

## DSA for Elastic-Plastic Finite Rotation Shells under Dynamic Loads

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The paper describes a constitutive algorithm for elastic-plastic finite rotation shells and explicit dynamics with design derivatives calculated w.r.t. material parameters. Despite a great complexity of the solution algorithm for the finite rotation elastic-plastic shells, we show that it is feasible to compute analytical design derivatives of this algorithm, including in particular the very complicated design derivative of the internal force vector. We show on several computational examples that the yielded sensitivities are of very good accuracy.

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