Department of Mathematics University of Nofre Dame

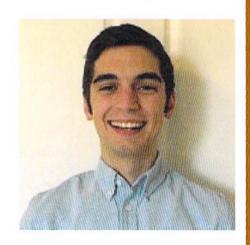
FELIX KLEIN SEMINAR

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".