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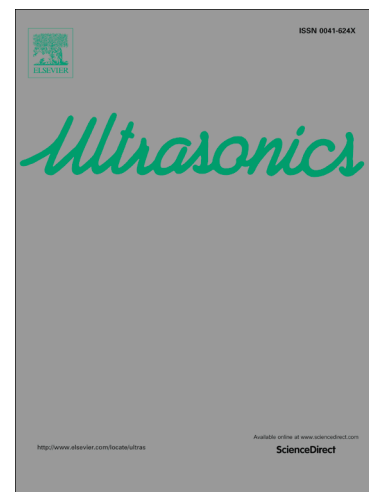
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The dispersion and attenuation of the multi-physical fields coupled waves in a piezoelectric semiconductor

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Abstract The dispersion and attenuation features of the multi-physical fields coupled waves propagating in an infinite piezoelectric semiconductor and the reflection problem at a boundary which is mechanically free, electrically insulation and the dielectrically open circuit are studied in this paper. Different from the classic dielectric piezoelectric medium, there are four kinds of coupled elastic waves, i.e. the quasi-longitudinal wave (QP), the quasi-traverse wave (QSV), the electric–acoustic wave (EA) and the electron or hole carriers wave (CP), in a piezoelectric semiconductor. The influences of the steady carrier density and biasing electric field upon the dispersion and attenuation features of these coupled elastic waves and the

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