PDE, Complex Analysis and Differential Geometry

UNIVERSITY OF NOTRE DAME
Department of Mathematics

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Tuesday, November 5, 2013
11:00 am
Room: 258 Hurley Hall

Title: "Connected sum construction of constant Q-curvature manifolds in higher dimensions"

Abstract:
In geometric analysis, gluing constructions are well-known methods to create new solutions to nonlinear PDEs from existing ones. For a compact Riemannian manifold (M^n, g) of dimension $n \geq 6$ with constant Q-curvature and satisfying a nondegeneracy condition, we show that one can construct many other examples of constant Q-curvature manifolds by a gluing construction. In particular, we prove the existence of solutions of a fourth-order PDE, which implies the existence of a smooth metric with constant Q-curvature on the connected sum. In this talk, I will begin with definitions of Q-curvature and some background, and then give an overview of the gluing procedure.