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On a gluing construction regarding “small bodies” in general relativity

The initial data in general relativity consist of a 3-dimensional Riemannian manifold equipped with a symmetric 2-tensor and (in a non-vacuum case) some non-gravitational fields. In order for a physically meaningful “time” evolution to exist, the above mentioned tensors have to satisfy the so-called Einstein constraint equations. Gluing techniques, first developed in the works of J. Corvino and Isenberg-Mazzeo-Pollack, are commonly used to construct initial data (and space-times) with “interesting” properties. Following an introduction to the topic, the speaker will discuss a gluing construction which to some extent fits the recent description of “small bodies” in general relativity developed by S. Gralla and R. Wald.