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Experimental realization of a generalized superlens using negative refraction at infrared wavelengths RAVINDER BANYAL, B.D.F. CASSE, Department of Physics and Electronic Materials Research Institute, Northeastern University, Boston, Massachusetts 02115, USA, W.T. LU, Y.J. HUANG, Department of Physics and Electronic Materials Research Institute,Northeastern University, Boston, Massachusetts 02115, USA, S. SELVARASAH[1], M. DOKMECI, Department of Electrical and Computer Engineering, Northeastern University, Boston, Massachusetts 02115, USA, C.H. PERRY, S. SRIDHAR, Department of Physics and Electronic Materials Research Institute, Northeastern University, Boston, Massachusetts 02115, USA — We demonstrate experimentally using a near-field scanning optical microscope the imaging of a point source by a generalized superlens fabricated in InGaAsP/InP heterostructure at wavelengths around λ= 1.5 μm. The theory of superlens imaging with lens equation u + v = σd gives excellent explanation of wave refraction and imaging formation of our superlens with an effective lens property ε_{eff}= 0.43. This can be used as the basis for design optical elements made of photonic crystals.

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