

c "Scalar Curvature & Isoperimetry in the Large"

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Abstract

According to the initial value formulation of general relativity, all that is future and all that is past is contained in a glimpse of a spacetime. This correspondence between the physics of the evolving spacetime and the geometry of initial data for the Einstein equations is highly non-linear. The works of H. Bray, D.Christodoulou, G. Huisken, R. Schoen, S.-T. Yau, and others suggests isoperimetry (How much area is needed to enclose a given amount of volume in initial data for the spacetime?) as a tool for extracting physical information about the spacetime from the initial data. I will discuss recent proofs of a number of their conjectures in my two lectures.

This is joint work with S. Brendle, with O. Chodosh, with O. Chodosh, Y. Shi, and H. Yu, and with O. Chodosh, Y. Shi, and J. Zhu.

2990 Broadway New York, N.Y. 10027 Columbia University | Mathematics Department