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Mu-Tao Wang*, Columbia University. *Isometric embeddings and quasi-local mass.*

Ω in the space-time. It is expected that this information can be derived from the boundary, $\partial\Omega$ which is a two-dimensional space-like surface. Throne's hoop conjecture relates the quasi-local mass to the formation of black holes in the enclosed region. I shall discuss some recent developments along this direction that include new definitions, positivity results and relations to isometric embeddings of surfaces. (Received November 15, 2006)