Abstracts

Frequency Modulation and Translation with Magnetoelastic Waves in YIG

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A magnetoelastic wave propagating in yttrium iron garnet (YIG) can be frequency translated or frequency modulated by pulsing the biasing magnetic field. Room temperature experiments of this kind are described here for a (100) rod of single crystal YIG, of 7.35 mm length and 2.94 mm diameter, axially biased into the magnetoelastic regime. Spatially orthogonal shorted fine wire couplers are utilized for excitation and detection. A coil wound along the specimen permits the application of a pulse of magnitude delta H to the biasing field, with rise time short compared with the relaxation of the magnetoelastic waves.

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