

1064-53-301

Ivko M. Dimitric* (ivko@psu.edu), 1 University Drive, PO Box 519, Uniontown, PA 15401.

Curvature-adapted hypersurfaces of 2-type in projective spaces and a question of stability. Preliminary report.

This work is concerned with classification of curvature-adapted hypersurfaces of $\mathbb{C}P^m$ and $\mathbb{H}P^m$, which are of 2-type in a naturally defined Euclidean space of Hermitian matrices via the embedding by projectors. Up to translation, the position vector of each of these hypersurfaces allows a decomposition into a sum of two vector eigenfunctions of the Laplacian (from different eigenspaces). We give classification results for these hypersurfaces. For example, in $\mathbb{C}P^m$ curvature-adapted (i.e. Hopf) hypersurfaces include (1) Geodesic hyperspheres of arbitrary radius but one; (2) Two series of tubes about a canonically embedded $\mathbb{C}P^k$, $1 \leq k \leq m - 2$; (3) Two particular tubes about a complex quadric.

Some of these 2-type tubes have certain extremal properties regarding the stability, the connection we further explore. (Received September 13, 2010)