PURDUE UNIVERSITY

Birck Nanotechnology Center

Nicholas A. Peters received the B.A. degree summa cum laude in physics and mathematics from Hillsdale College, and the M.S. and Ph.D. degrees in physics from The University of Illinois Urbana-Champaign. His PhD research was focused on the creation and measurement of entangled photonic states. After completing his PhD in 2006, he joined Telcordia Technologies, where his research focused on making quantum communications more practical for deployment on fiber optical networks. He joined ORNL as a Senior Scientist in 2015 and currently leads ORNL's quantum communications team. Since 2016, he has served as an Associate Editor for Optics Express. He has been awarded the Thomas Alva Edison Patent Award, a National Intelligence Meri-torious Unit Citation, two CEO awards, an ORNL Significant Event Award, an ORNL Technology Commercialization Award, and 11 US patents.

Quantum Information Science with Photons

Dr. Nicholas Peters

Thursday, August 2nd
9:00am
MRGN 121

Nonlinear optics are useful to generate nonclassical states of light. The creation, manipulation and measurement of these photonic states enables optical quantum information sci-ence. We will describe quantum entanglement, its genera-tion, and use it in several quantum applications, touching on computing, sensing, and communications. We will describe a recent entanglement-based quantum secret sharing protocol. In addition, we will describe a method that seeks to improve per photon interferometric sensitivity by utilizing parametric amplifiers in place of linear beam split-ters. Finally, we will describe recent work on linear optical quantum gates in the frequency domain.

PURDUE UNIVERSITY Discovery Park