Tuesday, September 17, 2019

WEBINARS

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Mid-Infrared Materials and Devices on a Silicon Platform: Sensors, Detectors, and Imagers

Tuesday, October 1, 2019 1:00 PM - 2:00 PM EDT

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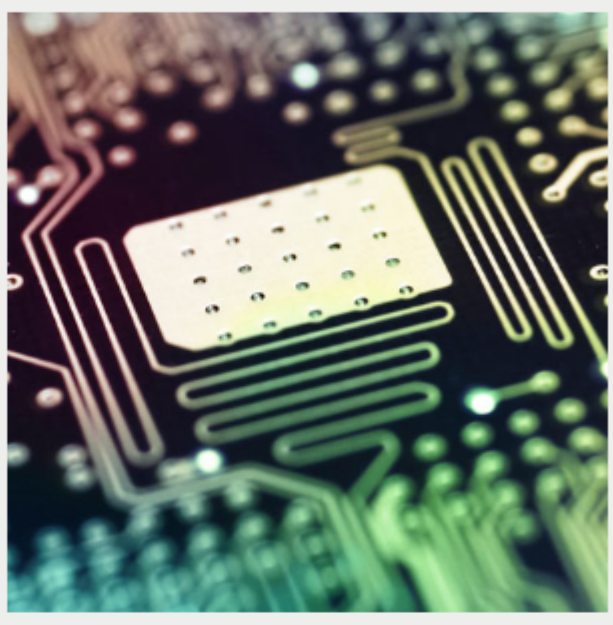
About This Webinar



Chalcogenide alloys claim broadband infrared (IR) transparency, covering short wavelength infrared, or SWIR, to long wavelength infrared, or LWIR; extraordinarily high refractive indices (n > 5); large Kerr nonlinearity; Si backend processing compatibility; and monolithic integration capacity on almost all substrate materials. These properties make them attractive materials for many IR photonic applications.

In this talk, Anuradha (Anu) Agarwal, Ph.D., a principal research scientist at MIT, will review her group's work in the field of integrated photonics enabled by thermally evaporated chalcogenide materials. She will discuss her group's development of mid-IR transparent chalcogenide waveguide spirals integrated with mid-IR absorbing polycrystalline PbTe detectors for optical sensing on a monolithic silicon platform. She will also discuss her group's development of a universal design theory for multispectral detection in imaging applications, and her group's demonstration of fully functional mid-IR resonant-cavity-enhanced (RCE) photodetectors monolithically integrated with Si ROICs.

About the presenter:
Anu Agarwal, Ph.D., received her doctoral degree in electrical engineering from Boston University in 1994, where she investigated the spatial extent of point defect interactions in silicon. She has been at MIT since 1994, except for a short (2001-2004) stint at Clarendon Photonics, where she was a part of a team of engineers developing a novel optical filter.

Currently, as a principal research scientist, she is developing integrated Si-CMOS compatible linear and nonlinear materials for photonic devices, especially in the mid-IR regime, for hyperspectral imaging and chem-bio sensing, because most chemical and biological toxins have their fingerprints within this range. The development of low-loss chalcogenide waveguides as sensors and small bandgap chalcogenide films as detectors for this wavelength regime (between 2 and 6 μm), has been an important part of her work in building planar microphotonic circuits.

She has over 200 journal and refereed conference publications, 22 awarded patents, and four pending patents. As leader of the AIM Academy Lab for Education and Application Prototypes (LEAP) at MIT, she is also building a roadmap document of photonic sensors through the Integrated Photonic Systems Roadmap (IPSR) and World Technology Roadmap Forum (WTRF), by identifying technology gaps in materials, components, and systems for photonic sensors, and enabling education and workforce development in integrated photonics.

Who should attend:
Engineers, executives, technologists, scientists, researchers, students, and educators working with or interested in the technologies and applications emerging from the field of integrated photonics will learn and benefit from this talk.

Mark Your Calendar

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