

1137-55-301

Courtney M Thatcher* (cthatcher@pugetsound.edu) and **Jim Fowler**
(fowler@math.osu.edu). *Free $\mathbb{Z}/p \times \mathbb{Z}/p$ actions on $S^n \times S^n$* . Preliminary report.

The topological spherical space form problem asks what groups can act freely on the sphere, and how can the finite group actions be classified? Smith (1944) and Milnor (1957) discovered necessary conditions for a group to act freely, and Madsen, Thomas, and Wall (1978) showed these conditions to be sufficient. A natural extension asks what groups can act on products of spheres, and how do they act? For $S^n \times S^n$ specifically, it has been shown that a group acting freely can have rank at most 2, but A_4 cannot act. The question of what the correct conditions are remains open.

This talk considers the case of $\mathbb{Z}/p \times \mathbb{Z}/p$ actions on $S^n \times S^n$. We will discuss how the group can act, and what that tells us about conditions for larger groups that contain $\mathbb{Z}/p \times \mathbb{Z}/p$ as a subgroup to act freely. (Received February 06, 2018)