**Einladung zum**

**Würzburger Mathematischen Kolloquium**

Julius-Maximilians-Universität Würzburg • Fakultät für Mathematik und Informatik

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Prof. Dr. Marta Lewicka
University of Pittsburgh, USA, Giovanni-Prodi-Professorin

**Isometries on Surfaces, Elasticity, and Calculus of Variations**

Mittwoch, den 8. Mai 2013 • 16:15 Uhr
Mathematik Ost (Emil-Fischer-Straße 40), Seminarraum SE 40 (Raum 00.001)

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**Inhaltsangabe**

Elastic materials exhibit qualitatively different responses to different kinematic boundary conditions or body forces. As a first step towards understanding the related evolutionary problem, one studies the minimizers of an appropriate nonlinear elastic energy functional.

We shall give an overview of recent results, rigorously deriving 2d elasticity theories for thin 3d shells around mid-surfaces of arbitrary geometry. One major ingredient is the study of Sobolev spaces of infinitesimal isometries on surfaces, their density and matching properties. Another one relates to the non-Euclidean version of 3d nonlinear elasticity, conjectured to explain the mechanism for spontaneous formation of non-zero stress equilibria in growing tissues (leaves, flowers).