

Meeting: 1001, Evanston, Illinois, SS 6A, Special Session on Nonlinear Partial Differential Equations and Applications

1001-35-33 **Nicolae Tarfulea*** (nicolae@math.umn.edu), School of Mathematics, University of Minnesota, 127 Vincent Hall, 206 Church St. S.E., Minneapolis, MN 55455. *Constraint Preserving Boundary Conditions for a Hyperbolic Formulation of Einstein's Equations.*

Einstein's equations are usually solved as a constrained initial boundary value problem. It has become clear in the numerical relativity community that, in order for constraints to be preserved during evolution, the boundary conditions have to be chosen in an appropriate way. Finding appropriate boundary conditions that lead to well-posedness and consistent with the constraints is a difficult problem and little is known so far. In this talk, we address this problem for a recent first order symmetric hyperbolic formulation of Einstein's equations for which we prescribe simple boundary conditions that make the problem well-posed and preserve the constraints. This is a joint work with Prof. Douglas N. Arnold (IMA-University of Minnesota). (Received July 06, 2004)