EoS Miniworkshop
ULB, Brussels, Belgium
December 6, 2024

Hypersurfaces

of

nearly Kähler manifolds

Mateo Anarella

(KU Leuven)

A nearly Kähler manifold is an almost Hermitian manifold (M,g,J) such that ∇J is skew-symmetric. Nearly Kähler manifolds are one of the sixteen classes of almost Hermitian manifolds classified by Gray and Hervella. By results of Nagy six-dimensional homogeneous nearly Kähler manifolds constitute a building block in nearly Kähler geometry.

We will study hypersurfaces of the four homogeneous six-dimensional nearly Kähler manifolds, classified by Butruille: S6, S3 × S3, CP3 and F(C3). We will give a brief description of each space and we will talk about the results about hypersurfaces that have been found so far in the field. We will finish with a non-existence result of hypersurfaces with constant sectional curvature and an idea of how to obtain this result.