Meeting: 1000, Albuquerque, New Mexico, SS 11A, Special Session on Nonlinear Partial Differential Equations Applied to Materials Science

1000-35-176 **P. Bauman** and **H. Jadallah*** (jadallah@nmt.edu), Department of Mathematics, 801 Leroy Place, Socorro, NM 87801, and **D. Phillips**. *The Time-Dependent Ginzburg-Landau Equations in Three Dimensions.*

We consider the time dependent Ginzburg-Landau equations for a three dimensional connected domain surrounded by vacuum in the presence of a constant applied magnetic field. In 3-d the gauge invariant equations are of mixed type, time-dependent inside the domain and independent of time outside the domain. We discuss the role of different gauges in the existence, uniquness and regularity of solutions in three dimensions. (Received August 23, 2004)