Passive PT-Symmetric Metasurfaces With Directional Field Scattering Characteristics

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Abstract

We show that passive parity-time (PT) symmetric metasurfaces can be utilized to appropriately engineer the resulting far-field characteristics. Such PT-symmetric structures are capable of eliminating diffraction orders in specific directions, while maintaining or even enhancing the remaining orders. A systematic methodology is developed to implement this class of metasurfaces in both one-dimensional and two-dimensional geometries. In two-dimensional systems, PT symmetry can be established by employing either H-like diffractive elements or diatomic oblique Bravais lattices.

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