Abstracts

Wideband Pulse Compression Using Magnetoelastic Waves in YIG Rods

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Single crystal YIG dispersive delay lines show great promise as pulse compression filters. Very large bandwidths can be obtained by using magnetoelastic waves in axially magnetized YIG rods. Bandwidths up to 250 MHz have recently been reported in the literature. The dispersion of a YIG rod is nonlinear, but it can be linearized by suitably shaping the internal magnetic field. By bonding YAG quarter-wave plates to the ends of the YIG rod, the filter can be changed from a reflection mode to a transmission made of operation, with a substantial reduction of direct undelayed leakage. Theoretical and experimental results on these aspects of magnetoelastic pulse compressian filters will be described in this paper.

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