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Sema Salur* (salur@math.rochester.edu), University of Rochester, Department of Mathematics, Rochester, NY 14627. *Calibrations and Manifolds with Special Holonomy*. Preliminary report.

Examples of n -dimensional Ricci flat manifolds are Riemannian manifolds whose holonomy groups $\text{Hol}(g)$ are subgroups of $\text{SU}(n)$, for $n=2m$, and subgroups of the exceptional Lie group G_2 , for $n=7$. We call them Calabi-Yau and G_2 manifolds, respectively. They are also examples of manifolds with special holonomy.

Calibrated submanifolds of Calabi-Yau and G_2 manifolds are volume minimizing in their homology classes and their moduli spaces have many important applications in geometry, topology and physics.

In this talk we give an introduction to calibrated geometries and a report of recent research on the calibrations inside the manifolds with special holonomy. (Received June 29, 2011)