Differential Geometry of Real Hypersurfaces in Complex Quadrics

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In this talk, first we classify real hypersurfaces with isometric Reeb flow in the complex quadric $Q^m = SO_{m+2}/SO_mSO_2$, $m \geq 3$. We show that m is even, say $m = 2k$, and any such hypersurface is an open part of a tube around a k-dimensional complex projective space CP^k which is embedded canonically in Q^{2k} as a totally geodesic complex submanifold.

It is known that a contact hypersurface in a Kähler manifold is a real hypersurface for which the induced almost contact metric structure determines a contact structure. From such a view point, next we carry out a systematic study of contact hypersurfaces in a Kähler manifolds. We then apply these general results to obtain classifications of contact hypersurfaces with constant mean curvature in the complex quadric $Q^n = SO_{n+2}/SO_nSO_2$ and its noncompact dual $Q^{n*} = SO^o_{n,2}/SO_nSO_2$ for $n \geq 3$.