

DREXEL ANALYSIS SEMINAR

June 7, 2013

3-3:50 PM, Korman 245

Speaker: Jingmin Chen

Title: Curvature Integrability of Loop Surfaces.

Abstract: We present a result by U. Rief and P. Schroder proving that subdivision surfaces have enough regularity to ensure the integrability of their square mean curvature. As a consequence, subdivision surfaces are well-suited for the numerical solution of the so-called Helfrich model, in which one seeks to minimize the Willmore energy (i.e. the integral of the square of mean curvature) of a biological membrane subject to some geometric/physical constraints.

We shall present the basic structure of a loop surface, one well-known subdivision surface, and the necessary eigen-analysis technique and results from differential geometry needed for the integrability proof.