Abstract Submitted
for the APR21 Meeting of
The American Physical Society

Dynamical Simulations of Binary Neutron Star Mergers[1] TANMAYEE GUPTE, JOSHUA FABER, Rochester Institute of Technology, GRACE FIACCO, Montana State University, TRUNG HA, University of North Texas, THEORETICAL AND COMPUTATIONAL ASTROPHYSICS NETWORK COLLABORATION — The launching of a new era of multimessenger astrophysics has led to a particularly interesting challenge of constraining the equation of state (EOS) of the nuclear matter inside the neutron star core. We have modified the LORENE code to construct unequal mass BNS initial data for different equations of states and developed an initial data library for use in dynamical simulations. We have used our initial data to launch dynamical runs of BNS mergers using the Einstein Toolkit. Here, we discuss our analysis of the dynamics of the merger for different mass ratios and piecewise polytropic EOSs and will be focusing on how different initial properties of the neutron stars affect the amount of mass ejected during and after the merger.

[1]NASA NNH17ZDA001N-TCAN-17-TCAN17-0018 80NSSC18K1488

Tanmayee Gupte
Rochester Institute of Technology

Date submitted: 08 Jan 2021 Electronic form version 1.4