

Developments in Nonlinear Photonic Metamaterials

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Photonic metamaterials are now established not only as a paradigm for the development of media with new and unusual electromagnetic properties achieved via sub-wavelength structuring but also as a device platform wherein the structuring of plasmonic metals and hybridization with active media brings new functionalities and responses that can be nonlinear, tuneable, or switchable.

We present recent experimental advances in the development of functional photonic metamaterials, describing the dramatic enhancement of ultrafast optical nonlinearities in nanostructured plasmonic metamaterials.