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Colloquium on Computational Mechanics
for Young Scientists from Academia and Industry
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Integrating Computational and Experimental Mechanics

Knut Andreas Meyer^{1,*}, Tobias Kaiser^{2,3,†}¹ Institute of Applied Mechanics, TU Braunschweig, Germany² Institute of Mechanics, TU Dortmund University, Germany³ Mechanics of Materials Group, Eindhoven University of Technology, The Netherlands

Experimental mechanics provides vital insights into the constitutive response of materials and the underlying physics. This understanding of materials is the basis for developing material models in continuum mechanics using, e.g., first principles, data-driven approaches, micromechanics, multiscale techniques, or purely phenomenological relations. By combining sophisticated experimental techniques with state-of-the-art modeling approaches, a detailed understanding of the mechanics of materials is gained and predictive simulations are made possible. Against this background, the ongoing progress in manufacturing technologies and materials science drives the development of novel, highly accurate material models and modeling approaches based on experimental observations.

Contributing to these developments, this minisymposium brings together researchers working on cutting-edge research in experimental and computational mechanics. A particular focus is the behavior of materials, including, but not limited to, mechanical, electrical, thermal, diffusive, and permeability properties. We especially invite contributions on multiscale and coupled problems, and on plasticity, damage, and fatigue modeling. However, contributions from all areas of mechanics that couple experiments and computations are welcome.

Topics of interest include, but are not limited to:

- Multiscale and multiphysics experiments and modeling
- Integrated design of experiments and models
- Model calibration and validation
- Full-field measurements and calibration
- Data-driven approaches

*Corresponding author: Knut Andreas Meyer (✉ k.a.meyer@tu-bs.de)

†Corresponding author: Tobias Kaiser (✉ tobias.kaiser@tu-dortmund.de)