
**VI International Meeting on Lorentzian Geometry
Granada (Spain), September 6-9, 2011
GELOGRA 2011**

**Plenary Talk: The c-boundary of spacetimes and its related
boundaries in Differential Geometry.**

Jónatan Herrera

*Departamento de Álgebra, Geometría y Topología,
Universidad de Málaga, Spain*

In Lorentzian Geometry, the problem of attaching an ideal boundary to any spacetime has been one of the most controversial topics along the last decades. Recently, the notion of *causal boundary* has been consistently redefined and supported by an exhaustive analysis. Moreover, the computation of this causal boundary on any standard stationary spacetime suggests a new completion in Riemannian and Finslerian geometries. This completion, called *Busemann completion* has its own interest and can be compared with more classical completions, such as the Cauchy one for a metric space and the Gromov one for a length space.

The aim of this lecture is threefold: (1) to introduce the new notions of c-boundary and c-completion for strongly causal spacetimes, (2) to introduce the Busemann completion and to compare it with the (extension to arbitrary Finsler manifolds of) Cauchy and Gromov's one, and (3) to compute systematically the c-boundary of any (standard) static and stationary spacetime by using the Busemann boundary.