Abstract Submitted
for the 4CF10 Meeting of
The American Physical Society

General Relativistic Magnetohydro Dynamics evolutions using WENO MICHAEL BESSELMAN, Brigham Young University — Many astrophysical systems involve highly relativistic, magnetized flows in the backgrounds of strongly gravitating compact objects. We are interested in simulating such systems using the equations of general relativistic MHD. Because of the complexity of these systems a severe challenge in their modeling is handling the relativistic shocks that can develop. We describe and demonstrate results from our implementation of a fifth order Weighted Non-Oscillatory (WENO) model as a way to accurately evolve such shocks properly in these systems. In addition, we show that the use of the characteristics of the system can improve the treatment of the boundary conditions in the computational domain.

Michael Besselman
Brigham Young University

Date submitted: 10 Sep 2010 Electronic form version 1.4