Contribution ID: **735** Type: **Parallel session talk**

Numerical GR MHD simulations of the post-merger system with a composition-dependent equation of state

Friday 25 August 2023 09:50 (20 minutes)

By means of the code HARM_COOL, which works for conservative relativistic magnetohydrodynamics, we developed a new scheme for the simulation of system formed after compact binary merger. Our code works with a tabulated equation of state of dense matter, accounts for the neutrino leakage, and follows the mass outflows via tracer particle method.
I will discuss the numerical scheme, and compare several recovery methods that have been included in our code. I will also show results of a numerical simulation, addressed to the post-merger system formed after the coalescence of binary neutron stars, or a neutron star and stellar mass black hole. The r-process nucleosynthesis in the ejected material may lead to electromagnetic signal, observed as a kilonova.

Collaboration / Activity

Polish Society for Relativity

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