

Multifield and multiscale computational modelling of complex biomechanical systems

Scientific area: Computational Solids And Structural Mechanics

Biomechanics is the application of engineering tools and methodologies to clinical problems, and it has undergone a substantial growth during the last decades. Computational methods have proven to be a useful support to clinicians in many situations where medical experience could not derive conclusive indications. However, biological systems rely on complex processes involving multiple coupled physics and occurring at a wide variety of scales, from the micro- (cells) to the macro- (organs) level. As a result, research in biomechanics is an on-going effort allowing to have an ever deeper understanding of those processes, improve the existing study methodologies, and apply these tools as a structured approach for clinical diagnosis and therapeutic strategies.

This minisymposium aims at collecting recent innovations in the applied computational biomechanical field promoting the exchange of information in the field of Biomechanics. Contributions from young researchers or PhD students concerning multiscale mechanics of human organs and multifield problems and involving chemo-mechanics and/or fluid-structure interaction are welcomed. Exemplary problems could be represented by bone/heart/eye/teeth multiscale modelling, soft-tissue mechanical description, tissue growth and remodelling, simulation of bioprinting processes.

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