Joint Quantum Sciences Seminar

Wednesday, November 20, 4:00 pm
Jefferson 250

Prof. Alexadra Boltasseva

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"Machine-Learning-Assisted Photonics: From Optimized Design to Quantum Measurement"

Emerging photonic concepts such as optical metamaterials, metasurfaces, novel lasers, single-photon sources and other quantum photonic devices together with novel optical material platforms promise to bring revolutionary advances to information processing and storage, communication systems, energy conversion, imaging, sensing and quantum information technology. In pursuit of the next generation of photonic technologies, machine learning approaches have emerged as a powerful tool to discover unconventional optical designs and even uncover new optical phenomena. In this talk, various photonic design approaches as well as emerging material platforms will be discussed showcasting machine-learning-assisted topology optimization for efficient thermophotovoltaic metasurface designs as well as machine-learning enabled quantum optical measurements. The next steps on merging photonic optimization with artificial-intelligence-assisted algorithms and materials properties for designing advanced photonic components will be outlined.

Student Speaker at 4:00pm
Guest Presentation will begin at 4:30 PM
Refreshments will be provided

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