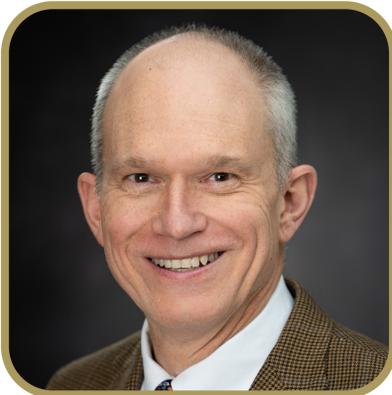




## Advanced Technology at MIT Lincoln Laboratory: From Physics to Fielded Systems



**Dr. Paul Juodawlkis**  
Group Leader,  
MIT Lincoln Laboratory

**Tuesday, April 16, 2024**  
**11:00 a.m. - 12:00 p.m.**  
**Location: TSRB 118 Auditorium**

**Abstract:** Lincoln Laboratory is a Federally Funded Research and Development Center (FFRDC) managed by the Massachusetts Institute of Technology (MIT) for the Department of Defense. Since its establishment in 1951, the Laboratory has simultaneously performed both prototyping of complex systems (e.g., radar, communications, signal collection, imaging, biosensing, cyber security) and research and development of advanced technologies to augment or enable these systems. During my 30 years at Lincoln Laboratory, I have been fortunate to have had several careers spanning this range of program activity including serving as a hardware systems engineer on an airborne radar testbed, developing photonic analog-to-digital converter (ADC) and high-power semiconductor optical amplifier (SOA) technologies, and leading teams of scientists and engineers to explore the possibilities of quantum computing and sensing. I'll start this talk by presenting a brief overview of my career path including the critical boost provided by Georgia Tech during my doctoral studies. I'll then provide an overview of Lincoln Laboratory, focusing on some of the photonic systems that have been fielded and the components that have enabled these system demonstrations. I'll also describe the Laboratory's resources and activities to develop photonic integrated circuits (PICs) and their application to microwave systems, inertial sensing, lidar, optical atomic clocks, and quantum computing.

**Bio:** Paul Juodawlkis is the Group Leader of MIT Lincoln Laboratory's Quantum Information and Integrated Nanosystems Group, where he provides technical and administrative leadership for ~150 scientists, engineers, and support staff engaged in the research and development of advanced computing and sensing systems leveraging both quantum and classical technologies. He also guides the Group's integrated photonics team, which is working to develop photonic platforms (i.e., silicon-based, compound-semiconductor, hybrid) for application to quantum information, optical communication, laser radar, high-energy laser, inertial sensing and microwave sensing systems. He is a Fellow of both Optica (formerly OSA) and the IEEE, and he has been an active volunteer in technical conferences, professional society leadership, and advisory boards. He holds a B.S. degree from Michigan Technological University, an M.S. degree from Purdue University, and a Ph.D. degree from the Georgia Institute of Technology, all in electrical engineering.

**Host: Dr. Stephen E. Ralph**

Pizza and soda will be provided