

Absorbing boundary conditions for FDTD simulations of photonic crystal waveguides

A. Mekis, Shanhui Fan and J.D. Joannopoulos. "Absorbing boundary conditions for FDTD simulations of photonic crystal waveguides." 1999 Microwave and Guided Wave Letters 9.12 (Dec. 1999 [MGWL]): 502-504.

We present a novel numerical scheme for the reduction of spurious reflections in simulations of electromagnetic wave propagation in photonic crystal waveguides. We use a distributed Bragg reflector waveguide termination to reduce reflection from photonic crystal waveguide ends by improving k-matching for photonic crystal waveguided modes. We describe computational procedures and show that a significant reduction in reflection amplitude can be achieved across a large part of the guided mode spectrum. This method enables one to reduce simply and effectively the computational requirements in photonic crystal waveguide simulations.

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