Dr. Benjamin Yee
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Lam Research Corporation

Grand Challenges in RF & Plasmas for Next Generation Semiconductor Manufacturing

The semiconductor industry is experiencing rapid growth, driven by the explosive advancements in AI, machine learning, and quantum computing. As one of the largest industrial segments globally, the semiconductor industry leverages the unique capabilities of radio frequency (RF) power and plasma technologies. These technologies have been pivotal in propelling the industry's recent evolution. To sustain this momentum, the industry requires innovative, ambitious, and talented early career professionals. In this seminar, we will introduce the fabrication processes in the semiconductor industry, with a focus on RF and plasma technologies. We will then review the cutting-edge technology at Lam Research and discuss the major challenges we face in RF and plasma areas with a focus on modeling, illustrated by practical examples. The seminar will cover both plasma-assisted etching and deposition.

About the Speakers:

Benjamin Yee is a Senior Staff Plasma Physicist at Lam Research with the Source Engineering group specializing in capacitively coupled plasmas, plasma metrology, and plasma stability. Benjamin obtained his Ph.D. in NERS from the University of Michigan studying nanosecond discharges under Prof. Foster. He was a NASA Graduate (2009), Engineering Outreach Teaching (2010), and MIPSE fellow (2010). Prior to joining Lam, Benjamin was at Sandia National Lab specializing laser plasma diagnostics, sheath physics, and breakdown. He helped found the Sandia Plasma Research Facility and was on the LXCat Technical Team.

Hema Swaroop Mopidevi is an RF engineer in Etch Engineering Department of Lam Research Corporation specializing in RF/EM/plasma modeling of semiconductor subsystems. He has published in various peer-reviewed journals and conferences and has 9 patents in applied EM field. He received his PhD in Electrical Engineering, from Utah State University in 2014 with emphasis on reconfigurable antenna designs for telecommunications. He specializes in multi-physics modeling aspects of RF subsystems, EM-plasma interactions, and High-voltage design in his current capacity at Lam Research.