



Contribution ID: 15

Type: **not specified**

Speeding up BBH simulations in the Einstein Toolkit: Multi-Step Runge-Kutta time integrators and Multipatch methods.

Tuesday 10 June 2025 09:00 (1 hour)

In this talk, I will present the latest developments of ongoing efforts at LSU to speed up simulations in the Einstein Toolkit under CarpetX. In particular, I will present our new results using Multi-Step Runge-Kutta time integrators which can speed up BBH evolutions by 30% with simple algorithmic changes. In order to do that, I will carefully review the stability theory of ODE solvers, which should be particularly relevant to new students of Numerical Relativity. I will also present exciting new developments in CapyrX, CarpetX multipatch infrastructure.

Presenter: TIMOTHEO SANCHES, Lucas (Louisiana State University)