TECHNISCHE UNIVERSITÄT
IN DER KULTURHAUPTSTADT EUROPAS
CHEMNITZ

Institut für Physik
Physikalisches Kolloquium

Mittwoch, 06.07.2022, um 11:15 Uhr

HS 012, Hörsaalgebäude, Reichenhainer Str. 90 und online via ZOOM

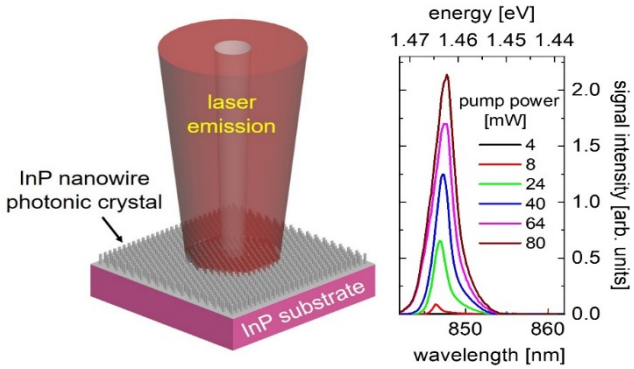
Prof. Dr. Hans-Peter Wagner

(Department of Physics, University of Cincinnati, USA)

Bridging Nanophotonics and Plasmonics: Exploring Light-Matter Interaction in Hybrid Metal/Semiconductor Nanowires

The steady increase of internet traffic and the growing energy consumption of data centers have risen the demands for high performance and low power integrated circuits. The next evolution in information technology is the merging of silicon-on-insulator (SOI) based electronics with photonics. This progression aims to replace metallic chip-to-chip or on-chip interconnects by micrometer or sub-micrometer sized photonic devices including lasers, light modulators, optical waveguides, and photodetectors. The emerging photonic integrated circuits (PICs) will offer a significantly enhanced performance as well as a reduced power consumption per generated bit.

In this colloquium, I will report on our contribution to the development of passive and active ultracompact optical elements which are integrable into PICs. I will show our experimental and theoretical results on optically pumped single nanowire lasing and on two-dimensional lasing from nanowire photonic crystal arrays. Photonic crystal arrays are also suitable to fabricate passive micrometer-sized optical elements like polarizers, analyzers, and polarization converters. Particularly, we are interested in combining nanophotonic structures with plasmonic contributions with the purpose to realize smallest low loss optical structures with enhanced performance.



ZOOM-Link:
https://us02web.zoom.us/j/82310833626

Informationen zum Vortrag erteilt:
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