

Hung Thanh Tran, Colloquium after the 57th Texas Topology and Geometry Conference

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Title:

Index of A Free Boundary Minimal Surface

Abstract:

An FBMS in the unit Euclidean ball is a critical point of the area functional among all surfaces with boundaries in the unit sphere, the boundary of the ball. The Morse index gives the number of distinct admissible deformations which decrease the area to second order. In this talk, we explain how to compute the index from data of two simpler problems. The first one is the corresponding problem with fixed boundary condition; the second is associated with the Dirichlet-to-Neumann map for Jacobi fields. We also discuss applications to a conjecture about FBMS with index 4 in comparison with the Willmore problem.