

1075-65-129

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Numerical simulation of metamaterials play a very important role in the design of invisibility cloak, and sub-wavelength imaging. In this talk, we will discuss a leap-frog discontinuous Galerkin method for solving the time-dependent Maxwell's equations in metamaterials. Conditional stability and error estimates are proved for the scheme. Implementation of the proposed algorithm and numerical results supporting the analysis will be presented. (Received August 26, 2011)