

## MOR-BASED COMPUTATIONAL INELASTICITY

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### ABSTRACT

Efficient simulation of manufacturing processes remains today a challenging issue despite the impressive progresses reached in mechanical modeling, numerical analysis, discretization techniques and computer science during the last decade. Material processing involves multi-scale models in space and time, highly non-linear and anisotropic behaviors, strongly coupled multiphysics and complex geometries. Moreover, optimization (shape and process optimization), inverse analysis (parameter identification, non destructive testing ...) or process control need the solution of many direct problems, as fast and accurately as possible. In this context, model reduction techniques constitute an appealing simulation choice, making possible speeding up computations of several orders of magnitude, and even, the solution of models never until now solved. In this work we address the solution of different nonlinear models by using model order reduction techniques.