Monday Early Morning, November 9, 2026

Plenary Lecture

Room Ballroom BC - Session PL-MoPL

Plenary Session

Moderator: Mark Losego, Georgia Institute of Technology

8:30am **PL-MoPL-1 Plenary Lecture: Vacuum Science and Technology: Enabling the Next Era of Industrial Transformation***, Akihisa Sekiguchi,* Tokyo Electron America, Inc. **INVITED**

As the world enters a new era shaped by artificial intelligence, advanced semiconductor technologies, sustainable energy solutions, and digital transformation, vacuum science and technology continue to serve as essential foundations for innovation. From enabling atomic-scale precision in semiconductor fabrication to advancing breakthroughs in materials science, quantum technologies and frontier surface science, the vacuum science community has played a pivotal role in transforming scientific discoveries into scalable industrial solutions.

This plenary presentation will examine how ongoing advances in vacuum engineering, process technologies, and intelligent manufacturing systems are addressing some of the most critical challenges facing industry today, including device scaling, heterogeneous integration, and increasingly complex production architectures. The discussion will highlight how vacuum-enabled platforms are evolving to enhance manufacturing performance, accelerate technology roadmaps, improve operational productivity, and support sustainability objectives through greater resource efficiency and reduced environmental impact.

As industries push the boundaries of precision, complexity, and sustainability, vacuum science and technology will remain an indispensable catalyst for innovation, enabling the technologies and manufacturing ecosystems that will define the next era of industrial transformation.

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