Department of Mathematics and Statistics

Colloquium Series

Topological Properties of Almost Abelian Lie Groups and Homogeneous Spaces

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Abstract: This summer, I spent my time participating in an REU studying almost Abelian Lie groups which are real Lie groups whose corresponding Lie algebras have a co-dimension one Abelian subalgebra. My group studied the topological properties of connected Almost Abelian Lie groups and their homogeneous spaces. The homogeneous spaces are solvmanifolds which appear in mathematical cosmology and the study of crystallographic groups.

In this presentation I will discuss connected almost Abelian Lie groups G and their subgroups and some results about compactness. Then I'll show that the fundamental group of a homogeneous space G/H is closely related to the discrete subgroups of a simply connected group $\widetilde{G}$. Finally, I will share some preliminary results regarding the compactness and the higher homotopy groups of homogeneous spaces.

Keywords: Almost Abelian Lie groups, topological properties of Lie groups, solvmanifolds

Wednesday September 9
1:05 – 1:50pm
Zoom details: