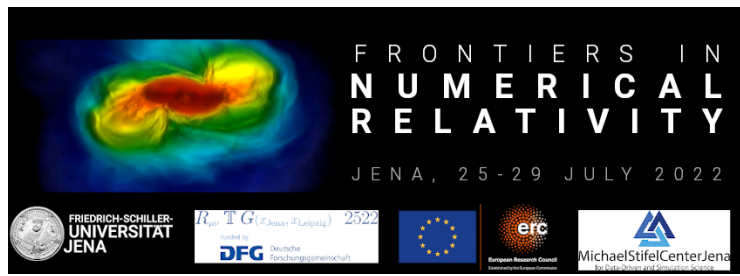


Frontiers in Numerical Relativity 2022 (FNR2022)



Contribution ID: 44

Type: not specified

Computational Quests: from Cactus to Simflowny and beyond

Thursday, 28 July 2022 09:00 (15 minutes)

We will quickly review the last 30 years of open general codes, platforms, and frameworks for Numerical Relativity, with special emphasis on the lessons that we have learnt and the challenges that lie ahead. We will also describe results and features of the last versions of different codes, with special emphasis on Simflowny: an open platform which automatically generates efficient parallel AMR code of scientific dynamical models for different simulation frameworks. It incorporates Finite-difference based methods for both smooth and non-smooth solutions, coupled with particle-based methods. It allows for generic systems of PDEs, and there are already implemented different formulations of the Einstein Equations, the full relativistic MHD equations and both the leakage and the M1 approximation to model the neutrino transport. Finally, we will discuss the changes in development languages, from Fortran and C++ legacy codes to Julia programming and GPUs.

Presenter: Prof. MASSO, Joan (University of the Balearic Islands)

Session Classification: Short talks