Material Parameter Identification of Modified AbdelKarim-Ohno Model

Authors : Martin Cermak, Tomas Karasek, Jaroslav Rojicek

Abstract : The key role in phenomenological modelling of cyclic plasticity is good understanding of stress-strain behaviour of given material. There are many models describing behaviour of materials using numerous parameters and constants. Combination of individual parameters in those material models significantly determines whether observed and predicted results are in compliance. Parameter identification techniques such as random gradient, genetic algorithm, and sensitivity analysis are used for identification of parameters using numerical modelling and simulation. In this paper genetic algorithm and sensitivity analysis are used to study effect of 4 parameters of modified AbdelKarim-Ohno cyclic plasticity model. Results predicted by Finite Element (FE) simulation are compared with experimental data from biaxial ratcheting test with semi-elliptical loading path.