

Abstract Submitted
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Numerical Relativity in Spherical Polar Coordinates THOMAS BAUMGARTE, Bowdoin College — Spherical polar coordinates have many desirable properties for simulations in relativistic astrophysics. In the absence of symmetry conditions, however, numerical relativity simulations in spherical polar coordinates have been hampered by problems associated with the coordinate singularities. In this talk I will discuss a new approach that does not require regularization of the singular terms, and instead employs a reference-metric formulation of the BSSN equations, a proper rescaling of the dynamical variables, and a partially-implicit Runge-Kutta integration scheme. I will briefly review these ingredients, and will then present some tests and early applications.

Thomas Baumgarte
Bowdoin College

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