# Abstracts

## Analysis of the Electromagnetic Waves in an Overmoded Finite Length Slow Wave Structure

*M.R. Amin, K. Ogura, H. Kitamura, K. Minami, T. Watanabe, Y. Carmel, W. Main, J. Weaver, W.W. Destler and V.L. Granatstein. "Analysis of the Electromagnetic Waves in an Overmoded Finite Length Slow Wave Structure." 1995 Transactions on Microwave Theory and Techniques 43.4 (Apr. 1995, Part I [T-MTT]): 815-822.*

The electromagnetic fields of the higher order axial resonant modes in a slow wave structure are analyzed and found to have considerably different characteristics from those of the conventional fundamental mode. Here, the reflections at both ends produce axial resonant modes corresponding to axisymmetric transverse magnetic (TM) modes. The period of field modulation of some of the higher order axial modes is shorter than that of the usual mode in a cylindrical waveguide, which could be of practical interest for higher power, higher frequency operation of backward wave oscillators. A perturbation technique is used to ascertain the field distribution inside the resonant cavity, and the numerical results thus obtained are compared to some experimental data.

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