

GEOMETRY OF METRIC CONTACT PAIRS (BICONTACT MANIFOLDS)

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After reviewing the idea of a contact pair and its characteristic foliations, the notion of a metric contact pair (MCP) is discussed. A 6-dimensional example which is not a locally Riemannian product manifold will also be presented.

For MCPs with orthogonal characteristic foliations, basic properties of the curvature tensor and the Ricci curvature in the direction of the sum of the two Reeb vector fields will be given. This leads to the result that flat non-Kähler Vaisman manifolds do not exist. Furthermore a local classification of MCPs whose curvature vanishes on the vertical subbundle will be given. As a corollary flat associated metrics can only exist if the leaves of the characteristic foliations are at most three-dimensional.

Turning to symmetry it is proved that the universal covering of a complete locally symmetric normal MCP is a Calabi-Eckmann manifold. Moreover a complete, simply connected, normal MCP with regular vertical foliation such that reflections in the leaves are isometries, is the product of globally ϕ -symmetric spaces and fibers over a locally symmetric space endowed with a symplectic pair.

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