Le **4 octobre 2018**
À **14h00**
Strasbourg - Forum of the medical school - 301

Sabine BENSAMOUN (Biomechanics and Bioengineery Laboratory, Sorbonne University) will present her research **Thursday, October 4th, 2018 at 2pm in the amphitheater 301 of the Forum** (Medical school, 4 rue Kirschleger in Strasbourg).

Title: Characterization of the muscle tissue with in vitro (mechanical test) and in vivo (MR and US elastography) techniques

Abstract: Muscle is a biological tissue whose mechanical properties vary with activity. Biopsies and palpations remain the conventional clinical tests to diagnose and to follow diseases, respectively. Although biopsies are invasive, mechanical tests can be performed on biopsies (muscle, tendon, etc ...) to measure the functional properties of the tissue. These tests involved preconditioning, passive (stretch, relaxation, ...) and active tests (Kammoun et al. 2016).
In order to replace subjective results obtained with clinical scales, MR and US elastography techniques have been developed to provide quantitative data. Magnetic resonance elastography (MRE) technique, based on the propagation of shear waves in soft tissues, was applied to different healthy (Chakouch et al. 2016) and pathological soft tissues (Bensamoun SF et al. 2015) in order to provide reliable information or the mechanical properties (e.g., elasticity and viscosity) of skeletal muscles or soft tissues (tendon, liver, etc ...) (Ternifi et al. 2017). These measurements were obtained with the development of imaging sequences and reconstruction methods in order to acquire the cartographies of the storage modulus (G') and the loss modulus (G'') which compose the viscoelastic properties. These parameters could be used as biomarkers indicating the functional behavior of skeletal muscles or other soft tissues. One of the main challenges of MRE technique applied to soft tissues is the characterization of the deep tissues and the development of in vivo protocol.
In parallel to MRE technique, ultrasound elastography have been developed to assess the elastic properties of the tissue. Both elastography techniques are complementary and a fusion system allows the superimposition of MR and US acquisition to better identify pathological tissue.

This seminar has been validated by the MSII doctoral school.