

FOCUSING OF TERAHERTZ RADIATION WITH A MESOSCALE CUBOID LENS MADE OF ARTIFICIAL DIELECTRIC

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The aim of this work is to study a new dimensionless cuboid lens made of artificial dielectric for the terahertz wavelength range. The research method is mathematical modeling of the process. It is established that a lens made of anisotropic artificial dielectric along the optical axis with a characteristic size of 3λ is able to focus terahertz radiation at the calculated frequency of 0.15 THz into a focal spot with a transverse size equal to the diffraction limit. The focus area is located along the optical axis of the lens. The ability to focus radiation remains in a wide range of effective refractive index, at least from 1.4 to 1.7, while the value of the focal length does not change significantly.

Keywords: a photon jet, mesoscale the particle, Janus particle, artificial dielectric, lens, diffraction limit

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