

The Department of Mechanical Engineering & Materials  
Science & Engineering program

PRESENTS

**Dr. Xiaochun Li**

Raytheon Chair in Manufacturing,  
Professor of Mechanical and  
Aerospace Engineering,  
University of California, Los Angeles, USA

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WCH Room 205/206  
11:10-12:00PM



**Solidification Nanoprocessing of Metallic Nanocomposites:  
From Nanoscience to Nanoproduction**

**Abstract:**

Research activities on nanoscience and nanotechnology have enjoyed an explosive growth over the last 10 years, while the transition from nanoscience to scale-up nanoprocessing has been the major bottleneck for nanotechnology to realize its tremendous potential. Incorporation of nanoelements (e.g. nanoparticles, nanotubes, nanofibers, and nano-platelets) into various functional materials can obtain unusual physical, chemical, and mechanical properties. However, it is extremely difficult to realize scale-up nanocomposite processing. This talk will discuss about various scientific and technological aspects that are crucial for scalable nanocomposite processing. It will particularly focus on our research activities on Solidification Nanoprocessing, a novel scalable process, for fabrication of high performance metallic nanocomposites. Scientific issues related to dispersion, capture and self-assembly of nanoparticles in metal liquids (both miscible and immiscible) will be discussed to enable effective microstructure control and strengthening. Solidification Nanoprocessing promises to become a transformational technology for economical production of lightweight high performance nanocomposites.

**About the Speaker:**

Professor Xiaochun Li is the Raytheon Chair in Manufacturing Engineering at UCLA MAE. He received his Ph.D. at Stanford University in 2001. He served as the Director of Nano-Engineered Materials Processing Center (NEMPC) at UW-Madison. He is a holder of multiple best paper awards and patents, including five of those licensed by industry. Dr. Li received National Science Foundation CAREER award in 2002, Jiri Tlustý Outstanding Young Manufacturing Engineer Award from Society of Manufacturing Engineers in 2003, and 2008 Howard F. Taylor Award from American Foundry Society (AFS). Li was previously a professor in the Department of Mechanical Engineering and Materials Science Program at University of Wisconsin-Madison (UW-Madison) from 2001 to 2013.