Abstract Submitted
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Local Geometrical Boundary Data for Einstein's Equations[1] JEFFREY WINICOUR, University of Pittsburgh — An outstanding issue in the treatment of boundaries in general relativity is the lack of a local geometric interpretation of the necessary boundary data. For the Cauchy problem, the initial data is supplied by the 3-metric and extrinsic curvature of the initial Cauchy hypersurface, subject to constraints. This Cauchy data determine a solution to Einstein's equations which is unique up to a diffeomorphism. In joint work with H.-O. Kreiss, we show how three pieces of unconstrained boundary data, which are associated locally with the geometry of the boundary, likewise determine a solution of the initial-boundary value problem which is unique up to a diffeomorphism. One piece of this data, constructed from the extrinsic curvature of the boundary, determines the dynamical evolution of the boundary. The other two pieces constitute a conformal class of rank-2 metrics, which represent the two gravitational degrees of freedom.

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