Minimal 2-spheres in homogeneous 3-spheres

Pablo Mira*
Department of Applied Mathematics and Statistics
Polytechnic University of Cartagena
Cartagena, Spain

Abstract

We prove that, in the 3-sphere endowed with an arbitrary homogeneous metric, there exists exactly one immersed minimal 2-sphere, up to ambient isometry. This is a result contained in [2], for which we will give an alternative proof based on [1]. We will also describe the basic geometric properties of such minimal 2-sphere and discuss related results and problems regarding the classification of minimal 2-spheres in Riemannian 3-spheres.

References

[1] J.A. Galvez, P. Mira, Uniqueness of immersed spheres in three-manifolds, *J. Diff. Geom.* **116** (2020), 459–480.

[2] W.H. Meeks, P. Mira, J. PÃ©rez, A. Ros, Constant mean curvature spheres in homogeneous 3-spheres, *J. Diff. Geom.*, to appear.

[3] W.H. Meeks, P. Mira, J. PÃ©rez, A. Ros, Constant mean curvature spheres in homogeneous 3-manifolds, *Invent. Math.*, to appear.

*Partially supported by MICINN-FEDER, MTM2016-80313-P, e-mail: pablo.mira@upct.es