

Meeting: 1005, Newark, Delaware, SS 3A, Special Session on Mathematical Methods in Electromagnetic Wave Propagation

1005-65-73 **Jichun Li*** (jichun@unlv.nevada.edu), Dept. of Mathematical Sciences, University of Nevada, Las Vegas, 4505 Maryland Parkway; Box 454020, Las Vegas, NV 89154-4020. *Finite Element Analysis for the 3-D Maxwell's Equations in Dispersive Media*. Preliminary report.

We consider the time dependent Maxwell's equations in dispersive media on a bounded domain in three-dimensional space. A fully discrete finite element scheme is developed to approximate the electric field equation derived from the Maxwell's equations. Optimal energy-norm error estimates are proved for Nédélec curl-conforming edge elements.

To our knowledge, this is the first error analysis for the Maxwell's equations in dispersive media solved by finite element methods. (Received January 27, 2005)