A U S H A N G

FREIE UNIVERSITÄT BERLIN
Fachbereich Mathematik und Informatik

Promotionsbüro, Arnimallee 14, 14195 Berlin

D I S P U T A T I O N

Mittwoch, 10. Juli 2013, 16.00 Uhr

Ort: Zuse Institut Berlin, Takustraße 7, 14195 Berlin
Raum: Hörsaal (2005)

Disputation über die Doktorarbeit von

Frau Dipl.-Inf. Cornelia Ingrid Auer

Thema der Dissertation:
Essential structures in second order tensor fields

Thema der Disputation:
Second order tensor fields in modeling and design

Die Arbeit wurde unter der Betreuung von **Dr. I. Hotz** durchgeführt.

Abstract: Second order tensor fields are ubiquitous in science and engineering. However, their interpretation is inherently aggravated by the wealth of information contained within.

This talk addresses second order tensors as powerful mean in modeling and design. Looking at tensors from the perspective of modeling provides and enlightening insight on the effect of tensor transformations and their properties.

The work of Zhang et al. On “Interactive Tensor Field Design and Visualization on Surfaces” presents a rich view on how tensors can be used for modeling purposes and how they exceed possibilities given by vector fields. This is demonstrated for three graphics applications: painterly rendering, pen-and-ink sketching and anisotropic re-meshing. This approach is based on placing key topological elements – the degenerate points – on a given surface to steer the behavior of the modeled field at great scale but also in detail. The power of this method is also shown for “Interactive Procedural Street Modeling” by Chen et al., where large virtual street networks are designed with tensor fields.

This talk will summarize the key aspects of both publications and aims to
give a different view on the significance of second order tensors.

Die Disputation besteht aus dem o. g. Vortrag, danach der Vorstellung der Dissertation einschließlich jeweils anschließenden Aussprachen.

Interessierte werden hiermit herzlich eingeladen

Der Vorsitzende der Promotionskommission
Dr. I. Hotz