

## An Implementation of Meshless Method for Modeling an Elastoplasticity Coupled to Damage

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**Abstract :** The modeling of mechanical problems including both material and geometric nonlinearities with Finite Element Method (FEM) remains challenging. Meshless methods offer special properties to get rid of well-known drawbacks of the FEM. The main objective of Meshless Methods is to eliminate the difficulty of meshing and remeshing the entire structure by simply insertion or deletion of nodes, and alleviate other problems associated with the FEM, such as element distortion, locking and others. In this study, a robust numerical implementation of an Element Free Galerkin Method for an elastoplastic coupled to damage problem is presented. Several results issued from the numerical simulations by a DynamicExplicit resolution scheme are analyzed and critically compared with Element Finite Method results. Finally, different numerical examples are carried out to demonstrate the efficiency of this method.

**Keywords :** damage, dynamic explicit, elastoplasticity, isotropic hardening, meshless

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