



Institut für  
Angewandte Mathematik



Leibniz  
Universität  
Hannover

## **Oberseminar Analysis und Theoretische Physik**

**Dr. Piotr Michał Bies  
(Warsaw University of Technology)**

### **Global-in-time regular unique solutions to the 1d thermoelasticity and time-asymptotics**

In the talk, we shall say about the construction of unique regular solutions to the minimal nonlinear system of the 1d thermoelasticity. The obtained solution has a positive temperature. Our approach is based on an estimate using the Fisher information, which seems completely new in this context. It is combined with a recent temperature inequality and embedding inequality, which allows us to obtain a new energy estimate. The latter is used in a half-Galerkin procedure to yield global solutions. The uniqueness and further regularity of such solutions are obtained.

Moreover, we present the result concerning the time-asymptotic of solutions. Namely, it will be shown that the displacement converges to 0, and the temperature converges to a constant function.

**Dienstag, 03.06.2025, 15:00 Uhr, Raum c311  
Hauptgebäude der Universität**

**Veranstalter: Prof. Dr. Wolfram Bauer, Prof. Dr. Joachim Escher,  
Prof. Dr. Johannes Lankeit, Prof. Dr. Elmar Schrohe, Prof. Dr. Alexander  
Strohmaier, Prof. Dr. Christoph Walker, Dr. Alden Waters**