

# EINLADUNG

zum Gastvortrag

von

***Prof. Marie-Christine HO BA THO***

Université de Technologie de Compiègne, France

am

**Dienstag, 02.09.2014, 13.30 (c.t.) Uhr**

Technische Universität Wien, Karlsplatz 13, 1040 Wien  
**Sem 202 (Stiege 2, 2. Obergeschoß + Halbstock)**

## DEVELOPMENT OF SUBJECT-SPECIFIC MODELS WITH MATERIAL PROPERTIES AND BOUNDARY CONDITIONS DERIVED FROM MEDICAL IMAGING

The objective of the presentation is to address the methodology developed to model musculoskeletal systems with personalised geometric and material properties and boundary conditions derived from medical image data. For hard tissue, from Computed Tomography (CT) personalized bone mechanical properties could be extracted but moreover its follow up could provided data for validation of patient specific predictions. For soft tissue advanced MRI such as dynamic MRI and Magnetic Resonance Elastography (MRE) allowed respectively to analyse the in vivo forces generated by the muscles in movement but also its mechanical properties in passive and active behavior. Based on these knowledges, patient specific geometry, mechanical properties and forces are assessed derived from advanced medical imaging techniques. These data are of importance for developing patient specific computer modelling for prediction and evaluation of therapeutic, surgical or functional rehabilitation treatments. Clinical application on the lumbar spine and the face will be given as illustrative examples.

### BRIEF BIOGRAPHY:

Marie-Christine Ho Ba Tho is Professor in Mechanics since 1998 at UTC (Université de Technologie de Compiègne) and currently Head of Biomechanics and Bioengineering Laboratory associated with CNRS (Centre National de Recherches Scientifiques). She received a Master in Physics in 1985 and Post Diploma in Radiological Physics 1986 from Université Paul Sabatier (UPS) at Toulouse, France .

After her PhD in Biomechanics in 1989 at UPS she moved to Texas Scottish Rite Hospital for Crippled Children as a postdoctoral fellow until 1992.

She returned to France at the INSERM (National Institute of Health and Medical Research) U305 laboratory at Toulouse, with an INSERM researcher position until 1998. Her research interest concerns Biomechanics of the musculoskeletal system especially children deformities (torsion of lower limbs, Legg-Calvès Perthes Disease, congenital dislocation of the hip, clubfeet and scoliosis) and adult arthroplasties (hip, shoulder and knee).