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HABILITATIONSVORTRAG

im Rahmen des JUNIORKOLLOQUIUMS

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**„Rate-independent plasticity based on the
inelastic metric tensor“**

“Rate-independent plasticity based on the inelastic metric tensor“

Abstract:

The modeling of finite-strain plasticity in terms of the symmetric Cauchy-Green tensor $\mathbf{C}_p = \mathbf{P}^\top \mathbf{P}$ (where \mathbf{P} is the usual plastic deformation 'gradient') and its possible advantages are discussed. In particular, we assume a rate-independent constitutive law for the plastic strain at the material point and a quasi-static elastic response for the corresponding boundary value problem. The relevancy of the modeling also for the Souza-Auricchio approach to shape memory alloys will be highlighted.

We introduce the concept of energetic solution (or variational evolution) and we prove the corresponding solvability property of the model when a \mathbf{C}_p -gradient regularization term is included.

The possibility of a rigorous linearization limit of the model at small-strains via evolutive- Γ -limit arguments will also be outlined.

**Mittwoch, 16. März 2016,
14.00 Uhr - 15.00 Uhr,**

**Fakultät für Mathematik,
Oskar-Morgenstern-Platz 1,
Sky Lounge**

Ulisse Stefanelli
Harald Rindler