



Hindawi

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Special Issue on

The Applications of Metamaterials

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Metamaterials are artificial periodic or nonperiodic structures composed of electromagnetic structures, whose function is due to both the cellular architecture and the chemical composition. In large part, due to metamaterials, the classical subject of electromagnetism and optics has experienced a number of new discoveries and advances in research. The metamaterial has the ability to control electromagnetic waves arbitrarily in theory. After the experimental realization of invisible cloaks in the microwave and optical regimes, an even larger explosion of interest has occurred in metamaterials, which can be designed to have electromagnetic properties difficult or impossible to find in nature. However, compared to invisible cloaks, metamaterial antenna is an important part in the research of metamaterials, which is more close to the real engineering applications, including gradient-index metamaterials, zero-index metamaterials, and metasurface.

Potential topics include, but are not limited to:

- ▶ Gradient-index metamaterials to control the propagation and radiation of the electromagnetic waves
- ▶ Metasurfaces and planar metamaterials
- ▶ Nonlinear and tunable metamaterials to control the scanning radiation beam of the electromagnetic waves
- ▶ Three-dimensional metamaterials, including isotropic inhomogeneous metamaterials and anisotropic homogeneous metamaterials
- ▶ Metamaterials with extreme parameters, such as zero-index metamaterials and negative-index metamaterials
- ▶ Modeling of metamaterials

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