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Isometric embedding problems in the definition of quasilocal mass  

I shall first discuss how the limit of quasilocal mass on a family of surfaces in spacetime can be evaluated in terms of the mean curvature vectors. This gives a uniform description of ADM mass and Bondi mass for asymptotically flat and asymptotically hyperbolic spaces, respectively. Then I shall explain how the related variational problem provides a “ground state” for energy in general relativity as an optimal isometric embedding into the Minkowski space. This is based on joint work with S.-T. Yau.