

## Comparison of Stress Recovery and Displacement Recovery Techniques in Adaptive Finite Element Simulation of Sheet Forming Operations

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In the present work, a comparative evaluation of the performance of stress and displacement recovery techniques during adaptive finite element analysis of sheet forming operations is presented. The simulation results are assessed on the basis of computational efficiency and accuracy. Whereas in the case of the stress recovery procedure, an element patch surrounding and including a particular node is considered for the smoothing process, an element patch consisting of all the elements surrounding and including the particular element is taken into account in the case of displacement recovery procedure. The solution error is estimated on the basis of an energy norm. It is shown with the help of an illustrative example of axisymmetric stretching of a metal blank by a hemispherical punch that the velocity recovery approach captures the deformation behaviour more accurately and at lower expense of CPU time.

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