

Nanorod structures for optical devices with unusual properties

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Metasurfaces, the two-dimensional analog of conventional metamaterials, have drawn considerable attention in the scientific community due to their exotic electromagnetic properties. With the rapid development in metasurfaces and the unprecedented capabilities of manipulating light in a desirable manner by imparting local and space-variant abrupt phase change, the conventional concept of what constitutes an optical device continues to evolve. In this talk, I am going to present two metasurface approaches with novel functionalities, including multichannel polarization-controllable superpositions of orbital angular momentum states, and polarization imaging. The polarization-controllable functionality, higher resolution, broadband, and compactness render this technology very attractive for diverse applications such as photonics, quantum science, and fundamental physics.

Date: 17.05.2017

Time: 16 Uhr

Room: P8.4.09