

Advancing and connecting geometric measure theory and scientific computing

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Abstract

This presentation is centred on a project—led by Chun-Chi Lin, Mei-Heng Yueh, and myself—studying non-smooth m dimensional surfaces (varifolds) in Euclidean space. The non-smoothness is prompted by the needs of geometric variational problems, mathematical models in the sciences, and scientific computing whereas the study concerns the convergence, curvature, and regularity of these surfaces. An emphasis will be placed on those of our results stemming from an effort to bridge geometric measure theory and scientific computing as pioneered by Kenneth A. Brakke in his study of the mean curvature flow.