

# Einladung zum Gastvortrag Aachener Mechanik & Statik Kolloquium

22. Juni 2018 | 10:00 Uhr

LuF Kontinuumsmechanik | Kackertstraße 9 | 52072 Aachen  
Seminarraum C 301

RWTH AACHEN  
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***„Experimental thermomechanics of rubbers: revisiting the physical mechanisms involved in the deformation process”***

Most of phenomena involved in deformation of rubber depend on temperature and have distinguishable thermal and calorimetric signatures. However, since the pioneer investigations being those conducted by Gough and Joule, studies were dedicated more to the mechanical response, and thermal aspects of the rubber deformation were not really explored experimentally. Therefore, revisiting the rubber deformation using experimental thermomechanics should offer new perspectives to better understand damage and deformation mechanisms. In the present study, temperature variations are measured during the mechanical tests by means of infrared thermography. The heat sources produced or absorbed by the material due to deformation processes are deduced from the temperature variations by using the heat diffusion equation. The calorimetric signatures of the most important effects in rubber deformation have been characterized in case of homogeneous and heterogeneous (at the crack tip) mechanical fields. Results bring information of importance for the understanding and the modeling of physical phenomena involved in the rubber deformation.

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