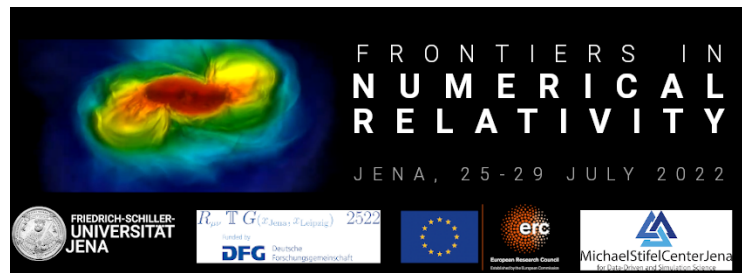


## Frontiers in Numerical Relativity 2022 (FNR2022)



Contribution ID: 24

Type: **not specified**

### GRHD simulations with GR-Athena++

*Wednesday, 27 July 2022 17:30 (15 minutes)*

We demonstrate the performance of the new code GR-Athena++ in evolving general relativistic hydrodynamics (GRHD) in a dynamically evolving spacetime. GR-Athena++ utilises the task-based parallelism and block based adaptive mesh refinement of the Athena++ code, as well as its approach to solving GRHD problems in stationary spacetimes; combined with new functionality to solve the Einstein equations in the Z4c formulation. We demonstrate the performance of this new code by simulating the evolution of Neutron Stars in GR-Athena++, removing the Cowling approximation assumed in previous work, presenting a fully dynamical spacetime evolution.

**Presenter:** Dr COOK, William (TPI)

**Session Classification:** Short talks