Local and Global Microstructure Control in Fusion-Based Additive Manufacturing

Abstract

This presentation will focus on microstructure control in metal additive manufacturing, including local melt pool-level solidification and global part-level solid-state transformations. It will cover case studies leveraging current capabilities, identifying opportunities for improving controllability, and the need for advanced process optimization and control strategies to unleash the full potential of additive manufacturing to tailor material properties. The talk will highlight the critical need to work at the intersection of materials, mechanical engineering, and manufacturing to enable microstructure and property tunability in manufacturing.

Speaker Bio

Dr. Sneha Prabha Narra's research focuses on investigating process-structure-property relationships in fusion-based metal additive manufacturing (AM) by integrating experimental and computational approaches. Sneha P. Narra received her B.E. in civil engineering from Osmania University (2012). She pursued graduate education at Carnegie Mellon University, where she obtained her M.S. in computational mechanics (2013), M.S. and Ph.D. in mechanical engineering (2015, 2017). She completed postdoctoral training at the NextManufacturing Center. She joined the CMU mechanical engineering department in 2021, after spending three years as an assistant professor at Worcester Polytechnic Institute. She is currently serving as the Associate Editor of the Additive Manufacturing journal.

Dr. Sneha Prabha Narra
Assistant Professor,
Mechanical Engineering
Carnegie Mellon University

Friday, April 18
11:30 a.m.- 12:30 p.m.

(1 - hour seminar with lunch and discussion).

In-Person Only:
Location: GGB 2540 -
Grand Conference Room

G.G. Brown Building
2350 Hayward St, Ann Arbor

Host and Organizer
Wenda Tan
Associate Professor,
Mechanical Engineering

RSVP HERE