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Mini-Symposium: **Continuum and Computational Biomechanics**

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Knowledge of the mechanical behavior of biological structures such as soft and hard tissues is crucial for our understanding of body functions in health, to predict changes associated with the occurrence of pathologies and to develop new treatment strategies. Computational models are now well-established tools that support the medical community with predictive *in silico* simulations of surgical procedures and the development of medical technologies. They are also essential tools as basic technologies for tissue engineering applications.

Living systems are characterized by a close relationship between structure and functionality. The mechanical properties of the building blocks of tissues, such as collagen fibers, the structures in which they are arranged, and the ability to transform in response to external stimuli or internal changes, are unique features of living biomechanical systems. Therefore, research in this area is advancing towards approaches that combine biomechanics with biochemistry and mechanobiology in a multiscale and multiphysics environment. In particular, the mechanical response of tissues, from the macroscale to the cellular level, is closely linked to physiological changes in the formation and development of diseases.

The aim of this mini-symposium is to promote a lively dialogue between researchers who work on the modeling of various organs and tissues, including, e.g., lungs, bones, cartilage, the brain, and the cardiovascular system. Contributions ranging from analytical models, through computer modeling and simulations, to final applications in clinical practice or tissue engineering R&D are welcome. Relevant topics include but are not limited to:

- Tissue elasticity and viscoelasticity
- Collagen and elastin networks/dispersion and cross-linking
- Residual stresses
- Growth, remodeling and healing of tissues
- Damage and fracture
- Poroelasticity and multiphase models
- Fluid-structure interaction
- Multi-physics coupled models (e.g., chemo-mechano-biological models)
- Mechanical models of living cells
- Patient-specific models
- Structure-mechanics relationship
- Numerical methods for biomedical engineering
- Tissue engineering applications