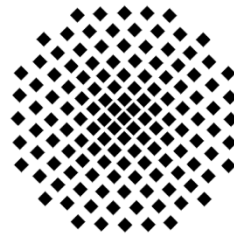


Stuttgarter Physikalisches Kolloquium

Fachbereich Physik, Universität Stuttgart
Max-Planck-Institut für Festkörperforschung
Max-Planck-Institut für Intelligente Systeme

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Universität Stuttgart, Pfaffenwaldring 57, 70569 Stuttgart-Vaihingen

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Nanophotonics for reconfigurable flat optics and on-chip biosensing

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Abstract

Twenty years of extensive research in nanophotonics have considerably advanced light control on the nanometer scale, bringing new developments in both basic and applied research. In this talk, following a general introduction on the main assets of nanophotonic systems, we will review different aspects of our research with an emphasis on reconfigurable flat optics and lab-on-a chip technology. The first part of the talk focuses on the combination of nanophotonics and state-of-the-art microfluidics for the detection of biomarkers. Beyond quantitative concentration recovery, we demonstrate the capability to assess additional information like size and chirality of the analyte. In the second part we introduce our recent effort in the development of reconfigurable planar optical elements. In particular, we discuss several technologies which enable to dynamically control the phase front of the transmitted light via either electrical or optical control.