

Photonic Metamaterials: Recent Progress

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Abstract: We review our recent progress regarding the nanofabrication and characterization of metamaterials operating at optical frequencies. In particular, we will emphasize direct laser writing to achieve three-dimensional metallic and dielectric structures. Examples are gold-helix metamaterials acting as compact broadband circular polarizers or three-dimensional broadband invisibility-cloaking structures. Furthermore, we will report on our progress regarding electro-modulation of metallic metamaterials and on bringing gain to metamaterials aiming at loss compensation.