Nagy, Paul-Andi

Nearly Kähler geometry and Riemannian foliations. (English) Zbl 1041.53021

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The author considers strict and complete nearly Kähler manifolds with the canonical Hermitian connection. The holonomy representation of the canonical Hermitian connection is studied. It is shown (theorem 1) that a strict and complete nearly Kähler manifold is locally a Riemannian product of homogeneous nearly Kähler spaces, twistor spaces over Kähler manifolds and 6-dimensional nearly Kähler manifolds. As an application the author obtains structure results for totally geodesic Riemannian foliations admitting a compatible Kähler structure (theorem 2). Finally a classification result for the homogeneous case, reducing a conjecture of Wolf and Gray to its 6-dimensional form, is obtained.

Reviewer: Vladimir Yu. Rovenskij (Nesher)

MSC:

53C12	Foliations (differential geometric aspects)	Cited in **7** Reviews
53C55	Global differential geometry of Hermitian and Kählerian manifolds	Cited in **67** Documents
53C15	General geometric structures on manifolds (almost complex, almost product structures, etc.)	

Keywords:

nearly Kähler manifold; Riemannian foliation; totally geodesic foliation; holonomy; de Rham decomposition

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