

# SEMINARIO DI GEOMETRIA E ALGEBRA

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**Giovedì 18 Aprile 2024 - Ore 15:00 - Dip. di Matematica, aula IX**

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## **Nearly Kähler metrics and torus symmetry**

**Abstract.** Nearly Kähler manifolds are Riemannian spaces equipped with an almost complex structure of special type. In dimension six, nearly Kähler metrics are Einstein with positive scalar curvature, and have interesting connections with  $G_2$  and spin geometry. At present there are very few compact examples, which are either homogeneous or of cohomogeneity one. In this talk I will explain a theory of nearly Kähler six-manifolds with two-torus symmetry. The torus-action yields a multi-moment map, which we use as a Morse function to understand the structure of the whole manifold. In particular, we show how the local geometry of a nearly Kähler six-manifold can be recovered from three-dimensional data, and discuss connections with GKM theory.



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