Biconservative hypersurfaces in space forms with harmonic curvature

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Abstract

A hypersurafce (M^n, g) isometrically immersed in a $(n+1)$-dimensional space form $(\bar{M}^{n+1}(c), \bar{g})$, with $g = \bar{g}|_M$ the induced metric, is called *biconservative* if the equation

$$2\mathcal{A}(\mathrm{grad}H) + nH\mathrm{grad}H = 0$$

is satisfied, where $\mathcal{A}$ is the shape operator of M.

The terminology was introduced by Caddeo, Montaldo, Oniciuc and Piu (2014) in the study of hypersurfaces with conservative stress-energy tensor with respect to the bienergy.

The class of biconservative submanifolds includes that of biharmonic submanifolds, that is those satisfying $\Delta \vec{H} = \vec{0}$.

In the present talk I will discuss biconservative hypersurfaces in space forms with harmonic curvature or parallel Ricci tensor. Such hypersurfaces have constant mean curvature and are isoparametric, i.e. have constant principal curvatures.

This is joint work with Ram Shankar Gupta and Marina Statha.