

Oberseminar Nichtlineare Differentialgleichungen

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A Variational View on Constitutive Laws in Time Dependent Problems

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Abstract: In this talk we will discuss an alternative approach to modelling the viscous properties of fluids. Instead of assuming our material satisfies some constitutive law that relates shear rates to viscous stresses, we consider situations where we only have measurement data of the relationship.

We derive a variational problem formulation which essentially reads: Among all physically possible flows, select one that minimizes the distance to the measurements. Some well-posedness results and alternative approaches will also be covered.

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