

TRR Guest Scientist Lecture / Seminar

Date/Time: Tuesday, 23.07.2019 / 13:00 Uhr
Location: Paderborn, P8.4.09

Kirill Koshelev

*Nonlinear Physics Centre
Australian National University (ANU)
Canberra, Australia*



Meta optics and bound states in the continuum

Abstract:

We discuss the recent advances in meta-optics and nanophotonics associated with the physics of bound states in the continuum (BICs). Such resonant states appear due to a strong coupling between leaky modes in optical guiding structures. We pay special attention to novel applications of the BIC physics to all-dielectric optical high-index metasurfaces with broken-symmetry meta-atoms and show that smart engineering of the asymmetry parameter in the vicinity of the BIC regime allows to enhance substantially the Q factor of the structure. We present the original results on nonlinear high-quality metasurfaces and reveal that the harmonic generation intensity depends critically on the asymmetry parameter. We also demonstrate experimentally an optical control over the spectral position of sharp Fano resonances inspired by BICs in asymmetric metasurfaces made of photosensitive chalcogenide glass.

Contact: Prof. Dr. Thomas Zentgraf
thomas.zentgraf@upb.de