

Mathematical Colloquia

Monday, 21 October 2019

17:15 h, Lecture Room 119

Prof. Dr. Andrea Iannuzzi, University of Rome Tor Vergata

Real-analytic Lie group actions and complexifications

Abstract:

We will review several examples from real-analytic differential geometry and theory of transformation groups which show that complexifying is a successful strategy to give simple answers to many interesting questions.

In the Riemannian setting, complexifications which are adapted to a given metric have been investigated for almost three decades. The complex manifolds obtained in this way, together with their complex-geometric properties, are a source of isometric invariants of the original Riemannian manifold.

After recalling the basic properties of adapted complexifications, we will focus on the homogeneous case, where the Lie theoretic structure at hand leads to an explicit description. Time permitting, we will present some recent results and open questions.