Nanoscale Optics in Flatland

Teri W. Odom

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Host: Latha Venkataraman

Optical metasurfaces are engineered planar structures with rationally designed building blocks that can manipulate light in new ways. This talk will discuss current advances and prospects in controlling light at the nanoscale using plasmonic nanoparticle lattices. These meta-materials support collective hybrid resonances with both light scattering and localization properties. First, we will describe the expanded scope of plasmonic lattices based on exquisite tuning of topological symmetries and surface engineering of the nanoparticles. Next, we will highlight how the structured nanoscale cavities combined with quantum emitters show unprecedented nano-lasing properties. Finally, we will discuss how this platform is opening new opportunities from strong coupling to auto-regulatory materials to long-range remote sensing at room temperature. Teri W. Odom is the Joan Husting Madden and William H. Madden, Jr. Professor of Chemistry at Northwestern University. She is an expert in designing structured nanoscale materials that exhibit extraordinary size and shape-dependent optical and physical properties.Odom is a Member of the National Academy of Sciences and the American Academy of Arts and Sciences. She is also a Fellow of the American Physical Society, Materials Research Society, Royal Society of Chemistry, American Chemical Society, American Institute of Medical and Biological Engineering, Optica, and the American Association for the Advancement of Science, and is a Senior Member of SPIE. Odom is Editor-in-Chief of Nano Letters.

Monday, March 17, 2025 11:30am - 12:30pm

Raiffeisen Lecture Hall

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