

MULTIPHYSICS PROBLEMS ON BODIES THAT UNDERGO LARGE DEFORMATIONS – CONTINUUM MECHANICS AND NUMERICAL METHODS

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ABSTRACT

The minisymposium is aimed at researchers dealing with mechanical deformations of bodies that are significantly driven by non-mechanical effects in addition to classical mechanical forces. These multiphysics phenomena on bodies that are subject to large deformations can be manifold. Representative examples are thermomechanical forming processes, electroelastic or magnetoelastic interactions in soft materials [1], chemically driven swelling processes or inductively induced forming of shape memory alloys [2]. The focus of the contributions in this minisymposium is on continuum mechanical modelling of multiphysics phenomena in highly deformable bodies, on the formulation of constitutive equations accounting for the coupling of various physical fields and large deformations, or on advanced numerical methods for the spatial and temporal discretization for these coupled problems. In addition to these central aspects of the minisymposium, contributions are also welcome that deal with the problems arising when extending multiphysics models from small to large deformations.

REFERENCES

- [1] Dorfmann, L., Ogden, R.W., *Nonlinear Theory of Electroelastic and Magnetoelastic Interactions*, Springer, 2014.
- [2] Lagoudas, D.C., *Shape Memory Alloys*, Springer, 2008.