

Optimization of distribution functions for the Inverse Preisach model by genetic algorithms

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Abstract : In the NDT procedure is very important to be informed about modification happened in structure in particular in the ISI. The prediction life can be studied by using the inverse problem. In our study an efficient method, called the inverse distribution function, for calculating the magnetic field strength H from the flux density B through the Preisach model is developed. According to this technique, H can be obtained from B by determining the parameters of the proposed distribution function using genetic algorithms. Various distributions functions will be studied to determine which function gives the best distribution for modeling the hysteresis loop and give maximum information with minimum error on what happened in the microstructure.

Keywords : Hysteresis curve, Ferromagnetic material, Preisach Model, inverse distribution function, Genetic Algorithmus