



A New Construction of Homogeneous Quaternionic Manifolds and Related Geometric Structures

By Vicente Cortes

American Mathematical Society. Paperback. Book Condition: new. BRAND NEW, A New Construction of Homogeneous Quaternionic Manifolds and Related Geometric Structures, Vicente Cortes, Let $V = \{\mathbb{R}\}^n$ be the pseudo-Euclidean vector space of signature (p, q) , $p+q = n$ and W a module over the even Clifford algebra $C\ell^0(V)$. A homogeneous quaternionic manifold (M, Q) is constructed for any $\mathfrak{so}(p, q)$ -equivariant linear map $\Pi: \mathfrak{so}(p, q) \rightarrow \mathfrak{so}(n)$. If the skew symmetric vector valued bilinear form Π is nondegenerate then (M, Q) is endowed with a canonical pseudo-Riemannian metric g such that (M, Q, g) is a homogeneous quaternionic pseudo-Kähler manifold. If the metric g is positive definite, i.e. a Riemannian metric, then the quaternionic Kähler manifold (M, Q, g) is shown to admit a simply transitive solvable group of automorphisms. In this special case ($p=3$) we recover all the known homogeneous quaternionic Kähler manifolds of negative scalar curvature (Alekseevsky spaces) in a unified and direct way. If $p > 3$ then M does not admit any transitive action of a solvable Lie group and we obtain new families of quaternionic pseudo-Kähler manifolds. Then it is shown that for $q = 0$ the noncompact quaternionic manifold (M, Q) can be endowed with a Riemannian metric h such that (M, Q, h) is a homogeneous...



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