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Current trends in modelling and simulation of biological systems: numerics, application and data integration

Christian Bleiler¹, Sebastian Brandstaeter², Lena Lambers^{3,4}, Renate Sachse^{5,*}

¹ Institute for Modelling and Simulation of Biomechanical Systems, University of Stuttgart, Germany

² Institute for Mathematics and Computer-Based Simulation, University of the Bundeswehr Munich, Germany

³ Institute of Structural Mechanics and Dynamics in Aerospace Engineering, University of Stuttgart, Germany

⁴ Experimental Transplantation Surgery, Department of General, Visceral and Vascular Surgery, Jena University Hospital, Germany

⁵ Institute for Computational Mechanics, Technical University of Munich, Germany

The description of biological systems and underlying processes is and remains a challenge, be it the prediction of internal forces, the model-based interpretation of experimental data or the simulation of complex multi-physical and/or multi-scale processes in biological tissues. While classic models still hold their ground, novel data-based methods are emerging and provide new ways of data integration and pattern recognition in experimental data. In this minisymposium, we aim to generate a fruitful interdisciplinary exchange as well as to synergise various aspects related to modelling and simulation of biomechanical systems and to provide an overview on various aspects such as numerical treatment, the usage of data-integrated models and possible clinical applications. Therefore, we welcome contributions from all topics in the context of modelling and simulation of biological systems. Topics of interest include, but are not limited to:

- material models for biological tissues,
- the simulation of biological systems,
- biomechanical models for various applications in biomimetics and biomedicine as well as
- novel ways of data integration for biomechanical models covering, e. g., neural networks or machine learning.

The minisymposium is intended to span a wide range from basic methods to clinical applications as well as from the microscale to the organ scale and thus provides an insight into current trends across the entire spectrum of computational biomechanics.

*Corresponding author: Renate Sachse (✉ renate.sachse@tum.de)