Seminario de Geometría y Topología

UNIVERSIDAD COMPLUTENSE MADRID

Einstein and Ricci soliton metrics induced by calibrated G2-structures

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Abstract:

A G2 manifold consists on a 7-dimensional manifold M endowed with a global 3-form, called G2 form or fundamental form, which induces a metric on M. There exist different classes of G2-structures attending to the behavior of the fundamental form, concretely, we will focus our attention on calibrated G2-structures which are characterized by the closure of the fundamental 3-form.

On a compact calibrated G2 manifold, the Einstein condition is equivalent to the holonomy being contained on the group G2. Despite the fact that, in general, nothing is known for the non-compact case we show an equivalent result for non-compact homogeneous Einstein solvmanifolds. As a natural generalization, we also consider calibrated G2-structures inducing Ricci soliton metrics, obtaining non-compact homogeneous solvmanifolds whose holonomy is not on G2. Finally, we show that those latter manifolds constitute global solutions for the Laplacain ow of a calibrated G2-structure. (joint work with M. Fernández and A. Fino).

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