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Mode Conversion and Diffraction of Guided Optical Waves from Magnetostatic Waves under Inclined Bias Magnetic Field

WU Bao-Jian, LIU Gong-Qiang and ZOU Zhi-Qiang

Department of Applied Physics, Shanghai Jiao Tong University, Shanghai 200030, China
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Abstract: The noncollinear interaction of guided optical waves with magnetostatic waves under inclined bias magnetic field is theoretically studied in detail. Similar approach can also be applied to the collinear interaction. Calculation results indicate that the diffraction efficiency (DE) in magnitude is equal to the mode-conversion efficiency (MCE) under vertical bias magnetic field, but they differ greatly under inclined bias magnetic field. By comparison to the case of vertical magnetization, the DE or the MCE can be greatly increased under inclined magnetic field. The characteristic of the DE curves obtained is basically in agreement with the experimental result.

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