

# ***Imaging techniques applied to soft tissue Biomechanics***

*Thematic Session within VipIMAGE2011*

*III ECCOMAS Thematic Conference on Computational Vision and Medical Image Processing*

*Olhão, Algarve, Portugal, 12-14 October 2011*

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## **Description**

In health sciences, there are several medical imaging modalities involved in research, diagnosis and treatment planning. From the more conventional ultrasound or MRI, to the more recent as elastography, the growing importance of imaging techniques is unquestionable.

As we are moving towards an era of ex-vivo virtual simulation (Finite Element Models, etc.) and essay of medical procedures and techniques, the exact modelling of living tissue structures and the associated mechanical properties constitutes a significant scientific challenge. Imaging techniques play a fundamental role in both. Medical imaging (ultrasound or MRI) enables the reconstruction of geometric representations of the actual structures. Elastography enables an estimation of the soft tissue stiffness. Moreover, in a classical (often destructive) mechanical characterization of soft tissues, where contact is a major issue; imaging techniques such as video extensometry or digital image correlation (DIC), are the best alternative to the traditional strain measuring contact methods.

The aim of this thematic session is to present and discuss recent developments and future prospects in “Imaging techniques applied to soft tissue Biomechanics”, from both medical and engineering perspectives.

## **Topics of interest include (but are not restricted to):**

- Quantification of displacements and strains of biologic structures
- Geometrical modelling of biological soft tissues
- Soft tissue micromechanics and morphological aspects (fibre directions, fibre structure, etc.) using (macro and micro) imaging techniques
- Investigations on the Physiology and Anatomy of biological tissues using imaging techniques

## **Publications**

The **book of proceedings will be published by Taylor & Francis Group**. The organizers will encourage the submission of extended versions of the accepted papers to related International Journals; in particular for special issues dedicated to the conference.

A **book with 20 invited extended works** from the most important ones presented in conference will be published by **SPRINGER**.

## **Important dates**

- **Submission of extended abstracts: March 15, 2011**
- Authors Notification: April 15, 2011
- Lectures and Final Papers: June 15, 2011

## **Organizers**

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