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Goal-Oriented Adaptive Modeling of 3d Elastoplasticity Problems

In finite element simulation of engineering applications, accuracy is of great importance. By applying a mesh adaptivity procedure more accurate results with lower computational effort can be achieved. For this purpose error estimation methods are utilized as guidance for mesh adaptation. Conventional error estimations compute the error in energy norms which are not of interest in engineering applications. Therefore, goal-oriented error estimations have been developed in order to approximate the error with respect to a quantity of interest. In the present work an efficient adaptivity methodology for analysis of three-dimensional elastoplasticity problems based on goal-oriented error estimation is developed and its performance is investigated through several numerical investigations.

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