Abstract Submitted
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Magnetized Neutron Stars With Realistic Equations of State and Neutrino Cooling[1] STEVEN LIEBLING, Long Island University, DAVID NEILSEN, Brigham Young University, MATTHEW ANDERSON, Indiana University, LUIS LEHNER, Perimeter Institute, CARLOS PALENZUELA, CITA — We incorporate realistic, tabulated equations of state into fully relativistic simulations of magnetized neutron stars along with a neutrino leakage scheme which accounts for cooling via neutrino emission. Both these improvements utilize open-source code (GR1D) and tables from http://stellarcollapse.org. Our implementation makes use of a novel method for the calculation of the optical depth which simplifies its use with distributed adaptive mesh refinement, such as we have. We present various tests and preliminary results both from single stars and from binary mergers with and without initial magnetization.

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