MS 3-5: Nonlinear Elasticity

Organizers:

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Description of the symposium:

Nonlinear Elasticity is concerned with the development of constitutive theories and advanced analytical, experimental and computational methods for modelling large elastic deformations. Recent innovations in material, biological and chemical sciences that involve the use of multi fields have led to transformative changes of the mathematical theory that is needed to describe the associated coupled phenomena. Therefore, the purpose of this symposium is to review state of the art and to furnish a forum for discussions on a wide range of research in all fields comprising nonlinear elasticity. In particular, we encourage contributions in the areas of:

- mechanics and thermo-hydro-chemo-electro-magneto coupling
- mechanics of organisms
- surface elasticity
- fatigue and fracture in materials science
- generalized mechanics such as strain gradient and couple stress
- buckling and instabilities, non-equilibrium systems
- variational formulations, FEA and machine learning
- computational strategies for multiscale and multiphysics simulations in both static and dynamic regimes