

INTEGRATIVE MODELLING OF SOFT-TISSUE MECHANOBIOLOGY

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The structure and mechanical properties of soft-biological tissues are intimately related to the mechanical environment in which they function. Understanding this ‘mechanobiological’ relationship is essential for understanding tissue function during development, health, aging and disease. In fact, from a clinical perspective, understanding tissue mechanobiology is essential for predicting disease progression, response to treatment and for the design of tissue-engineered replacements.

Mechanobiology is at the interface of mechanics and biology and thus is an inherently challenging area of research. Given that living tissues are complex systems with interactions over multiple length (molecular, cellular, tissue and organ) and timescales, there are significant experimental and mathematical challenges. To progress understanding, there is a need for novel mathematical and computational modelling [1] combined with integrative research that combines *in vivo*, *in vitro* and *in silico* modelling.

This mini-symposium will provide a multi-disciplinary forum on soft-tissue mechanobiology. We welcome contributions on all areas of soft-tissue mechanobiology, e.g. cardiovascular, musculoskeletal, dermal and urological. The research focus may be physiological or pathophysiological; however, contributions should adopt an integrative modelling approach which incorporates novel mathematical/computational modelling, i.e. *in vivo-in silico*, *in vitro-in silico* or *in vivo-in vitro-in silico*.

[1] *SoftMech: EPSRC Centre for Multiscale Soft Tissue Mechanics* (www.softmech.org)