

ADVANCES IN COMPUTATIONAL BIOMECHANICS

DANIEL E. HURTADO* AND REUBEN KRAFT**

*Computational Biomechanics and Biophysics Laboratory
Department of Structural and Geotechnical Engineering
Pontificia Universidad Católica de Chile
dhurtado@ing.puc.cl

**Department of Mechanical & Nuclear Engineering
The Pennsylvania State University
reuben.kraft@psu.edu

Key words: Computational biomechanics, Soft-tissue constitutive modelling, Cardiovascular modeling and simulation

ABSTRACT

Biomechanics is a continuously growing field, and has been fundamental in understanding the mechanical behaviour of living systems, gaining a wide acceptance within the biomedical engineering community. Due to the inherent complexity of biological systems, where a multiscale and multiphysics paradigm must be embraced to obtain predictive models, computational methods specifically tailored to solve biomechanical models are an open and promising avenue of research, as well as a challenging and exciting opportunity for the computational mechanics community.

This mini-symposium aims at bringing together researchers in the broad field of computational biomechanics. Contributions are invited on topics including, but not limited to

- Constitutive modelling of biological tissue
- Multiscale and multiphysics modelling and simulation in biomechanics
- Novel numerical methods for biomechanical applications
- Computational modelling of cardiac electrophysiology and electro-mechanics
- Growth and remodelling of living matter
- Fluid-structure interaction in cardiovascular flows
- Patient-specific computational modeling and parameter characterization
- High-performance computing in biomechanics
- Experimental validation of computational biomechanical models