Abstracts

Investigation of "Twist" Mode Propagation in Indium Antimonide at 70 GHz

G.H. Glover and K.S. Champlin. "Investigation of "Twist" Mode Propagation in Indium Antimonide at 70 GHz." 1970 Transactions on Microwave Theory and Techniques 18.9 (Sep. 1970 [T-MTT]): 570-575.

An experimental and theoretical investigation of the propagation of axially symmetric ("twist") modes in an axially magnetized sample of indium antimonide is described. Measurements of the TE°/sub 01/-mode reflection coefficient are shown to agree well with computer calculations based upon a convergent multimode analysis. Observed maxima and minima are seen to correspond to dimensional resonances and antiresonances of the two lowest order twist modes. These results are qualitatively explained in terms of twist mode standing waves. Under certain conditions of magnetic field and sample thickness, energy conversion from the TE°/sub 01/ mode to the TM°/sub 01/ mode occurs. This conversion has a maximum calculated efficiency of 95 percent under the conditions of the present experiment.

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