

## Kinematic Hardening Parameters Identification with Respect to Objective Function

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**Abstract :** Constitutive modelling of material behaviour is becoming increasingly important in prediction of possible failures in highly loaded engineering components, and consequently, optimization of their design. In order to account for large number of phenomena that occur in the material during operation, such as kinematic hardening effect in low cycle fatigue behaviour of steels, complex nonlinear material models are used ever more frequently, despite of the complexity of determination of their parameters. As a method for the determination of these parameters, genetic algorithm is good choice because of its capability to provide very good approximation of the solution in systems with large number of unknown variables. For the application of genetic algorithm to parameter identification, inverse analysis must be primarily defined. It is used as a tool to fine-tune calculated stress-strain values with experimental ones. In order to choose proper objective function for inverse analysis among already existent and newly developed functions, the research is performed to investigate its influence on material behaviour modelling.

**Keywords :** genetic algorithm, kinematic hardening, material model, objective function

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