

Abstract Submitted
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Radiationless Electromagnetic Interference: Perfect Focusing with Evanescent-Field Plates¹ R. MERLIN, U. Michigan — Planar subwavelength structures are described, which rely on a hitherto unrecognized property of Maxwell's equations to provide superlensing, i. e., electromagnetic focusing well beyond the diffraction limit, at arbitrary frequencies [1]. The resulting fields bear a striking resemblance to those of negative-index slabs. The structures' design is related to that of the Fresnel plates in that diffraction forces the input field to converge to a spot on the focal plane. Unlike the diffraction-limited zone plates, for which focusing results from standard interference of traveling waves, the subwavelength plates control the near field and, as such, their superlensing properties originate from a new, static form of interference. [1] R. Merlin, *Science* **317**, 927 (2007).

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