



**Michigan Institute  
for Plasma Science  
and Engineering  
Seminar**

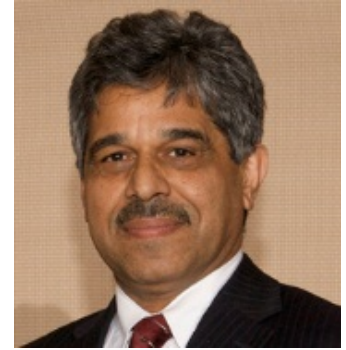
# **Dynamics of Droplet Impact and Solidification in Plasma Spray Process**

**Prof. Javad Mostaghimi**

**University of Toronto**

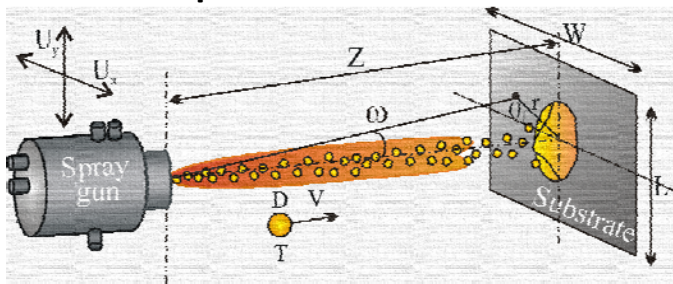
**Wednesday, 6 April 2011 - 4:00 pm**

**Room 1303 EECs Building**



## **Abstract**

Components in aircraft, automobiles, power plants or chemical reactors are frequently exposed to severe heat, abrasion and corrosion. A thin surface coating of a ceramic or super-alloy is often the best way to protect and extend the lives of such components. Plasma spray coating technology is widely used as an efficient, economical, and environmentally friendly method of applying metal or ceramic coatings. In recent years, considerable experimental and computational efforts have been spent in understanding the dynamics of impact, spread, and solidification of molten droplets on a substrate. This is the basic block of coating formation and its



thorough understanding will result in more reliable design of coating processes. In this presentation, a review of our current understanding of plasma spray process including the dynamics of the formation of splats is presented.

**About the Speaker:** Dr. Javad Mostaghimi is the Distinguished Professor in Plasma Engineering and former vice-Dean of Research for Applied Science and Engr. at the University of Toronto (UT). With his PhD from the Univ. of Minnesota in ME in 1982, he held positions at Pratt & Whitney and the Univ. of Sherbrooke before joining UT in 1990. Dr. Mostaghimi is founding Director of the Centre for Advanced Coating Technologies at UT. He is a Fellow of the Canadian Academy of Engr., ASME, Canadian Society of Mech. Engineers, AAAS and the Int'l Union of Pure and Applied Chemistry. He is a member of the Prof. Engineers of Ontario (PEO) and is 2009 recipient of the PEO award for research and the 2009 NSERC Brockhouse Award. Dr. Mostaghimi is on the editorial boards of Plasma Proc. and Plasma Chemistry and the J. of Thermal Spray Technology. His research interests include thermal plasma processing of materials and plasma spray coatings.