

THE DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING SPEAKER SERIES

PRESENTS

Resonance-based Integrated Nanophotonic Structures for Lab-on-chip Sensing and Spectroscopy



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LECTURE ABSTRACT

The development of ultra-compact and sensitive sensing structures with minimal sample requirement for accurate sensing have been of great recent interest for multiple applications including bio and environmental sensing, chemical agent detection, and bio- threat detection. With recent advancement in the development of design and fabrication tools for photonic nanostructures, integrated photonic platforms are a strong candidate for the development of such sensing structures.

In this talk, the use of high-Q integrated photonic resonators for forming ultra-compact highly sensitive chip-scale multiplexed sensors and spectrometers for realization of photonic lab-on-a-chip sensing structures will be presented. Major challenges in realization of such devices including fabrication imperfections and errors due to environmental effects as well as reliable solutions will be discussed.

SPEAKER BIOSKETCH

Ali Adibi is the director of Bio and Environmental Sensing Technologies (BEST) and a professor and Joseph M. Pettit chair in the School of Electrical and Computer Engineering, Georgia Institute of Technology. His research group has pioneered several structures in the field of integrated nanophotonics for both information processing and sensing. He is the author of more than 150 journal papers and 400 conference papers. He is the editor-in-chief of the Journal of Nanophotonics, and the nanophotonic program track chair of the Photonics West meeting. He is the recipient of several awards including Presidential Early Career Award for Scientists and Engineers, Packard Fellowship, NSF CAREER Award, and the SPIE Technology Achievement Award. He is also a fellow of OSA, SPIE, and AAAS.

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