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Computing Binary Black Hole Initial Data with Discontinuous Galerkin Methods TREVOR VINCENT, HARALD PFEIFFER, Canadian Institute for Theoretical Astrophysics — Discontinuous Galerkin (DG) finite element methods have been used to solve hyperbolic PDEs in relativistic simulations and offer advantages over traditional discretization methods. Comparatively little attention has been given towards using the DG method to solve the elliptic PDEs arising from the Einstein initial data equations. We describe how the DG method can be used to create a parallel, adaptive solver for initial data. We discuss the use of our dG code to compute puncture initial data for binary black holes.

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