

عنوان مقاله:

A new neural network and an ANFIS network based hysteresis modeling approach based on Preisach model

محل انتشار:

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خلاصه مقاله:

One of the main issues in modeling the behavior of electric machineries is the process of modeling the magnetic material used in such machineries. Almost all ferromagnetic materials display a set of behaviors which are known under the term of magnetic hysteresis. Models which are proposed for the hysteresis phenomenon based on the physical behavior of ferromagnetic materials, such as Preisach, is so complicated which require large computer storage and also consume a lot of time for calculation. Therefore, artificial neural networks and combination of fuzzy logic with neural networks could be considered as suitable alternatives since along with featuring a high accuracy, they are fast and require less computer storage. Using multi-layer feed-forward neural networks and an Adaptive Neuro Fuzzy Inference System (ANFIS) network in the following paper, a model for magnetic hysteresis is proposed which could model all internal loops along with the main hysteresis loop. Results to the simulation suggest a good agreement between the aforementioned model and accurate model of Preisach

کلمات کلیدی:

Hysteresis identification, preisach model, neural network, perception, radial basis function (RBF), fuzzy logic, ANFIS , Adaptive Neuro Fuzzy Interference

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