Department of Electrical and Computer Engineering

TEXAS TECH UNIVERSITY
Edward E. Whitacre Jr.
College *of* Engineering

Spring 2026 Seminar Series

Seminar Title: ***Design and Additive Manufacturing of Thermoelectric Materials and Devices***

Time: 2:00-2:50 PM, Monday, Feb 9, 2026
Location: ECE 101

Speaker:
Minxiang (Glenn) Zeng
Department of Chemical Engineering, TTU

Abstract:
Thermoelectric (TE) materials provide a promising pathway for solid-state energy conversion by directly harvesting waste heat, yet their broader application remains limited by complex synthesis routes, poor manufacturability, and challenges in performance optimization. Additive manufacturing (AM) methods like 3D printing offer a versatile alternative by enabling precise control over structure, composition, and device architecture within a scalable fabrication framework. In this work, we develop an AM-based strategy that focuses on tackling key bottlenecks in materials development, manufacturing integration, and thermoelectric performance tuning. The results highlight how manufacturing-informed materials design can be leveraged to balance performance and scalability under a controlled environment. These findings set a technical foundation for the development of next-generation thermoelectric devices that are more manufacturable, adaptable, and suitable for real-world energy applications.

Speaker Bio:
Dr. Glenn Zeng is an Assistant Professor in the Department of Chemical Engineering at Texas Tech University. He received his Ph.D. in Chemical Engineering from Texas A&M University in 2018, and his B.S. from the University of Science and Technology of China in 2014. His research interests include fundamentals of ink formulation, additive manufacturing of functional devices, and the development of complex materials for energy and sustainability.