Abstracts

Scattering of Millimeter Waves by Metallic Strip Gratings on an Optically Plasma-Induced Semiconductor Slab

K. Nishimura and M. Tsutsumi. "Scattering of Millimeter Waves by Metallic Strip Gratings on an Optically Plasma-Induced Semiconductor Slab." 1996 Transactions on Microwave Theory and Techniques 44.12 (Dec. 1996, Part I [T-MTT]): 2231-2237.

This paper presents the scattering characteristics of a TE electromagnetic plane wave by metallic strip gratings on an optically induced plasma slab in silicon at millimeter-wave frequencies. The characteristics were analyzed by using the spectral domain Galerkin method and estimated numerically. We examined how to control the resonance anomaly by changing the optically induced plasma density for metallic strip grating structures fabricated on highly resistive silicon. The optical control characteristics of the reflection and the forward scattering pattern of the grating structures were measured at Q band and are discussed briefly with theory.

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