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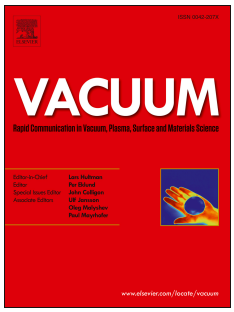

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Study of optical properties of Ce and Mn doped $BiFeO_3$ thin films using SPR technique for magnetic field sensing

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Abstract

Surface Plasmon Resonance (SPR) technique has been used in the present work, to study the optical properties of pulsed laser deposited single phase $BiFeO_3$, Mn doped $BiFeO_3$ (BFMO) and Ce doped $BiFeO_3$ (BCFO) thin films. Refractive index dispersion studies with varying incident wavelengths has also been studied. Magnetic field dependence on the optical properties of BFMO thin films have also been determined using SPR. A very sensitivity of 147 °/Tesla was found for the prism/Au/BFMO structure exhibiting maximum change in optical properties with magnetic field indicating the potential use of BFMO thin films for the realization of efficient optical sensor.