**Title: Lessons learned from 2D and 3D characterization of porosity and its impact on fatigue in laser powder bed fusion additively manufactured Ti-6Al-4V**

**Abstract**

**This talk will provide an overview of defect characterization efforts aimed at establishing process-structure-property relationships and a fatigue-based process window for Ti-6Al-4V components produced via laser powder bed fusion additive manufacturing. The emphasis will be on the characterization methods and analysis techniques developed to correlate porosity characteristics, observed through optical microscopy and X-ray micro-computed tomography (μCT), to fatigue performance. The talk will highlight the critical role of advanced characterization in identifying the key defects and underlying defect formation mechanisms that impact the mechanical properties of additively manufactured materials.**

**Bio**

**Dr. Narra's research focuses on advancing fundamental knowledge in metal additive manufacturing to enable lightweight, high-performance printed parts. This includes studying process-structure interactions, material behavior, and physics-driven process design paradigms aimed at accelerating industrial adoption. Her group works at the intersection of mechanical engineering and materials science to advance additive manufacturing technologies.**

**Sneha P. Narra received her B.E. in civil engineering from Osmania University in India (2012). She pursued graduate education at Carnegie Mellon University, where she obtained her M.S. in computational mechanics (2013), M.S. in mechanical engineering (2015) and Ph.D. in mechanical engineering (2017). She then completed postdoctoral training at the NextManufacturing Center before joining the mechanical engineering department at Worcester Polytechnic Institute as an assistant professor in 2018. After three years in WPI’s materials and manufacturing engineering program, she joined the CMU mechanical engineering department in 2021.**

**She is currently serving as the Associate Editor of the Additive Manufacturing journal and plays an active role in organizing symposia through the TMS Additive Manufacturing Bridge Committee and other educational and outreach activities.**