

3-dimensional minimal CR submanifolds of the sphere \mathbf{S}^6 contained in a hyperplane

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It is well known that sphere \mathbf{S}^6 admits an almost complex structure J constructed using Cayley algebra, which is nearly Kaehler. Let M be a Riemannian submanifold of the manifold \widetilde{M} with an almost complex structure J . M is a CR submanifold if there exists a C^∞ -differentiable holomorphic distribution $\Delta \subset T(M)$ (i.e., $J\Delta = \Delta$) such that its orthogonal complement Δ^\perp in $T(M)$ is totally real ($J\Delta^\perp \subseteq N(M)$), where $N(M)$ is the normal bundle over M in \widetilde{M} .

We study 3-dimensional minimal CR submanifolds M of the nearly Kaehler 6-sphere \mathbf{S}^6 which are also contained in a hyperplane, i.e. in some 5-dimensional totally geodesic sphere \mathbf{S}^5 . We classify such submanifolds in terms of connection coefficients and construct some explicit examples of such submanifolds.

This talk is based on joint research with Luc Vrancken.