

Mini-Symposium 2-4: Mechanics of Mineralized Tissues

Organizers: Christian Hellmich (TU Wien) / Hanna Isaksson (Lund University) / Rémy Gauthier (CNRS)

The objective of this mini-symposium is to explore the most recent innovation in the experimental and computational biomechanics of mineralized tissues, such as bone or teeth. Mineralized tissues fulfill critical load-bearing functions, facilitated by hierarchically organized structures that are optimized to provide high stiffness and/or excellent resistance to fracture. Mineralized tissues present remarkable mechanical properties depending on their composition and structural organization at the nano- and micro-scales and the resulting macro-architecture. Understanding mineralized tissues biomechanics is determinant to provide efficient diagnostic, prognostic, or healing strategies but remains a challenge due to the multitude of intricate (and non-linear) physical mechanisms that act over a range of spatial and temporal scales to govern mechanical performance. This mini-symposium focuses on the experimental and computational characterization of these mineralized tissues, with topics including, but not limited to: multiscale mechanics of bone and teeth; bone-interfaces: from bone to cartilage; from bone to ligament; from bone to teeth; bone-biomaterial interactions.