

Time-Domain Finite-Difference Beam Propagation Method

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Summary

A new technique to model the behavior of pulsed optical beams in waveguides is proposed and analyzed. The technique is an extension of the traditional continuous-wave beam propagation method (BPNI) to include time dependence, therefore called the time-domain BPM (TD-BPM). The method was tested using different waveguide examples and it is concluded that the technique is simple and accurate. Compared with the finite-difference TD method, the new TD-BPM is more efficient in terms of computer memory and execution time especially for large optical devices

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