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Geometric Sharp Sobolev-type Principle for The Graphic Submanifolds of Euclidean Space

I will present a recently established sharp Sobolev-type principle for a compact n -dimensional graphic submanifold (Σ, g) of \mathbb{R}^{n+m} . This principle was established using a positive smooth function f on Σ and the absolute value of the determinant of g . We demonstrate that the principle holds with equality when f is constant on Σ , $G = 1$ on $\partial\Sigma$, and Σ is a round ball in \mathbb{R}^n . Additionally, the inequality yields a sharp isoperimetric inequality for graphic submanifolds of Euclidean space with the unit metric determinant. This work was done in collaboration with Professor J. Xiao.