

### **MS4-3: Non-invasive and Inverse Methods for Constitutive Parameter Identification**

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Inverse problems arising in hybrid experimental - computational methods become more and more popular in many fields of mechanics. It has become a common practice to combine image based full-field displacement measurements custom inverse methods to infer the best-fit material parameters. Such approaches are now commonly developed for "non-evolving/stable" materials that can be tested in standard conditions in the lab or in-situ when other imaging modality than visible light are considered. However, there are many cases when materials have to be tested in vivo (e.g. soft biological tissues) or in operando (e.g. young age cement paste). The experimental protocol must then be non-invasive while the richness of the acquired data is preserved in order to maintain the full potential of full-field measurements and related inverse method for constitutive parameters identification.

Nowadays, these approaches offer important possibilities which aim at gaining better insight in the regionally varying and time-dependent properties of many materials. Important challenges in experimental mechanics are now to develop and implement hybrid experimental - computational methods. The main motivation of the symposium is to review the latest progress and permit scientific discussions on these methods by bringing together researchers interested in characterizing material properties in a non-invasive way.