

Extremally Ricci pinched G_2 -structures

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Abstract: A closed G_2 -structure on a compact 7-manifold is said to be extremally Ricci pinched (ERP for short) if it is as close to Einstein as possible in some specific sense, or equivalently, if the differential of its torsion 2-form quadratically depends on the 2-form in a certain particular way (non-compact manifolds allowed). ERP structures were introduced and studied by Robert Bryant. Remarkably, only two compact examples are known.

In this talk, we shall give an overview on the existence, rigidity, structure and classification problems for ERP structures, with special emphasis in the homogeneous case. This is joint work with Ines Kath and Marina Nicolini.