

Contributed Talk

Name: Alex Vano-Vinuales

Position: Post-Doc/Research Fellow

Affiliation: CENTRA, IST, University of Lisbon

Title: Hyperboloidal massless scalar field in 3D

Abstract: Reaching future null infinity in numerical relativity simulations is of great importance, because it is on there that gravitational radiation is unambiguously defined. This can be achieved by evolving on hyperboloidal slices, which are smooth spacelike slices that asymptote to null rays and reach null infinity. In the present approach, the problem is tackled with conformal compactification methods and a stable hyperboloidal code solving the Einstein equations in spherical symmetry for regular and strong field initial data has been successfully developed. On the way towards extending these results to three spatial dimensions, first the massless scalar field is considered as a toy model evolving on a constant-mean-curvature hyperboloidal background. In this talk I will describe the current setup and results of the 3D scalar field implementation on hyperboloidal slices.