PADERBORN UNIVERSITY

Collaborative Research Center TRR 142

dortmund university

PhoQS

CeOPP
Center for Optoelectronics and Photonics Paderborn

PHOTONICS LECTURE

TUESDAY, 30 APRIL 2024 | 16:00

DR. ANNA PATEROVA

LECTURE HALL A1

Nonlinear Interferometry and its applications

Nonlinear interferometry is a method based on the interference of correlated photon pairs generated via spontaneous parametric down conversion (SPDC) from two nonlinear crystals. Depending on the properties of the crystals, one photon in a pair (signal) can be generated in the visible/near-IR range, and another photon (idler) in the IR range. When two nonlinear crystals are incorporated into an interferometry scheme, the interference of the signal photons generated at different crystals can be observed, carrying information about idler photons, namely their phase and losses. Thus, the method allows for performing IR sensing by detecting visible/near-IR light, finding applications in areas such as environmental control, forensics, and bio-imaging.

Dr Anna Paterova,
Quantum Technologies
for Engineering, Singapore