

Contributed Talk

Name: Miguel Manzano Rodríguez

Position: PhD Student

Affiliation: Universidad de Salamanca

Title: Null shells: general matching across null boundaries and matching across Killing horizons

Abstract: Null shells are a useful geometric construction to study the propagation of infinitesimally thin concentrations of massless particles or impulsive waves. In this talk, I will present the necessary and sufficient conditions for the matching of two spacetimes with respective null embedded hypersurfaces as boundaries. The point-to-point identification of the boundaries introduces a freedom whose nature and consequences are analysed in depth. We also obtain the general expression for the energy-momentum tensor of the shell. The particular situation of both boundaries being (multiple) Killing horizons is also addressed. The identification of the Killing vectors of both sides restricts the matching freedom, although not completely. The presentation ends with some explicit examples.