



SFB Seminartag

ZEIT:

6.12.2005, 15:00 Uhr - 17:30 Uhr

ORT:

im AEI in Golm, Max-Planck-Campus
Am Mühlenberg 1, 14476 Golm
Central Building, room number Z-050

PROGRAMM:

15:00 - 16:00 **Leon Simon (guest of the AEI)**

Singularities of Minimal Surfaces and Harmonic Maps

In the latter half of the 20'th century much was achieved in understanding regularity properties of minimal surfaces and harmonic maps, and major theorems were proved, for example in the direction of limiting the dimensional size of the singular set for various sub-classes of such surfaces and maps. In particular various partial regularity theories" based on ideas of De Giorgi, Reifenberg, Federer, Almgren and others were developed.

Nevertheless many very basic questions about the nature of the singular set have remained completely open; for example, does the singular set have some sort of stratified structure analogous to the stratification of the singular part of general real analytic varieties. This talk will briefly survey the present state of knowledge and conclude with a discussion of recent work which aims to develop a framework for a special class of singular minimal surfaces which is on the one hand analytically manageable and on the other hand sufficiently rich in examples to provide insights into the general situation alluded to above.

16:30 - 17:30 **Prof. Dr. Alexander Bobenko (TU)**

Geometric variational principles on simplicial surfaces. Discrete Laplace-Beltrami operator and discrete Willmore

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flow.

A discrete Willmore energy is introduced for simplicial surfaces. This energy is invariant with respect to Moebius transformations. The associated geometric flow and discrete Willmore surfaces are studied. We define also a discrete Laplace-Beltrami operator for simplicial surfaces. It depends only on the intrinsic geometry of the surface and its weights are positive. Our Laplace operator is similar to the one defined by Pinkall and Polthier (the so called cotan formula") except that it is based on the intrinsic Delaunay triangulations of the simplicial surfaces.

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