MS 1-8: Mechanics of Active and Coupled Materials

Organizers:

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Description of the symposium:

In recent years, there has been a revolution in responsive materials research, particularly soft materials reacting to external stimuli like electric/magnetic fields, temperature, or light. These materials can undergo significant deformations when activated, making them ideal for smart sensing devices and flexible electronics. Their unique microstructures can be further optimized for enhanced properties. Advances in computational modelling and additive manufacturing have led to new design possibilities at the microscale, allowing for "programmable" macrostructural responses. This minisymposium aims to unite researchers with experimental and modelling backgrounds to discuss the latest advancements and future directions in this evolving field. Topics of interest include, but are not limited to: • Electro-magneto-, photo-active polymers; • Responsive gels (hydrogels, ionic polymers, ...); • Liquid crystal elastomers and gels; • Experimental testing and validation; • Constitutive modelling and numerical simulation; • Multiscale approaches and homogenization; • 3D printing of soft smart materials; • Material and structural instabilities.