Abstracts

Magnetostatic-Forward-Volume-Wave-Based Guided-Wave Magneto-Optic Bragg Cells and Applications to Communications and Signal Processing

C.S. Tsai and D. Young. "Magnetostatic-Forward-Volume-Wave-Based Guided-Wave Magneto-Optic Bragg Cells and Applications to Communications and Signal Processing." 1990 Transactions on Microwave Theory and Techniques 38.5 (May 1990 [T-MTT] (Special Issue on Applications of Lightwave Technology to Microwave Devices, Circuits, and Systems)): 560-570.

In this paper realization of magnetostatic forward volume wave (MSFVW) based guided-wave magneto-optic (MO) Bragg cells and their applications to communications and signal processings are reported. First, Bragg diffraction of guided optical waves from the MSFVW in a noncollinear coplanar geometry is analyzed. The design of microstrip line transducers that facilitate wide-band MO Bragg diffraction with electronically tunable microwave carrier frequencies (2.0 to 12.0 GHz) is then briefly discussed. Subsequently, the experimental results obtained with the resulting Bragg cells in both pure and bismuth-doped YIG waveguides and a comparison to the theoretical predictions are presented. Finally, applications of the MO Bragg cells to light beam modulation, scanning/switching, and RF spectral analysis are presented in detail.

❑ Return to main document.