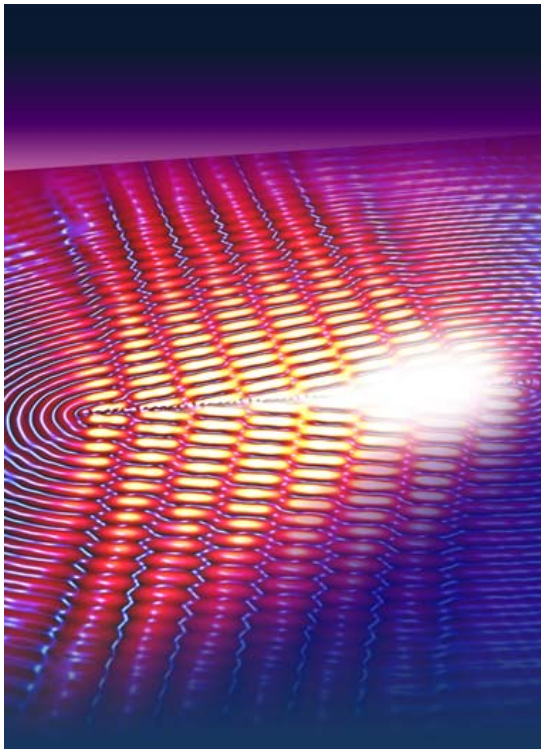
NIM Colloquium

“Metasurfaces for structured light: physics and applications of flat optics”



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Wednesday, June 17, 2015, 5:15 p.m.

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Structured light with metasurfaces

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Patterning surfaces with subwavelength spaced metal/dielectric features (metasurfaces) allows one to locally control the amplitude, phase and polarization of the scattered light, allowing one to generate complex wavefronts such as optical vortices of different topological charge and radially polarized light.[1,2] Recent results on achromatic metasurfaces will be presented including lenses and collimators. Metasurfaces have also become a powerful tool to shape surface plasmon polaritons (SPPs) and more generally surface waves. I will present new experiments on imaging SPP that have revealed the formation of Cherenkov SPP wakes and demonstrated polarization sensitive light couplers that control the directionality of SPP and lenses which demultiplex focused SPP beams depending on their wavelength and polarization.

1. N. Yu and F. Capasso *Nature Materials* **13**, 139 (2014)

2. P. Genevet and F. Capasso *Reports on Progress in Physics* **78**, 24401 (2015)