The identification of conformal hypercomplex and quaternionic manifolds

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The quaternionic manifolds are in one-to-one relation to hypercomplex manifolds with a homothetic Killing vector of quaternionic dimension that is one higher. We denote the latter manifolds as conformal hypercomplex manifolds. An explicit relation of the structure of these manifolds is presented, including curvature relations and symmetry operations. An important role is played by "ξ transformations", relating complex structures on conformal hypercomplex manifolds and connections on quaternionic manifolds. In this map, the subclass of conformal hyper-Kähler manifolds is mapped to quaternionic-Kähler manifolds.