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Rebecca Glover* (rglover3@ur.rochester.edu), University of Rochester, Rochester, NY

14627. *Geometry and topology of G_2 and Spin(7) submanifolds*. Preliminary report.

G_2 and Spin(7) manifolds are seven and eight-dimensional manifolds of special holonomy that can locally be described by the geometry of the octonions. In this talk, we will discuss certain vector-valued differential forms on G_2 and Spin(7) manifolds. We look at their local description and explain what these forms can illustrate about the geometry and topology of the underlying manifolds. (Received September 16, 2014)