Abstracts

3-D Integral Equation Analysis of Guided and Leaky Waves on a Thin-Film Structure with 2-D Material Gratings

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This paper presents a 3-D integral equation analysis of guided surface waves and leaky waves on a dielectric layer structure with 2-D implanted periodic dielectric blocks. The electric fields within the implanted periodic blocks are unknowns in the moment method. The method involves a full dyadic Green's function. The guided surface waves and leaky waves are identified as eigenvalues of a deterministic equation resulting from a moment method procedure. The analysis may deal with a variety of irregular and anisotropic implants. The analysis may also deal with layered or grounded structures through the modification of the Green's function. The presented approach is also suitable for the analysis of photonic band gap materials.

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