
Charles Morgenstern
**An Efficient Iterative Method for Acoustic Wave
Propagation**

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We consider the time-harmonic acoustic wave propagation governed by the variable coefficient Helmholtz partial differential equation (PDE) with absorbing boundary conditions. The standard Galerkin variational formulation of the Helmholtz model and the associated finite element method (FEM) discretization provide a robust computational framework for simulation of acoustic wave propagation in general media with curved and non-smooth boundaries. We develop a non-standard FEM computer model to simulate the Helmholtz problem and demonstrate the efficiency of the approach compared to the standard formulation.