

Seminar series of the Graduate School GRK 2078

Referee: **Prof. Dr.-Ing. Arnold Krawietz**
Former university lecturer (until winter semester 2006/2007) for Engineering, Process and Environmental Engineering at the Berliner Hochschule für Technik (BHT)

Date: Tuesday, December 05, 2023

Time: 14:30-15:30h

Location: Online / ZOOM

Title: **The reaction stresses of an incompressible second-gradient fluid**

Abstract

The simplest description of a fluid dates back to Newton. The Cauchy stress tensor depends on the symmetric part of the velocity gradient. If incompressibility is assumed then the pressure acts as an unknown reaction function that is independent of the velocity field. If the material behaviour contains a characteristic length, then a gradient model may be useful: The state of stress then depends not only on the first but also on higher velocity gradients. The incompressible case of a second-gradient fluid introduces four scalar reaction functions. It will be shown that they can be derived from only one scalar function, if the incompressible fluid is regarded as the limit of a compressible one.

Details can be found in:
Krawietz, A.: Surface tension and reaction stresses of a linear incompressible second gradient fluid, Cont. Mech. Thermodyn. 34: 1027-1050 (2022)

You are cordially invited to take part in the event.

Prof. Dr.-Ing. Thomas Böhlke
(Spokesperson of GRK 2078)