SEMINÁRIO DE GEOMETRIA

Dia 20 de Janeiro (sexta-feira), às 14H00, sala 6.2.33

Surfaces in $\mathbb{R}^7$ obtained from harmonic maps in S^6

Rui Pacheco
(CMAFCIO, Universidade da Beira Interior)

Abstract:

We will investigate the local geometry of surfaces in $\mathbb{R}^7$ associated to harmonic maps from a Riemann surface Σ into the nearly Kähler 6-sphere S^6. In this setting, the harmonicity of a smooth map $\varphi : \Sigma \to S^6$ amounts to the closeness of the differential 1-form $\omega = \varphi \times *\, d\varphi$, where $\times$ stands for the 7-dimensional cross product. This means that we can integrate on simply-connected domains in order to obtain a map $F : \Sigma \to \mathbb{R}^7$. By applying methods based on the use of harmonic sequences, we will characterize the conformal harmonic immersions $\varphi : \Sigma \to S^6$ whose associated immersions $F : \Sigma \to \mathbb{R}^7$ belong to certain remarkable classes of surfaces, namely: minimal surfaces in hyperspheres; surfaces with parallel mean curvature vector field; pseudo-umbilical surfaces.

This is a joint work with Pedro Morais.

Local: FCUL – Edf. C6 - Piso 2, 6.2.33