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Fall 2008 ASM HARTFORD

The Macrogram

Hartford Chapter of the ASM International
Build on our Strengths - Leverage our Diversity - Network to Succeed

MONTHLY MEETING – TOPIC

October 14, 2008 – ASM Trustee Visit

Topic: Thermal Spray – Cold Spray

Speaker: Dr. Mark Smith, FASM
Trustee (2006-2009)
Deputy Director Manufacturing Process
Advanced Manufacturing Science & Technology Center
Sandia National Laboratories

Directions: Margaritas Mexican Restaurant - 350 Roberts St., East Hartford, CT, Ph: (860) 289-7212
I-84 Exit 58 Robert Street: From the East, turn right onto Robert St. and the restaurant is immediate on the left. From the West, turn left on to Robert St. and after the first light the restaurant is immediate on the left.

Agenda:	**Program Charges:**
Cocktails: 5:30-6:30 PM	Regular Members - $28.00
Dinner: 6:30-7:30 PM	Retirees - $15.00
Program: 7:30-8:30 PM	Full Time Students - $15.00

Technical Chairperson: Sam Christy
Reservations: Call Shirley at Dynamic Metals (860) 583-3336 by noon October 9th. **Thanks!**

Abstract:

Thermal Spray is a generic term for a remarkably versatile family of process technologies that offer the materials engineer and component designer valuable opportunities to independently optimize surface and bulk material properties and also to create unique new materials with novel engineering properties. Technological and scientific advancements in recent years have dramatically improved the quality and performance of many spray deposited materials
What interesting new design, research, and fabrication opportunities might you imagine if you could rapidly deposit thin or thick (cm+) layers of a wide range of metals and some composites onto a broad range of substrates at or near room temperature, in the solid state, and in an ambient air atmosphere? Cold Spray is an emerging technology that offers this intriguing opportunity. In this process, fine metal powders are accelerated to very high velocities in a supersonic jet of compressed gas. When these high-velocity particles impact a workpiece surface, they plastically deform at very high rates, creating a shear instability that forms a bond with underlying material by a process very similar to explosive welding, but on a micro-scale. This presentation provides an overview of thermal and cold spray technologies, some of the unique properties of thermal and cold sprayed materials, some examples of how these technologies have been used to solve some challenging materials and design problems, and potential advantages/limitations for commercial applications.

Bio:
Dr. Mark Smith is deputy director of Sandia National Laboratories' Advanced Manufacturing Science and Technology Center, Albuquerque, N.M. Since 1993, Dr. Smith has also served as an adjunct professor in the Department of Materials and Metallurgical Engineering at New Mexico Tech University. Dr. Smith is best known for his pioneering work in thermal spray technology. He was one of a small group of thermal sprayers who approached ASM in the mid 1980s to form the Thermal Spray Technical Division (TSD), which later became the ASM Thermal Spray Society during his term as TSD Chairman. He was elected to an unprecedented three terms (nine years) on the TSS Board, and helped to start the National Thermal Spray Conference, which later became the International Thermal Spray Conference (ITSC). He was recently inducted into the Thermal Spray Hall of Fame, founded by the TSS. Mark and his father, Jack, are among the few living pairs of father-son Fellows of ASM.

http://asmcommunity.asminternational.org/content/Events/TSSaerospace08/

Highlighting new technology in thermal spray for the aerospace industry. This symposium will bring together professional, technical, commercial and academic decision makers of surface engineering and thermal spray solutions throughout the aerospace coatings supply chain, such as: materials and equipment suppliers, coating applicators, system integrators, engine manufacturers, airlines, and service providers.

The technical program offers two tracks:

For Scientists and Engineers: New Technology Trends, Existing and Future Coating Application Requirements, Technical Discussion on Case Studies and Applications.

For Applicators, Technicians, Quality, EH&S Personnel, and Process Engineers: Environmental Health, Safety, Testing and Characterization, Quality and Process Improvements, Pre/Post Processing, and Metallography.