



Einladung zum Oberseminar Mathematik in den Naturwissenschaften

Julius-Maximilians-Universität Würzburg
Lehrstuhl für Mathematik in den Naturwissenschaften

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Strain and stress-rate type viscoelastic models in the context of implicit constitutive theory

In the constitutive equations for the classical viscoelastic models, stress tensor is expressed in terms of the strain tensor and its time derivative. However, the classical elastic and viscoelastic models are incapable of explaining the phenomena when the stress is big and the strain is small, which is, in fact, observed in engineering applications. A new class of models that are able to explain this kind of behaviour for elastic materials, called the strain-limiting behaviour, has been introduced recently.

In this talk, we first define such a class, then introduce a subclass, namely strain-rate type models for viscoelastic response. To describe such models we assume a nonlinear relationship among the linearized strain, the strain rate and the Cauchy stress. Then, we introduce stress-rate type nonlinear viscoelastic models that obey the assumptions of the strain-limiting theory. For these models linearized strain depends nonlinearly on the stress and the stress rate. We briefly go through all the recent work done for both problems as well as compare these two subclasses from the point of view of differential equations of motion.

Ort: Zoom video conference

Zeit: Donnerstag, 27.01.2022, 14:30 Uhr

You are cordially invited to this lecture. Request the Zoom link from
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gez. Anja Schlömerkerper