Harmonic G_2-structures on almost Abelian Lie groups

Andrés Moreno

Abstract

Harmonic G_2-structures are critical points of the energy funcional restricted to an isometric class. In this talk, we consider left invariant G_2-structures on 7-dimensional almost Abelian Lie groups and we propose a study between the 16-torsion classes and the harmonicity of a G_2-structure. For this, we characterise each torsion class of a G_2-structure in terms of the corresponding Lie algebra structure. And then, we provide the algebraic criteria on the Lie bracket, satisfying the harmonic condition div T=0. Finally, this allows us to identify which torsion classes are harmonic. This talk is based on arXiv:2212.05168.