* Electronic Address: `lappicy@hotmail.com`
[1] Free University of Berlin

Einstein constraints: A dynamical approach

Phillipo Lappicy[1]*

The Einstein constraint equations describe the space of initial data for the evolution equations, dictating how space should curve within spacetime. Under certain assumptions, the constraints reduce to a scalar quasilinear parabolic equation on the sphere with various singularities, and nonlinearity being the prescribed scalar curvature of space. We focus on self-similar solutions of Schwarzschild type. Those describe, for example, the initial data of black holes. We give a detailed study of the axially symmetric solutions, since the domain is now one dimensional and nodal properties can be used to describe certain asymptotics of the rescaled self-similar solutions. In particular, we mention examples for certain prescribed scalar curvatures.