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Title

Optically-induced charge separation and terahertz emission in unbiased dielectrics

Source

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Abstract

Charge separation mediated by linearly-polarized light in transparent insulators is analyzed numerically by integrating the equations of motion of a bound charge. It is shown that large static and transient dipole moments can be induced by the magnetic component of light at nonrelativistic intensities regardless of whether the pumplight is coherent or incoherent. Quantitative estimates show that efficient conversion of optical beams to electrical power is possible in lossless dielectric media and that THz radiation can be generated in unbiased materials through the use of transverse optical magnetism. (19 References).