

## ABSTRACT

This paper presents a formalism based on the Finite Element Method (FEM), suitable for analysis of discontinuities with axial symmetry, between any two coaxial lines, including corrugations. The method of Galerkin-Budnov follows a bi-linear integral operator, applied to the magnetic field, expanded in the whole area of the structure, coaxial-discontinuity-coaxial. The input and output ports of the structure are far from of the discontinuity, so that therein there is only the TEM mode. The magnetic field sought is obtained by MEF. The values for the return loss, and the magnetic fields at both ports were calculated and compared with those yielded by Modes Matching Technique, showing good agreement.

Keywords: TEM Mode.  $TM_{(n=0,m)}$  Mode. Cabel coaxial. Finite Element Method. Criterion Budnov-Galerkin. Wave Equation.