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Mu-Tao Wang* (mtwang@math.columbia.edu), Department of Mathematics, 2990 Broadway, New York, NY 10027, and **Shing-Tung Yau**. *Isometric embeddings and quasi-local mass*. Preliminary report.

The quasi-local mass is a quantity associated with a compact space-like region 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 January 21, 2008)