**Meeting:** 1007, Santa Barbara, California, SS 6A, Special Session on Geometric Methods in Three Dimensions

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*Deforming closed hyperbolic 3-manifolds.* Preliminary report.

The geometric structure on a closed orientable hyperbolic 3-manifold determines a discrete faithful representation $\rho$ of its fundamental group into $\mathrm{O}(3,1)$, unique up to conjugacy. Although we cannot deform $\rho$, we can try to deform the composition of $\rho$ with inclusion of $\mathrm{O}(3,1)$ into a larger group. In this sense, we have found by exact computation a small number of closed manifolds in the Hodgson-Weeks census for which $\rho$ deforms into $\mathrm{SL}(4,\mathrm{R})$. On account of their small volumes, these manifolds cannot contain embedded separating totally geodesic surfaces, and therefore do not admit traditional "bending" of $\rho$. The deformations into $\mathrm{SL}(4,\mathrm{R})$ lead naturally to deformations into $\mathrm{SU}(3,1)$. (Received February 01, 2005)