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Abstracts of Short Communications and Posters

Section:

5. Differential Geometry and Global Analysis

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Low-type submanifolds of non-flat complex space forms
We consider submanifolds of a complex projective or a complex hyperbolic space $\mathbb{C}Q^m(4c), c = \pm 1$, which are of low type in the (pseudo) Euclidean space of Hermitian matrices $H(m+1)$ via the imbedding of $\mathbb{C}Q^m$ which identifies a complex line with the projection operator onto it. Finite-type (k-type) submanifolds of Euclidean spaces in the sense of B. Y. Chen are defined as those whose position vectors allow decomposition into sum of finitely many (k) vector eigenfunctions of the Laplacian. We classify 1-type submanifolds of $\mathbb{C}Q^m$ as: (1) Canonically imbedded $\mathbb{C}Q^n \subset \mathbb{C}Q^m$; (2) Minimal Lagrangian submanifolds M^n of a canonical $\mathbb{C}Q^n \subset \mathbb{C}Q^m$; (3) Geodesic sphere of radius $\arctan\sqrt{n+2}$ of a canonical $\mathbb{C}Q^{(n+1)/2}$. We also classify Hopf hypersurfaces of 2-type and characterize those that are mass-symmetric and of 3-type in $H(m+1)$.