Oberseminar Geometrie und Topologie

Wintersemester 2018/2019

Dr. Tillmann Jentsch
(Universität Stuttgart)

Jacobi relations on six-dimensional homogeneous nearly Kähler manifolds

13. November 2018 – 16.15 Uhr
Seminarraum IGT, Raum 7.530, Pfaffenwaldring 57

Abstract: We show that every six-dimensional naturally reductive 3-symmetric space M has constant Jacobi osculating rang (less or equal) four. More precisely, the covariant derivative of the Jacobi operator and its covariant derivatives of order three and five along an arbitrary unit-speed geodesic satisfy the same linear dependence relation as sections of endomorphisms along the geodesic. Moreover if the metric is scaled in such a way that the scalar curvature is equal to 30, then the coefficients of the linear dependence relation are independent of M. In particular we obtain an explicit solution to the Jacobi equation in terms of the covariant derivatives of the Jacobi operators up to order four at the initial point of a given geodesic. Moreover, we conclude that the trace-free part of the symmetrized fourth covariant derivative of the curvature tensor is a generalized twistor.

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