Constructing higher dimensional black hole initial data sets with prescribed boundary metric

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ABSTRACT

Recently Mantoulidis and Schoen [1] constructed smooth asymptotically flat initial data sets with prescribed horizon boundary, whose mass can be made arbitrarily close to the optimal value in the Riemannian Penrose inequality, while the geometry of the horizon is far from being rotationally symmetric. In this talk, combining their construction with some geometric flows, we will discuss how to obtain higher dimensional initial data sets with analogous properties. This talk is based on a joint work with Pengzi Miao [2].

References

[1] Mantoulidis, C.; Schoen, R., *On the Bartnik mass of apparent horizons*, Class. Quantum Grav., **32** (2015), no. 20, 205002, 16pp.

[2] Cabrera Pacheco, A. J.; Miao, P., *Higher dimensional black hole initial data with prescribed boundary metric*, arXiv:1505.01800.