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Spacetime geometries and null infinity

A major goal in the study of Einstein's equations is to investigate the geometry of the solution spacetimes. The Cauchy problem for these nonlinear, hyperbolic partial differential equations involves interesting questions in PDEs as well as a rich geometry. How do matter fields change the geometry? And how does the Weyl curvature as well as the matter fields 'shape' null infinity? These questions will in particular be addressed for the Einstein equations in the presence of neutrinos.