Plenary Lecture

Title	Prof.	First Name	Shrikant	Last Name	Joshi
Affiliation			University West		
Presentation Title			Liquid feedstock thermal spraying: Unlocking the Next Frontier?		
Biography			Prof. Shrikant Joshi is currently a Professor in the Department of Engineering Science at University West in Trollhättan, Sweden. He has over 30 years of experience in areas spanning Surface Engineering, Laser Materials Processing and Additive Manufacturing. He is a Chemical Engineer by academic training, having obtained his M.S. and Ph.D. degrees from the Rensselaer Polytechnic Institute and University of Idaho, respectively, in USA. Prior to moving to Sweden in 2015, he has had long stints at two premier federally funded materials' research laboratories in India. His current areas of research are solution precursor and suspension thermal spraying, powder-liquid 'hybrid' thermal spraying and high velocity air fuel (HVAF) spraying. His work has led to many industrial applications, over a dozen patent submissions and more than 250 publications in peer-reviewed journals. He is a Fellow of ASM International, the Institute of Materials, Minerals & Mining (IoM3) and the Indian National Academy of Engineering. Earlier this year, he was also inducted into the Hall of Fame of the ASM International's Thermal Spray Society.		

Abstract	**While thermal spraying has long served as an industrial mainstay for protective and functional coatings, the reliance on powder feedstocks has imposed inherent limits on microstructural refinement and compositional flexibility. Liquid feedstock thermal spraying, mainly encompassing suspension plasma spraying (SPS) and solution precursor plasma spraying (SPPS), is redefining these boundaries by respectively enabling either delivery of submicron or nano-sized powders into a plasma jet or their synthesis in flight. These approaches bypass challenges in feeding ultrafine powders while offering unprecedented control over coating architecture and chemistry. Recent advances in axial feed capable plasma torches appear well-placed to accelerate interest in the above approaches by ensuring efficient heat transfer, higher throughputs, and reproducible coating quality, positioning liquid feedstock spraying closer to industrial viability. Moreover, hybrid powder–liquid strategies now allow layered, composite, and functionally graded coatings that combine the robustness of powders with the versatility of liquid feedstock routes. This talk will highlight how liquid feedstock spraying can bring together chemistry, plasma physics, and process innovation to unlock the next frontier in advanced coatings. Recent examples from our group will be presented to Illustrate the promise of suspensions and solution precursors to reshape the landscape of thermal spray science.**