Additive Manufacturing & Design Seminar Series
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*Zoom link available in notification email; email amdprogram@psu.edu with questions*

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3D Printed and Additively Manufactured Radiating Structures and Beamforming Networks

ABSTRACT
Autonomous vehicles, robotics, and intelligent cyber-physical systems have become indispensable tools in industry, defense, and security. The reach of these and other unmanned systems extends into air, sea, ground, and space application spaces. Advances in machine learning, additive manufacturing, and distributed systems engineering have enabled the use of unstructured and inhomogeneous swarms of these agents but critical technology gaps remain when considering how these application spaces converge in the electromagnetic environment. Of particular importance is how these unstructured clusters of mobile wireless agents that morph their distribution over time can collaboratively utilize the electromagnetic spectrum. This talk will focus on recent advances in multifunctional 3D printed/additively manufactured EM devices, and how embedded electromagnetic components on adaptive structures can provide an effective strategy to address these increasingly demanding requirements for multifunctional terrestrial and aerospace applications.

BIOGRAPHY
Professor Gregory H. Huff received his B.S., M.S., and PhD in Electrical Engineering from the University of Illinois at Urbana-Champaign in 2001, 2003, and 2006, respectively. He joined the Electrical Engineering Department at Penn State in 2018 as after serving on the faculty at Texas A&M University from 2006. His primary area of expertise is applied electromagnetics and systems engineering. His current research includes multifunctional and reconfigurable antennas, 3D printed and additively manufactured radiating structures and beamforming networks, and distributed wideband hybrid beamforming techniques for UAV swarms and disparate systems. He is also engaged in convergent research focusing on smart infrastructure and the intersections of next generation communication systems in social sciences.