Artificial Intelligence Assisted Photonic Design and Measurements

Z. Kudyshev, S. Bogdanov, A. V. Kildishev, V. M. Shalaev and Alexandra Boltasseva

School of Electrical & Computer Engineering, Birck Nanotechnology Center and Purdue Quantum Science & Engineering Institute, Purdue University, West Lafayette, Indiana 47907, United States

In pursuit of the next generation of photonic technologies, machine learning approaches have emerged as a powerful tool to discover unconventional optical designs and new measurements schemes. In this talk, 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.