

Physikalisches Kolloquium



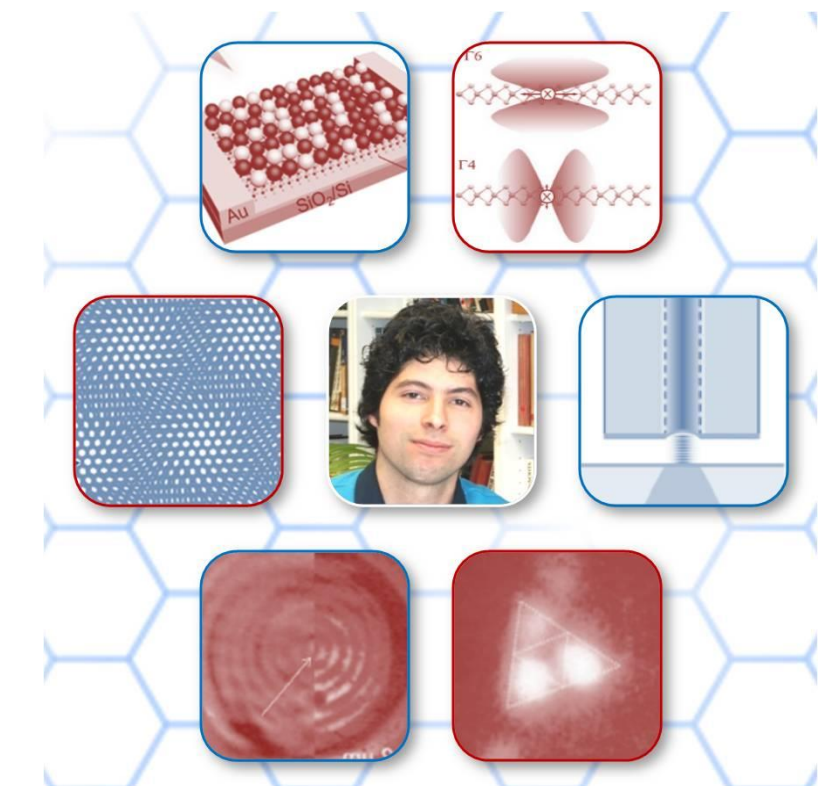
Thursday, 29.04.2021, 16:15
Digital Lecture Hall via Zoom

Dr. Arash Rahimi-Iman, Philipps-Universität, Marburg:

2D-materials-enhanced semiconductor nanophotonics and quantum technologies

Abstract

Light-matter interactions with two-dimensional (2D) materials are at the core of ongoing research to deliver various building blocks for fully-integrated nanophotonic circuits, including advanced devices with quantum-optical or nonlinear functionalities. Vertical and lateral optical microcavity concepts incorporating monolayer materials, and similarly 2D heterostructures, are at play to enhance on-chip opto-valleytronic sensing, light harvesting, photodetection as well as quantum light sources. Our research on micro- and nanoscale light-matter interfaces, photonic landscapes and 2D materials will enable us to store, direct and control energy at the nanoscale. Tailoring the exciton-light-field interaction scenarios between the weak and the strong coupling regimes will among others benefit effective nanolaser operation, single-photon generation and detection, as well as nonlinear integrated photonics, for future (silicon-compatible) quantum information processing schemes.



All of you interested in physics are cordially invited!

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