Abstracts

Acoustic Surface-Waves and Rayleigh-Type Spin-Waves at Microwave Frequencies

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The recent observation of acoustic surface waves up to 3 GHz offers the promise of microwave-acoustic integrated-circuits and components, which would be five orders of magnitude smaller than their electromagnetic equivalents. The practicality of such "microsound" circuits will depend to a considerable degree on the magnitude of the transducer insertion loss and on the acoustic propagation loss. The first part of this paper will deal with these losses on optically polished dielectric single crystal substrates. It should be noted that the acoustic losses in polycrystalline materials are prohibitively high at microwave frequencies. The second part will deal with the propagation of Rayleigh-type spin-waves on magnetic substrates. These surface spin-waves are nonreciprocal in their propagation characteristics and therefore offer the possibility of surface wave isolators.

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