Tunable Mie resonances in silicon nanostructures probed with electron energy-loss spectroscopy

Søren Raza

Department of Physics, Technical University of Denmark, Fysikvej, DK-2800 Kongens Lyngby, denmark
E-mail: sraz@dtu.dk

Abstract

In this talk, I will present results on thermo-optic and electromechanical tuning of optical Mie resonances in high-refractive-index silicon nanostructures. Using in situ electron energy-loss spectroscopy, we show that the high thermo-optic coefficient of silicon enables tuning between the near field of Mie resonances supported by silicon nanoparticles in the visible. We also demonstrate an electromechanical platform composed of a silicon nanobeam dimer to electrically tune the optical response.