# Abstracts

## Transient Analysis of a Directional Coupler Using a Coupled Microstrip Slot Line in Three-Dimensional Space (Short Papers)

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In recent MIC techniques, double-sided MIC has been studied because its advantages in propagation characteristics are greater than that conventional MIC's. A coupled microstrip slotline is one of them. Its application to various circuit elements has often been discussed. But the coupled microstrip slotline is essentially three-dimensional structure, so the analysis demands a rigorous three-dimensional treatment. Also, the recent high-speed pulse technique demands analysis in the time domain. The present paper treats a directional coupler using the coupled microstrip slotline in three-dimensional space and time. The results of the directional coupler analysis is presented with the complicated time variation of the three-dimensional electromagnetic field. So, the mechanism of the directional coupling phenomena that is produced by the propagation characteristics of the even and odd modes is presented in the time domain, In particular, the instantaneous diagram of the Poynting vector details the energy flow in the transient process. For the analysis of the characteristics of the complex microwave device, these results present the utilities of the various field distributions that are obtained by the three-dimensional vector analysis in the time domain.

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