Mathematics Department Colloquium

Organizer: Vaughan Jones

Thursday, 4:10–5:00pm, 60 Evans

March 15 **Robert Bryant**, Duke University

Evolution Equations and Special Holonomy

Manifolds with special holonomy come under intense study in the last 20 years in both Riemannian geometry and string theory. Aside from the Calabi-Yau case, which can take advantage of tools coming from complex and algebraic geometry, they remain largely mysterious, with much effort devoted to constructing complete or compact examples. Various methods based on flows have been proposed for constructing new examples, but often the nature of these flows is poorly understood. In this lecture, I will introduce some of the basic ideas in the subject and examine some of the flows, discuss both existence and nonexistence theorems for them, and explain some of their significance.