On the biconservative surfaces in Euclidean spaces

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Abstract

An isometric immersion $f : M^m \to N^n$ between two Riemannian manifolds is called *biconservative* if its stress-energy tensor S_2 is conservative, i.e., $\tau_2(f)^\tau = 0$, where $\tau_2(f)$ is the bitension field of f. By considering the definition of τ_2, it is obtained that f is biconservative if and only if

$$m\nabla\|H\|^2 + 4\mathrm{trace}A_{\nabla^\perp_{\cdot} H}(\cdot) + 4\mathrm{trace}\big(\tilde{R}(\cdot, H)\cdot\big)^T = 0,$$

where H, A and $\nabla^\perp$ are the mean curvature, shape operator and normal connection of M^m and $\tilde{R}$ is the curvature tensor of N^n.

In this talk, we would like to present our recent results on the biconservative surfaces in Euclidean spaces. We consider biconservative surfaces with parallel normalized mean curvature vector in Euclidean spaces.

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