

Abstract Submitted
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Negative Refraction and Subwavelength Lensing in a Polaritonic Crystal XIWEN WANG, Department of Physics, Boston College, KRZYSZTOF KEMPA — We show that a two-dimensional polaritonic crystal, which is made of metallic rods which support plasmon oscillations, can act in a narrow frequency range act as a medium in which a negative refraction, and subwavelength lensing occurs. The lensing effect in our crystal obeys the image-distance relationship characteristic of an $n = -1$ material. We show, that surface polaritonic modes are excited on the surface of the lens, and that they facilitate restoration of the evanescent waves, which carry the subwavelength image information. We also demonstrate, that this can occur in the visible frequency range for a wide range of materials, including silver and aluminum rods, as well as carbon nanotubes. This flexibility should allow for an experimental demonstration of this phenomenon in the visible frequency range.

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