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Electric-dipole spin resonance in wurtzite ZnO

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Keywords

semiconductors, spin-orbit coupling, Zeeman and Stark splitting, Jahn–Teller effect, electron paramagnetic resonance and relaxation

Abstract

The electron spin resonance (ESR) measurements of the electric-dipole spin resonance (EDSR) of donor-bound electrons in ZnO wurtzite crystals are reported. This phenomenon was measured in longitudinal Voigt geometry (E_1 || $B_0 \perp c$) at low magnetic field and at low microwave frequency. The ESR transitions observed consist of two comparable signals: magnetic dipole spin resonance (MDSR) and electric dipole spin resonance (EDSR).