

FELIX KLEIN SEMINAR

Speaker: Lee Kennard
Syracuse University



Date: Thursday, April 11, 2019

Time: 2:00 PM

Location: 258 Hurley Hall

Lecture Title:

Torus representations with connected isotropy and a conjecture of Hopf

Abstract

A conjecture of Hopf from the 1930s in Riemannian geometry states the following: A closed, even-dimensional Riemannian manifold with positive sectional curvature has positive Euler characteristic. In joint work with Michael Wiemeler and Burkhard Wilking, this conjecture is confirmed under the additional assumption that the isometry group has rank at least five. Similar previous results required bounds on the rank that grew to infinity in the manifold dimension. The main new tool is a structural result for representations of tori with the special property that all isotropy groups are connected. Such representations are surprisingly rigid, and we analyze them using only elementary techniques. However a full classification of such representations remains an open problem.