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Optimal Inequalities Characterising Quasi-umbilical Submanifolds

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Abstract: A family of optimal inequalities is obtained involving the intrinsic scalar curvature and the extrinsic Casorati curvature of submanifolds of real space forms. Equality holds in the inequalities if and only if these submanifolds are invariantly quasi-umbilical. In the particular case of a hypersurface in a real space form, the equality case characterises a special class of rotation hypersurfaces.



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