

Design, fabrication & unique applications of nanophotonics

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Interaction of light with nanostructures, *i.e.*, nanophotonics, promises control of the phase, amplitude and polarization of light, enabling unusual applications. We've combined numerical optimization and nanofabrication to create devices such as absorption-free, low-reflection-loss polarizers, integrated mode converters, light-trapping and spectrum-splitting optics for enhancing photovoltaic efficiencies, and hyperspectral lightfield cameras. I'll describe the fundamental concepts, provide an overview of applications, and discuss the challenges and opportunities for the scalable manufacture of such devices.

Brief Bio:

Rajesh Menon has pioneered several technologies that enable far-field optics to manipulate and image matter with nanoscale resolution, something that was thought impossible until a few years ago. His research has spawned over 50 publications, over 30 patents, and 2 spin-off companies. Among his honors are a NASA Early Stage Innovations Award (2013), NSF CAREER Award (2011) and the International Commission for Optics Prize (2009). He currently directs the Laboratory for Optical Nanotechnologies (<http://lons.utah.edu/>) at the University of Utah. He received S.M. and Ph.D. degrees from MIT.