

Determination of distribution functions and optimization of parameters for the Preisach hysteresis model by Practical Swarm Optimization (PSO)

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Abstract : In this work we present the Preisach model for the simulation of the magnetic hysteresis. This model is able to represent the hysteresis property of various materials if its distribution function $\mu(?,?)$ and its parameters are well determined. Four distributions functions, the modified Lorentzian, Gaussian, Gauss-Gauss and lognormal- Gauss are used and optimized to simulate the hysteresis loops. In the last step, the optimal distribution function and there parameters of the Preisach model are determinate via practical swarm optimization (PSO) and results are compared with experimental ones.

Keywords : Preisach Model, Distribution Function, practical swarm optimization (PSO)