**UNIVERSITÄT DES SAARLANDES**
**Fakultät für Mathematik und Informatik**
**Fachrichtung Mathematik**

# Mathematisches Kolloquium

Am Freitag, dem 21. Juli 2017 spricht um 14 Uhr c. t. im Hörsaal IV
der Fachrichtung Mathematik (Gebäude E2 4)

# Prof. Dr. Benedikt Wirth
## Westfälische Wilhelms-Universität Münster

über das Thema:

## (Discrete) spline interpolation on Riemannian manifolds

*Abstract:*   Spline curves represent a simple and efficient tool for data interpolation in Euclidean space. During the past decades, however, more and more applications have emerged that require interpolation in (often high-dimensional) nonlinear spaces such as Riemannian manifolds. An example is the generation of motion sequences in computer graphics, where the animated figure represents a curve in a Riemannian space of shapes. Two particularly useful spline interpolation methods derive from a variational principle: linear splines minimize the average squared velocity and cubic splines minimize the average squared acceleration among all interpolating curves. Those variational principles and their discrete analogues can be used to define continuous and discretized spline curves on (possibly infinite-dimensional) Riemannian manifolds. However, it turns out that well-posedness of cubic splines is much more intricate on nonlinear and high-dimensional spaces and requires quite strong conditions on the underlying manifold. We will analyse and discuss linear and cubic splines as well as their discrete counterparts on Riemannian manifolds and show a few applications.

Der Gast wird von Prof. Dr. Thomas Schuster betreut.

Alle Interessenten sind zum Vortrag herzlich eingeladen.

Kaffee und Tee ab 13.45 Uhr im Konferenzraum der Mathematik   (Erdgeschoss, Raum 103)

## Die Dozenten der Mathematik