



universität
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Fakultät für Mathematik

Mathematisches Kolloquium

Donnerstag(!), 27. April 2017

EINLADUNG

Douglas Arnold

(University of Minnesota)

"The Regge family of finite elements: structure-preserving elements for metrics"

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Abstract:

Over the past decade there has been a great deal of interest in compatible or structure-preserving discretizations of PDE, that is, discretizations which exactly retain certain key geometric or algebraic properties of the continuous problem at the discrete level. Structure-preserving finite element methods have been developed for differential forms, such as arise in electromagnetic and flow applications, and for stress fields in solid mechanics. In this talk we will introduce a new family of finite element spaces, devised for discretization of another sort of field important in applications: Riemannian metrics and other symmetric covariant tensors of rank 2. In the lowest order case these new finite elements are intimately related to discrete metrics introduced by Tullio Regge in 1961 for the study of general relativity; hence their name. Special cases of the new elements have connections to classical plate bending elements and to a recent novel approach to elasticity as well. This work is joint with Lizao Li and will appear in his thesis.

13:30 Uhr: Kaffeejause

14:00 Uhr: Vortrag

Im Anschluss vinum cum pane

Fakultät für Mathematik

Oskar-Morgenstern-Platz 1 , Sky Lounge

Ilaria Perugia und Michael Eichmair
Christian Krattenthaler