1071-65-26　　　　　**Vrushali A. Bokil*** (`bokilv@math.oregonstate.edu`), 368 Kidder Hall, Department of Mathematics, Oregon State University, Corvallis, OR 97331. *An Analysis of the Uniaxial PML Model For Maxwell's Equations in Dispersive Media.* Preliminary report.

We study the Uniaxial Perfectly matched layer (UPML) model applied to Maxwell's equations in linear dispersive media using energy techniques. We consider the two dimensional TE mode of Maxwell's equations along with single pole Debye and Lorentz polarization models. We obtain uniform in time stability results under certain assumptions on the UPML parameters. We also obtain some energy decay results under additional assumptions on the UPML parameters, indicating the absorbing properties of the UPML model. Next, we consider the discretization of the UPML model using the lowest order Nédélec edge finite elements. Based on the energy decay results of the continuous model, we investigate the stability of the Nédélec method for discretizing the UPML model. (Received December 31, 2010)