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Paul T Allen* (ptallen@clark.edu), 0615 SW Palatine Hill Rd, Portland, OR 97219. *The hyperboloidal initial value problem in general relativity.*

In asymptotically flat solutions to the Einstein vacuum equations, certain spacelike slices extending towards future null infinity have asymptotically hyperbolic geometry. In order for the spacetime to admit a regular conformal compactification, the geometry induced on such slices, which necessarily satisfies the Einstein constraint equations, must satisfy the *shear-free condition* along the conformal boundary. We refer to a spacelike manifold with such data as *hyperboloidal*.

The hyperboloidal initial value problem seeks to construct asymptotically flat spacetimes that arise from hyperboloidal initial data. A first step in addressing this initial value problem is constructing appropriate initial data. In this talk we provide motivation for considering the hyperboloidal initial value problem, give an overview of some technical issues that arise, and present some recent work regarding the existence of hyperboloidal initial data. (Received January 12, 2017)