CR submanifolds of low codimension in spheres and hyperquadrics

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Abstract: The study of CR submanifolds of hypersurface type embedded transversally in spheres and hyperquadrics is a relatively old subject that has attracted considerable attention in recent years. The embeddings of a given strictly pseudoconvex CR manifold into a sphere (or those of a Levi nondegenerate one into a hyperquadric of the same signature) exhibit strong rigidity properties when the codimension of the embedding is sufficiently low compared to the CR dimension of the manifold: If the codimension is less than the CR dimension, then any two embeddings are equal modulo composition with an automorphism of the target sphere (or hyperquadric). Recently, new rigidity phenomena have been discovered for manifolds whose CR complexity is low relative to the signature (in the positive signature case), and we are starting to understand embeddings in codimensions past the rigidity regime, but still low in a suitable sense. In this talk, I will give an introduction to this subject, and describe some recent result.