Presentation Only

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Light confinement in low-index particles with all-dielectric anisotropic metamaterial shell (Conference Presentation)

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Abstract

We propose and demonstrate low-refractive-index particles with all-dielectric metamaterial shell which lead to formation of high intensity photonic nanojets. We show that the extra degree of freedom because of the anisotropy of the shell gives rise to an increase in the photonic jet intensity inside the metamaterial shell without a need to increase the size of the particle. The anisotropy of the shell can also control the spectral and spatial location of the Mie-type multipolar resonances to achieve the desired scattering. In experiments, the metamaterial shell is composed of strong nonlinear materials leading to enhanced nonlinear wavelength conversion at nanoscale.

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