

## **ECE Colloquium: Dr. Qiangfei Xia, University of Massachusetts Friday February 9, 2024 at 11:15am in ITE 336**

\*Please come early for pastries & coffee at 11am in ITE 301\*

**Title:** Memristive Crossbar Arrays for Analog In-Memory Computing and Neuromorphic Engineering

**Abstract:** This talk will showcase a non-volatile memristor that meets the requirements of analog in-memory computing in artificial neural networks, discuss the challenges and solutions in integrating these devices into large-scale 2D and 3D arrays and a pathway towards memristor-based AI accelerators, and introduce a volatile diffusive memristor and its application in neuromorphic engineering.

**Bio:** Dr. Xia is a professor of Electrical and Computer Engineering at UMass Amherst and head of the Nanodevices and Integrated Systems Lab (<http://nano.ecs.umass.edu>). Before joining UMass, he spent three years at Hewlett-Packard Laboratories. He received his Ph.D. in Electrical Engineering in 2007 from Princeton University. Dr. Xia's research interests include beyond-CMOS devices based on novel materials, device physics, enabling fabrication technologies, and integrated systems with applications in machine intelligence, reconfigurable RF systems, and hardware security. Dr. Xia received a DARPA Young Faculty Award, an NSF CAREER award, the Barbara H. and Joseph I. Goldstein Outstanding Junior Faculty Award, and an Outstanding Senior Faculty Award from UMass Amherst. He is a 'Highly Cited Researcher' according to Clarivate and an IEEE Fellow "for contributions to resistive memory arrays and devices for in-memory computing." He has served on the technical committees of several premier conferences, such as IEDM, ISCAS, and EIPBN (2023 Conference Chair).

