

ADVANCING BIOMEDICAL RESEARCH: EXPLORING INVERSE METHODS FOR SOFT TISSUE MATERIAL CHARACTERIZATION

1300 - INVERSE PROBLEMS, OPTIMIZATION AND DESIGN

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ABSTRACT

Soft tissues play a critical role in the functioning and integrity of the human body. Accurate knowledge of their mechanical properties is crucial for a wide range of biomedical applications, including surgical simulations, medical device design, and tissue engineering. However, soft tissues' complex and nonlinear behaviour poses significant challenges in obtaining precise material data through traditional experimental approaches [1]. The advent of inverse methods has opened new avenues for efficiently estimating these material properties, offering promising opportunities to revolutionize medical research and clinical practice [2]. Research on inverse methods combines techniques from mathematical analysis, differential geometry, numerical analysis, machine learning, image processing, scientific computing, and computer science.

This mini-symposium aims to provide a platform for researchers and practitioners to present their latest work and insights on inverse methods for determining the material properties of soft tissues, shape design and/or unknown external forces. We encourage submissions that encompass experimental, computational, and combined approaches and contributions that address advancements in related fields, such as medical imaging and biomechanical modelling.

REFERENCES

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