# A Time-Domain Algorithm For The Analysis Of Second-Harmonicgeneration In Nonlinear Optical Structures

Alsunaidi, M.A. Masoudi, H.M. Arnold, J.M.;Dept. of Electr. Eng., King Fahd Univ. of Pet.Miner., Dhahran;

**http://www.kfupm.edu.sa**

## Summary

A time-domain simulator of integrated optical structures containing second-order nonlinearities is presented. The simulation algorithm is based on nonlinear wave equations representing the propagating fields and is solved using the finite-difference time-domain method. The simulation results for a continuous-wave operation are compared with beam propagation method simulations showing excellent agreement for the particular examples considered. Because the proposed algorithm does not suffer from the inaccuracies associated with the paraxial approximation, it should find application in a wide range of device structures and in the analysis of short-pulse propagation in second-order nonlinear devices

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