Name: <u>Alex Vano-Vinuales</u>

Affiliation: GRIT, CENTRA, IST, University of Lisbon

Title: Hyperboloidal trumpet black hole slices and their causal visualization

Abstract: Hyperboloidal slices are smooth spacelike slices that reach future null infinity. The latter consists of the endpoints of future-directed null geodesics and is where global quantities of spacetimes are unambiguously defined. Here I will focus on hyperboloidal slices including a black hole in trumpet geometry, which is specially useful for simulations solving the Einstein equations as initial value formulation because it avoids the singularity. The simplest suitable option are constant-mean-curvature slices, which I will briefly describe for the Schwarzschild and Reissner-Nordström cases. I will use Carter-Penrose diagrams to represent some of them, as well as to show the causal behaviour of Schwarzschild trumpets dynamically relaxing to a stationary state.