

FALL 2022

MSE 690 SEMINAR SERIES

MONDAY, NOVEMBER 14TH, 2022 | 3:30–5:00PM

ARMS 1010



YANLIANG ZHANG

Associate Professor

Department of Aerospace &
Mechanical Engineering at
University of Notre Dame

“Additive Manufacturing and Scalable Nanomanufacturing of Sustainable Energy and Sensor Systems”

Abstract: Nanoscale materials are attractive building blocks for a broad range of emerging technologies due to their unique and superior properties. However, transforming nanoscale materials into functional devices and systems while translating their unique properties from nanoscale to macroscale remain a major challenge due to many scientific and technological obstacles.

This talk will focus on our research on developing versatile and synergistic additive manufacturing and scalable nanomanufacturing methods to manufacture and transform a broad range of emerging functional nanomaterials into innovative and sustainable energy and sensor systems in a highly scalable and controllable manner. This talk will present our recent research progress on several closely related topics. First, I will present our work on creating scalable nanomanufacturing methods to synthesize functional nanomaterials and printable inks with optimal rheology, printability, and colloidal stability. Second, I will present novel additive manufacturing methods to fabricate multifunctional and flexible/wearable devices for energy harvesting, sensing and health monitoring. Finally, I will talk about several innovative sintering methods that enables high-throughput and ultrafast sintering of printed semiconducting and metallic nanoparticles on delicate and temperature sensitive materials.

Biography: Yanliang Zhang is an Associate Professor in the Department of Aerospace and Mechanical Engineering at University of Notre Dame. He received his Ph.D. in Mechanical Engineering from Rensselaer Polytechnic Institute in 2011, and his M.S. and B.S. from Southeast University in 2008 and 2005. His research focuses on additive manufacturing and scalable nanomanufacturing, advanced materials and devices for energy harvesting, sensing, and health monitoring, and autonomous materials discovery and manufacturing processes. He has received honors including NSF Career Award, Young Investigator Award from International Thermoelectric Society, IBM Fellowship award, and multiple best paper awards at international conferences.



School of Materials Engineering