

## FEMALE PELVIC FLOOR BIOMECHANICS

### 3000 COMPUTATIONAL NATURAL SCIENCES

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#### ABSTRACT

Computational Biomechanics is a field that is expanding and developing at remarkable speed. One of the most promising development subjects is the numerical simulation applied to living organs, mainly the biomechanical behaviour of soft tissues [1]. However, for its success, several research topics should be considered like as: image processing and analysis, optimization, geometric and numerical modelling, material modelling, constitutive material laws, experimental methodologies combined with numerical methods; and their applications in real environments must be addressed. For high-level Computational Biomechanics-based tasks are successful, new algorithms must be continually developed and improved, and expert users, such as physiologists and medical doctors, must evaluate their outputs.

This mini-symposium concerns all aspects of the mechanics of female pelvic floor soft tissues. The purpose of this symposium is to attract scientists from a variety of scientific areas, across a broader field of topics. Participants should present and discuss their proposed methods in the corresponding fields bringing state of the art and future developments and evaluation in computational biomechanics of female pelvic floor soft tissues, namely: normal female pelvic floor biomechanics in different lifetime events and pelvic floor dysfunction, crucial for the development of advanced constitutive and numerical models; the application of computational methods in pelvic floor dysfunction correction techniques and methods, to reduce postoperative complications and reoperation rate. We encourage contributions in the areas of:

- Numerical methods applied to soft tissues (Finite Element (FE) and Meshless methods);
- Modelling of biological soft tissues;
- Advances in elasticity, viscoelasticity and damage related to soft biological tissues of the pelvic floor.
- Image processing and analysis applied to soft tissues;
- Experimental testing and constitutive models for soft tissue structures;
- Multiscale modelling of soft tissues, where experiments and simulations must go together to achieve integrative knowledge.

#### REFERENCES

- [1] Hoyte L and Damaser M, Biomechanics of the Female Pelvic Floor, Second Edition, Academic Press, 2016.