

# Dark-mode dielectric optical metamaterials

## Scientific Achievement

Designed and fabricated dark-mode based dielectric metamaterial with negative electric response at optical wavelength around  $1.5\mu\text{m}$

## Significance and Impact

Dielectric resonators can overcome loss and scaling problem of metal based optical metamaterials

## Research Details

New concept of non-resonantly coupled dark-mode resonators allows separation of resonance and radiation and allows more flexible design. Dielectrics enable low loss at optical frequencies.

Aditya Jain, Parikshit Moitra, Thomas Koschny, Jason Valentine, and Costas M. Soukoulis, "Electric and Magnetic Response in Dielectric Dark States for Low Loss Subwavelength Optical Meta Atoms," *Adv. Optical Mater.* 3, 1431-1438 (2015).

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