

Session TH3C

Non-Linear and Lossy Mechanisms in Guided Waves

Chairman:

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This session will address non-linear and lossy mechanisms in guided structures. Six papers will be presented, four on the subject of non-linear and two on the lossy mechanisms in transmission media. The first paper addresses electromagnetic wave effects on the behavior of submicrometer gate field-effect transistors by coupling a full wave solution of Maxwell's equations to the active device model. Three-dimensional simulations verify the expected device-wave interaction. The second paper develops the propagation characteristics and the characteristic impedances of ferroelectric substrate considering the DC bias effect. The third paper develops a full-wave three dimensional non-linear high temperature superconductor simulator. Interesting aspects of the nonlinearity in a superconducting material are observed. The fourth paper presents an accurate E.M. model of T-gate TW-FETs and necessary conditions for obtaining exponentially growing waves. The fifth paper describes a new development in the hybrid-wave boundary integral equation approach which allows for analysis of accurate losses as applied to CPW at millimeter-wave frequencies. The last paper presents a non-perturbative analysis, including both metallic and dielectric losses, of planar circuits. The theory describes lossy ground planes exactly and is exact for conductors of finite width in the limit of small thickness.

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1:30 p.m.–3:00 p.m., Thursday, May 18, 1995
Room 12A,B,C