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Asymptotically Euclidean Solutions of the Constraint Equations with Prescribed Asymptotics

Saturday, 1 November 2025 14:20 (15 minutes)

I will discuss ongoing work on the construction of asymptotically flat vacuum initial data sets in General Relativity via the conformal method. My collaborators and I have demonstrated that certain asymptotic structures may be prescribed a priori through the method's seed data, including the ADM momentum components, the leading- and next-to-leading-order decay rates, and anisotropy in the metric's mass term, yielding a recipe to construct initial data sets with desired asymptotics. As an application, we discuss a simple numerical example, with stronger asymptotics than have been presented in previous work, of an initial data set whose evolution does not exhibit the conjectured antipodal symmetry between future and past null infinity.

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