

automorphisms of distributions and prolongation

N. Tanaka. On differential systems, graded Lie algebras and pseudogroups, J. Math Kyoto U. 10, (1970), 1-82

N. Tanaka. On the equivalence problem associated with simple graded Lie algebras. Hokkaido Math J. 9, (1979), 23-84.

K. Yamaguchi. :Differential Systems Associated with Simple Graded Lie Algebras.

T. Morimoto: Transitive Lie algebras admitting differential systems. Hokkaido Math J. 17, (1988), 45-81.

prolongations : Guillemin and Sternberg. An algebraic model of transitive differential geometry, Bull AMS, 70, (1964), 16-47.

Maximally symmetric examples. The ‘instanton’ distribution.

Mostow. Rigidity of Symmetric Spaces. Princeton U. Press.

see The chapter on the rank 1 case. The projective-quaternionic construction is here. Excellent description of the $Sp(n+1, 1)$ invariance of the basic quaternionic contact distribution.

Montgomery. A Tour of Subriemannian Geometry. look under ‘instanton’ in index.

Biquard, Olivier(F-POLY-CMT) Mtriques d’Einstein asymptotiquement symtriques. (French. English, French summary) [Asymptotically symmetric Einstein metrics] Astrisque No. 265, (2000), vi+109 pp.

constructs quaternionic Kahler metrics; AdS-CFT in the quat. hyperbolic setting

exotic spheres:

J Milnor. On Manifolds Homeomorphic to the 7-sphere. Ann of Math. v 64, no 2, (1956), pp 339-405.

The original! Section 3, is only about a page, and contains the construction of these spheres.

Karsten Grove and Wolfgang Ziller: Curvature and Symmetry of Milnor Spheres. Ann of Math. 152, (2000), pp 331-367. constructs $SO(3)$ actions on exotic 7-spheres. These are the lifts of my favorite $SO(3)$ action on S^4 – the one Gil Bor used in his thesis. Uses these actions to construct metrics of non-negative sectional curvatures on these spaces. Morimoto: Transitive Lie Algebras admitting differential systems.

Properness for automorphism groups; Obata’s theorem:

Schoen, R. On the conformal and CR automorphism groups. Geom. Funct. Anal. 5 (1995), no. 2, 464–481.

Rafe’s idea: repeat Schoen’s PDE pf of Obata’s thm in the quaternionic contact setting.