

Abstract Submitted  
for the APR20 Meeting of  
The American Physical Society

**Ameliorating the Courant Limitation on Vacuum and GRMHD Simulation in Spherical-Polar Coordinates:**<sup>1</sup> YOSEF ZLOCHOWER, Rochester Institute of Technology, VASSILIOS MEWES, National Center for Computational Sciences, Oak Ridge National Laboratory, MANUELA CAMPANELLI, Rochester Institute of Technology, ZACHARIAH ETIENNE, West Virginia University, THOMAS BAUMGARTE, Bowdoin College — Spherical-like coordinates have many advantages when it comes to evolving systems that are approximately axially symmetric. This includes the remnants of compact-object mergers. However, the often severe Courant limitation associated with the origin and polar axis can make high-resolution simulations impractical. In this talk we describe two techniques for mitigating the Courant limitation using filtering algorithms

<sup>1</sup>We gratefully acknowledge the National Science Foundation for financial support from Grants No. PHY-1912632, No. AST-1516150, No. OAC-1550436, No. PHY-1726215, No. OAC-1811228

Yosef Zlochower  
Rochester Institute of Technology

Date submitted: 03 Jan 2020

Electronic form version 1.4