



Universität Konstanz

**Fachbereich
Mathematik und Statistik**
Schwerpunkt
Reelle Geometrie und Algebra

Einladung

Im Oberseminar *Reelle Geometrie und Algebra* hält

Cordian Riener

(Universität Konstanz)

am **Freitag, 18.11.2016**, einen Vortrag zum Thema:

*Quadrature rules of even degree and
generalizations in the plane*

Der Vortrag findet um **13:30 Uhr** in **F426** statt.

Alle Interessenten sind herzlich eingeladen.

Abstract: Let μ be a positive Borel measure on \mathbb{R}^n . A quadrature rule for μ of strength $d \in \mathbb{N}$ is a finite set of points $\{p_1, \dots, p_k\} \subset \mathbb{R}^n$ together with associated non-negative weights $\lambda_1, \dots, \lambda_k \in \mathbb{R}_{\geq 0}$ such that the integral of any polynomial function $f \in \mathbb{R}[X_1, \dots, X_n]$ of degree d can be evaluated as

$$\int f d\mu = \sum_{i=1}^k \lambda_i f(p_i).$$

In this talk we address the question, of the maximal number of nodes that are needed to form a quadrature rule and extend previous results from the case of odd d to even d . In particular, we focus of integration in the plane (i.e. $n=2$) where we show a generalisation of even degree Szegő quadrature to compact curves and we give a simplified argument for a Theorem by Curto and Yoo which asserts that in the plan 6 nodes are sufficient for strength 4 quadrature rules.

(Joint work with Markus Schweighofer)

Sebastian Gruler
Kordinator Oberseminar