

Dynamical Systems

On global rigidity for smooth minimal \mathbb{R}^k actions with constant cohomology on tori and nilmanifolds

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For smooth flows on tori it is known that almost trivial first cohomology implies minimality and that such flows are smoothly conjugate to standard Diophantine flows. Conjecturally (Greenfield–Wallach and Katok) torus is the only manifold which supports such flows. In the case of \mathbb{R}^k actions, $k > 1$, besides the torus, there exist minimal actions with constant cohomology on certain nilmanifolds as well, and they are homogeneous. I will discuss in this talk that up to smooth conjugacy these homogeneous examples are the only actions with such properties.