# AUSHANG

## FREIE UNIVERSITÄT BERLIN
**Fachbereich Mathematik und Informatik**

Promotionsbüro, Arnimallee 14, 14195 Berlin

# DISPUTATION

## Mittwoch, 2. November 2016, 10.15 Uhr

### Ort: Pi-Gebäude, Raum 108/109, Arnimallee 6, 14195 Berlin

**Disputation über die Doktorarbeit von**

## Frau Anna Wawrzinek

**Thema der Dissertation:**
**On Isoparametric Catmull-Clark Finite Elements
for Mean Curvature Flow**

**Thema der Disputation:**
**Interaction of Geometry and Analysis
in the Concept of Subdivision Surfaces**

Die Arbeit wurde unter der Betreuung von **Prof. Dr. K. Polthier** durchgeführt.

Abstract: Subdivision surfaces are a common tool in geometric modelling, especially in computer graphics, computer animation and engineering. In the classical theory, a subdivision surface is defined as the limit of the iterated application of subdivision rules to the control grid. This computationally expensive process can be avoided by using a parameterization of the limit surface based on the underlying spline functions. However, here the main problem lies in the fact that in most cases surfaces cannot be discretized by regular meshes, so that the control grid includes extraordinary vertices. They pose the main challenge if one wants to use the subdivision surfaces for describing the geometry of the surface, and this challenge is even greater if one wants to investigate functions over the surface. Based on the Catmull-Clark subdivision surfaces, two parameterizations, the corresponding subdivision finite element approaches and related problems will be presented and discussed.

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
Prof. Dr. K. Polthier