

MAGNETIC HYSTERESIS OF SOFT MAGNETIC MATERIAL UNDER AN APPLIED CONTINUOUS EXTERNAL MAGNETIC FIELD

- [Hamza Houassine](#), [Djelloul Moussaoui](#), +1 author [Samir Moulahoum](#)
- Published 2014
- Materials Science

Electromagnetic systems such as AC machines have to support supply voltages containing a DC component which induces both an increase of the total magnetic losses and the premature saturation of the magnetic core. In the present paper, we present an approach for predicting the hysteresis loop of a magnetic material such as non oriented FeSi 3% which is subjected to a DC bias. The measurements are carried out with a bench test built around an Epstein frame. The material is excited with a damped sinusoidal flux density superimposed to a known continuous field. We obtain superimposed asymmetrical hysteresis loops. The cycles are modeled via the Preisach Model (PM) [1], which provides both a mathematical model for the B(H) curve and an analytical approach which identifies and predicts the parameter behaviour needed by the PM. LESS