Department of Mathematics
University of Notre Dame

FELIX KLEIN SEMINAR

Speaker: Lawrence Mouille
University of California - Riverside

Date: Thursday, October 25, 2018
Time: 2:00 PM
Location: 258 Hurley Hall

Lecture Title:
Maximal torus symmetry and intermediate Ricci curvatures

Abstract

The Grove-Searle maximal symmetry-rank theorem states that if a closed n-manifold has positive sectional curvature, then its symmetry-rank (the rank of its isometry group) is bounded above by $\lfloor (n+1)/2 \rfloor$, and in the case of equality, the manifold is diffeomorphic to a quotient of a sphere. In this talk, I will show that a generalized bound on the symmetry-rank holds for manifolds with positive intermediate Ricci curvature, a condition on the curvature tensor that interpolates between having positive sectional curvature and having positive Ricci curvature. Furthermore, the argument is local in nature, only requiring the existence of locally-defined commuting Killing fields. I will outline a procedure for creating warped products that have maximal "local symmetry-rank", and show that any Riemannian manifold is C^1-close to one that has quasi-positive curvature and maximal "local symmetry-rank".

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