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SEMINÁRIO DE GEOMETRIA

Dia 25 de Novembro (sexta-feira), sala 6.2.38

14:00

Exotic components of Higgs bundle moduli spaces

André Oliveira
(Centro de Matemática, Univ. Porto)

Abstract:

Let G be a real connected semisimple Lie group. The moduli spaces $\mathcal{M}(G)$ of G-Higgs bundles over a compact Riemann surface carry a very rich topological structure, which has been extensively studied in the last decades. There is a long story even for the most basic topological invariant – the number of connected components. For most groups G it is known that $\pi_0(\mathcal{M}(G)) = \pi_1(G)$, but there are some families of real Lie groups (split forms and groups of hermitian type) for which it is known that there are extra connected components. Until recently it was not known other kinds of groups for which $\mathcal{M}(G)$ has these exotic components. In this talk I will explain how we found that the indefinite special orthogonal group provides the first example of such a case.

15:00

Uniformization of cone surfaces using Ricci flow.

Daniel Ramos
(CMAFCIO, ULisboa)

Abstract:
Every smooth closed surface admits a Riemannian metric of constant curvature, determined by its Euler characteristic. Surfaces with cone-like singularities (such as certain orbifolds) may fail to admit such constant curvature metrics. We propose a Ricci soliton metic as the canonical metric on these cases, and we prove that Ricci flow converges to such soliton metrics for any initial metric on closed surfaces with cone angles less than or equal to pi. The Ricci flow is an evolution equation introduced by R. Hamilton in 1982 and used by G. Perelman in 2002 to prove the Thurston geometrization of closed 3-manifolds. We use Perelman's techniques for cone-singular closed surfaces and we discuss some open problems of the flow in open surfaces.

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