

A class of four dimensional CR submanifolds of the nearly Kähler six sphere

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A submanifold M of the nearly Kähler sphere $S^6(1)$ is called a CR submanifold if there exists a C^∞ -differential almost complex distribution $U : x \rightarrow U_x \subset T_x M$, i.e., $JU = U$ on M , such that its orthogonal complement U^\perp in TM is totally real distribution, i.e., $JU^\perp \subset T^\perp M$, where $T^\perp M$ is the normal bundle over M in $S^6(1)$. Since the four dimensional CR submanifolds of $S^6(1)$ can not be totally geodesic, we investigate four dimensional CR submanifolds that admit the distribution $D(p) = \{X \in TpM \mid h(X, Y) = 0, \text{ for all } Y \in TpM\}$, of the maximal possible dimension which is two and classify them using sphere curves and vector fields along those curves.