Abstracts

Theoretical and Experimental Evidence of Nonreciprocal Effects on Magnetostatic Forward Volume Wave Resonators

I. Huynen, G. Verstraeten and A. Vander Vorst. "Theoretical and Experimental Evidence of Nonreciprocal Effects on Magnetostatic Forward Volume Wave Resonators." 1995 Microwave and Guided Wave Letters 5.6 (Jun. 1995 [MGWL]): 195-197.

An unexpected nonreciprocal behavior is observed on Magnetostatic Forward Volume Waves (MSFVW) Straight Edge Resonators (SER's) using YIG films. The nonreciprocal effect is theoretically predicted by taking into account the demagnetizing effect of the dc biasing magnetic field when calculating the forward and reverse propagation constants of MSFVW inside the YIG film. Hence, a nonreciprocal scattering matrix of the MSFVW-YIG-SER coupled to its transducers is calculated. The measured values of the transmission coefficients agree extremely well with the predicted ones. They both present an important nonreciprocal phase behavior.

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