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Workshop on

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**Numerical relaxation of nonconvex functionals in phase
transitions of solids and finite strain elastoplasticity**

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Abstract: Time discretization of rate-independent models of phase transformations in elastic solids and finite strain elastoplasticity, generally leads to nonconvex minimization problems. The numerical analysis of these problems poses a very challenging task because of the enforced high oscillatory character of infimising sequences. Often, macroscopic properties of the resulting microstructure can be recovered by replacing the underlying potential with its quasiconvex hull. The latter is a nonlocal notion and extremely difficult to analyse in theory and computation. Other notions, more amenable to numerical treatment, such as finite laminates, rank-one convexity, and polyconvexity are introduced and a new class of algorithms for their approximations is introduced. In this talk we will therefore discuss numerical algorithms and their efficiency in applications to some benchmark problems.