

Generic Regularity of Minimizing Hypersurfaces in Dimensions Up to 11

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ABSTRACT

A classical problem in geometric analysis and the calculus of variations is to find least area ("minimizing") submanifolds spanning a prescribed boundary. Deep results in geometric measure theory developed between the 1950s and the 1970s guarantee that for every smooth compact $(n-2)$ -dimensional submanifold L in \mathbb{R}^n , with $n \leq 7$, there exists a smooth compact minimizing hypersurface spanning L . When $n \geq 8$, some boundaries L will not bound any smooth minimizing hypersurfaces. I will discuss joint work with O. Chodosh, F. Schulze, and Z. Wang where we guarantee the existence of smooth minimizing hypersurfaces for Baire-generic boundaries L , provided $n \leq 11$. This improves upon the analogous 1980's result for $n=8$ by R. Hardt and L. Simon.