

## **BIOMECHANICS OF HARD TISSUES: FROM EXPERIMENTS AND SIMULATIONS TO CLINICAL APPLICATIONS**

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### **MINISYMPOSIUM**

Verified and validated computational models of hard and soft tissues, including bones, teeth, tendons, or arteries, have been shown to be a valuable clinical tool in many applications, including, but not restricted to, the prediction of fracture risk in femurs and vertebrae due to osteoporosis, the design of prophylactic surgeries in femurs with metastatic or benign tumors, the estimation of possible ruptures of aortic aneurysms, or the optimization of patient-specific implants, also based on 3D printing. This mini-symposium will focus on recent advances in the realistic mathematical and computational modeling of the aforementioned hierarchical biological systems, together with their translation into clinical practice, evidencing difficulties and opportunities concerning the in-vivo validation of computational biomechanics tools. This frame is thought to bring together computational biomechanics scientists coming from different avenues, so as to arrive at new perspectives on open challenging problems.