Universidade Federal de São Carlos
Departamento de Matemática

Seminários de Geometria de São Carlos

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Falará sobre

Analytic saddle spheres in $\mathbb{S}^3$ are equatorial

The Calabi-Almgren Theorem states that any minimal topological sphere immersed in the 3-sphere $\mathbb{S}^3$ must be equatorial, i.e., a totally geodesic 2-sphere of $\mathbb{S}^3$. In this talk we will present a generalization of the Calabi-Almgren Theorem: any real analytic topological sphere immersed in $\mathbb{S}^3$ which is also saddle (i.e., its principal curvatures k_1 and k_2 satisfy $k_1 k_2 \leq 0$ at each point of the surface) must be equatorial. We will also present a sketch of its proof, based on the study of the umbilical points of the saddle sphere and the Poincaré-Hopf Index Theorem and we will discuss smooth, non-equatorial counter-examples.
This is a joint work with J.A. Gálvez (UGr) and P. Mira (UPCT).

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