

TRR Guest Scientist Lecture / Seminar

Date/Time: 21.06.2018 / 16:15 Uhr
Location: Paderborn,
Lecture Hall A1



Prof. Dr. rer. nat. habil. Jan Wiersig
Otto von Guericke Universität Marburg
Marburg

Non-Hermitian optics in microcavities: from exceptional points to exceptional sensors

Abstract:

Optical microresonators play a fundamental role in many fields of basic and applied research in physics. Due to optical losses, such as absorption and radiation, these resonators are open systems. In the last years, a new research field, non-Hermitian optics, has emerged, which focuses on the interesting and useable aspects of these losses. It is shown that the effects are strongly enhanced near so-called non-Hermitian degeneracies at exceptional points in parameter space. These unconventional degeneracies, at which not only the resonant frequencies but also the corresponding optical modes coalesce, are highly sensitive to perturbations. It is demonstrated that this can be exploited for the ultra-sensitive detection of small particles.

Contact: Prof. Dr. Stefan Schumacher
stefan.schumacher@upb.de