Abstract: Machine Learning Assisted Photonics: From Metasurface Design and Materials to Quantum Photonics

Prof. Dr. Alexandra Boltasseva

Discovering unconventional optical designs via machine-learning promises to advance on-chip circuitry, imaging, sensing, energy, and quantum information technology. In this talk, photonic design approaches and emerging material platforms will be discussed showcasting emerging photonic materials, machine-learning-assisted topology optimization for thermophotovoltaic metasurface designs and machine-learning-enabled quantum optical measurements.

Biography:

Alexandra Boltasseva is a Ron and Dotty Garvin Tonjes Professor of Electrical and Computer Engineering with courtesy appointment in Materials Engineering at Purdue University. She received her PhD in electrical engineering at Technical University of Denmark, DTU in 2004. Boltasseva specializes in nanophotonics, nanofabrication, optical materials, and quantum photonics. She is 2018 Blavatnik National Award for Young Scientists Finalist and received the 2013 IEEE Photonics Society Young Investigator Award, 2013 Materials Research Society (MRS) Outstanding Young Investigator Award, the MIT Technology Review Top Young Innovator (TR35), the Young Researcher Award in Advanced Optical Technologies from the University of Erlangen-Nuremberg, Germany, and the Young Elite-Researcher Award from the Danish Council for Independent

Research. She is a Fellow of the National Academy of Inventors (NAI), Fellow of the IEEE, Fellow of Optical Society of America (OSA), MRS and SPIE. She served on MRS Board of Directors and is currently Editor-in-Chief for OSA's Optical Materials Express journal.