

Student Differential Geometry Seminar

Stony Brook University

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Marlon Gomes : “Quaternion-Kähler geometry”

ABSTRACT: Quaternion-Kähler (QK) geometry is the most general quaternionic geometry, according to Berger’s classification of holonomy groups. I will begin by discussing the elementary quaternionic geometry of quaternionic vector spaces and projective spaces, focusing on the contrast between the hyper-Kähler structures of the former and the strictly QK-structures on the latter.

After this we shall move on to understand why QK metrics are Einstein, and discuss examples of such manifolds. If time permits, I will briefly discuss aspects of twistor theory and the LeBrun-Salamon conjecture.