## Considerations on identification of damage parameters: a case study

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## ABSTRACT

The steady growth of commercial codes in recent years has fostered applications of phenomenological approaches to plasticity modelling in industrial settings. Furthermore, metal forming operations involving large plastic deformations are subject to mechanical degradation and failure thereby recommending use of damage models. The present work is inserted within this framework in which identification of material parameters for a Gurson-type [1] is discussed for a low alloy steel.

In this work, identification of material parameters is performed using optimization strategies based upon *global-local hybrid* techniques owing to the complexity of the material model and large number of constitutive parameters. This strategy consists in the application of *Particle Swarm Optimization* (PSO) [2] with the objective of reducing the search space, followed by use of the Nelder-Mead [3] downhill simplex method to finding the minimum. This strategy has already been successfully applied for classical von Mises materials in conjunction with the deep drawing operation [4].

## REFERENCES

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