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摘要: The visionary work of Veselago had inspired intensive research efforts over the last decade, towards the realization of man-made structures with unprecedented electromagnetic (EM) properties. These structures, known as metamaterials, are typically periodic metallic-based resonant structures demonstrating effective constitutive parameters beyond the possibilities of natural material. For example they can exhibit optical magnetism or simultaneously negative effective permeability and permittivity which implies the existence of a negative refractive index. However, also periodic dielectric and polar material, known as photonic crystals, can exhibit EM capabilities beyond natural materials. This paper reviews the conditions and manifestations of metamaterial capabilities of photonic crystal systems. (c) 2012 Elsevier B.V. All rights reserved.
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