# Abstracts

## Theoretical and Experimental Analysis of Channelized Coplanar Waveguides (CCPW) for Wideband Applications of Integrated Microwave and Millimeter-Wave Circuits

*K. Wu, Y. Xu and R.G. Bosisio. "Theoretical and Experimental Analysis of Channelized Coplanar Waveguides (CCPW) for Wideband Applications of Integrated Microwave and Millimeter-Wave Circuits." 1994 Transactions on Microwave Theory and Techniques 42.9 (Sep. 1994, Part I [T-MTT]): 1651-1659.*

A quasi-planar structure called Channelized Coplanar Waveguide (CCPW) is proposed for wideband applications of integrated microwave and millimeter-wave circuits. Compared with the conventional coplanar waveguides, the novel transmission line has a narrow metallic notch channel located underneath the main guiding part, which is able to provide direct grounding equalization without resorting to via-holes or the use of air-bridges. In addition, an electrically shielding condition, based on the theoretical principle of the nonradiative dielectric waveguide, is proposed to suppress radiation losses and reduce leaky-wave propagation in conjunction with the umbilical channel. Some interesting phenomenons regarding the electrically shielding condition are experimentally observed. One attractive feature of the proposed CCPW is its ability to drive higher-order modes towards higher frequency range, and therefore demonstrates a potential for wideband applications. A method of lines with vertical discretization scheme is used to accurately determine dispersion characteristics of the proposed CCPW and influence on mode propagation including higher-order modes. Theoretical results of dispersion are verified experimentally over large frequency band of interest.

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