

**Amri, Abdelkader; Chandezon, J.; Cornet, G.**

**Rigorous methods for the study of the propagation of electromagnetic waves in periodic wave-guides. (Méthode rigoureuse pour l'étude de la propagation des ondes électromagnétiques dans les guides périodiques.)** (French) [Zbl 1043.78541](#)

*Can. J. Phys.* 61, No. 9, 1311-1323 (1983).

**Summary:** We propose an exact method for studying electromagnetic propagation in perfectly conducting periodical wave-guides with glide reflection symmetry. Maxwell's equations, written in a covariant form, are solved in a nonrectangular coordinate system in order to satisfy the boundary conditions. As a result, the dispersion (Brillouin) diagrams are given by the eigenvalues of a matrix which characterizes the waveguide, and the eigenvectors of this matrix determine the components of the electromagnetic field. Computed and measured results are compared for an 'echelette' wave-guide with glide reflection symmetry.

**MSC:**

**78A50** Antennas, waveguides in optics and electromagnetic theory

**78-04** Software, source code, etc. for problems pertaining to optics and electromagnetic theory

**Full Text:** [DOI](#)