

# Splitting Theorems in Lorentzian Geometry

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According to a general principle in comparison theory, the existence of a line -that is, a causal globally maximizing and complete geodesic- is incompatible with standard energy conditions, except in very special cases. Thus, the geometry of a spacetime in which a line can be formed without violating appropriate energy conditions is very special. This is the basis of the so called Splitting Theorems in Lorentzian Geometry. Of special interest are those splitting theorems in which the hypothesis are enough to guarantee constant curvature of spacetime. In this talk we present an overview of the classical results as well as recent developments in the context of asymptotically flat and asymptotically de Sitter spacetimes.