New Materials for Metamaterials: Phase-change Chalcogenides, Topological Insulators, Perovskites, and Memory Alloys

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We introduce a new generation of plasmonic and dielectric materials used for the realization of metasurfaces and metadevices. These include broadband topological insulators with plasmonic response up to optical frequencies, nanostructured hybrid organic-inorganic perovskite metasurfaces with color-tunable absorption and luminescence, and phase-change chalcogenides and memory alloys for actively tunable metamaterials.