participants attended the celebration party. The talks were held in a friendly atmosphere subsequent to the "Kagami-biraki," a traditional Japanese ceremony in which honored guests opened a wooden "sake-barrel" by breaking its lid with hammers as shown in the photo.

This report was prepared by Dr. Kenji Murakami, Head of International Relations Committee, JTSS.