Abstracts

Two-Port UHF Pulse Compression Via Magnetostatic Waves in YIG Rods

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Dispersive spin wave modes in low-loss single crystals of yttrium-iron-garnet (YIG) have been recognized for some time as candidates for microwave "matched filter" devices with pulse compression applications. In assessing magnetostatic modes for these applications, comparison with magnetoelastic modes in unavoidable. Recently, magnetoelastic pulse compression experiments have been carried out by several investigatars. Although wide bandwidths and prospects for linear delay dispersion are evident, there are several delicate problems which must be satisfactorily resolved in any practical device, including magnetoelastic defocusing effects, amplitude fluctuations, satisfactory two-port configurations which take full advantage of the available bandwidths, and the onset of low-level spinwave nonlinearities. Conceding advantages of bandwidth and delay dispersion linearity to the magnetoelastic mode, magnetostatic dispersive lines may well be highly satisfactory where these considerations, are not of prime importance.

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