

GR 19: Numerical relativity

Zeit: Freitag 11:00–11:40

Raum: Phys-SR-SE1

GR 19.1 Fr 11:00 Phys-SR-SE1

Solving Binary Neutron Star Initial Data by Hyperbolic Relaxation — •HANNES RÜTER and BERND BRÜGMANN — Friedrich Schiller University Jena, Germany

A short review will be given on the algorithm and the properties of the hyperbolic relaxation method [arXiv:1708.07358]. We discuss its achievements and challenges in the application to binary neutron star initial data and present results obtained by employing the pseudo-spectral numerical relativity code bamps.

GR 19.2 Fr 11:20 Phys-SR-SE1

Electromagnetic counterparts to binary neutron star mergers, simulations and facts — •ANTONIOS NATHANAIL — Institut

für Theoretische Physik, Goethe Universität Frankfurt, Frankfurt, Germany

We will review some basic facts achieved in the last years, by simulations of binary neutron star systems in numerical relativity. We will focus especially on electromagnetic counterparts to GW radiation, in light of the recent detection of GRB170817 and its follow up observations. We will discuss the possibility of the absence of a jet and present arguments that all observables can be accounted to a quasi isotropic explosion produced by the merger. We will further present results of the head on collision of magnetized neutron stars, which can be viewed as a first step in understanding electromagnetic radiation from the merger of a binary system.