

FACULTY RESEARCH TALKS

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Zoom talk | Friday, Oct. 13, 2023 | Noon to 1 p.m.



PRESENTER 1:

MATTHEW POLK

Executive Vice
President and
General Manager
JST Power Equipment

Changing Electric Grid and Impact of EVs on our Distribution

For 80 years, the U.S. electric grid has remained largely unchanged. But around 2019, the world of electricity changed as data centers, crypto, renewables and EVs started to rapidly expand. This change upset not only the utilities but also the very supply chain they rely on. In today's session, learn about these long-term impacts to our distribution system, the supply chain and changes to our personnel requirements.

JST Power Equipment supplies transformers, switchgear and MV equipment to its diverse customer base. The key target customer bases of wind, solar, battery energy storage systems, critical power, utility, construction and industry rely on JST to provide reliable power systems and ensure safe and consistent operations for their business. Supported by a highly talented team of professionals who design, develop, sell and manufacture these critical systems, JST delivers world-class solutions to its customers.

As the leader of the JST product and services portfolio, Mr. Polk's goal is to align the company with customers' needs now and into the future. By working with different industries, he is quickly able to identify changing customer needs and develop the portfolio for them as their industries grow and change over time.

Mr. Polk brings with him more than 25 years of leadership experience in the electrical industry market with an extensive background in product development, marketing and sales. Prior to joining JST, Mr. Polk worked for both Eaton Corporation and ABB Inc. and held a variety of roles including product management, marketing manager, sales executive and business development. His roles required him to develop an array of skills from technical consulting, business development and P&L management to customer interface and relationship management.

Prior to joining the electrical industry, Mr. Polk served for more than six years in the U.S. Navy aboard submarines. He holds a bachelor's degree in mathematics from the U.S. Naval Academy and an master of business administration from the University of Central Florida.

Materials Research for Interconnect and Packaging Reliability in Advanced Microelectronics Systems

Advanced microelectronics technologies including heterogeneous integration require new materials and structures. However, these technologies bring about unique reliability challenges stemming from material interactions during operation. In this presentation, Dr. Jiang will discuss her team's approach, combining experiments and simulations to study material behaviors, interactions and failure mechanisms that greatly affect the reliability of interconnect and packaging components. Her overarching goal is to attain a comprehensive understanding of these processes and develop materials and processing-based solutions to address reliability challenges.

Dr. Jiang's research interests focus on materials reliability for interconnect and packaging. Her work combines metrology, materials characterization, fabrication and modeling to tackle critical reliability challenges in advanced microelectronics systems. She received her doctorate from University of Texas-Austin in 2015 and master's degree from The Ohio State University in 2009, both in materials science and engineering. She received the NSF CAREER award in 2022.



PRESENTER 2:

**TENGFEI
JIANG**

Associate Professor
Materials Science
and Engineering,
Advanced Materials
Processing and
Analysis Center