

Annegret Burtscher, Radboud University, Nijmegen
Title: On limits of smooth spacetimes

Abstract: The general theory of relativity is formulated in the language of smooth Lorentzian geometry. In many situations this smoothness naturally breaks down, which creates problems with varying degrees of severity. In mild cases, approximating the metric tensor smoothly is sufficient to restore some physics. On the other hand, more axiomatic approaches have been suggested that are very robust but lack connections to general relativity. One way to connect these two worlds is inspired by metric geometry, for instance, via the null distance of Sormani and Vega and a corresponding notion of spacetime convergence. In this talk we investigate different notions of convergence of Lorentzian warped products with respect to the null distance (also to weak limits) and discuss in which more general situations the null distance can be used.