Docket #: S05-035

SPBF: Fast Photonic Bandgap Fiber-made Solver

A method and apparatus models one or more electromagnetic field modes of a waveguide. The method includes sampling a two-dimensional cross-section of the waveguide. The method further includes calculating a first matrix having a plurality of elements and having a first bandwidth using the sampled two-dimensional cross-section of the waveguide. The plurality of elements of the first matrix represents an action of Maxwell's equations on a transverse magnetic field within the waveguide. The method further includes rearranging the plurality of elements of the first matrix to form a second matrix having a second bandwidth smaller than the first bandwidth. The method further includes shifting the second matrix and inverting the shifted second matrix to form a third matrix. The method further includes calculating one or more eigenvalues or eigenvectors of the third matrix corresponding to one or more modes of the waveguide.

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Patents

- Published Application: 20060133763
- Published Application: WO2006044059
- Published Application: 20090192769
- Issued: 7,505,881 (USA)
- Issued: 8,407,036 (USA)

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