Christian-Albrechts-Universität zu Kiel

Technische Fakultät

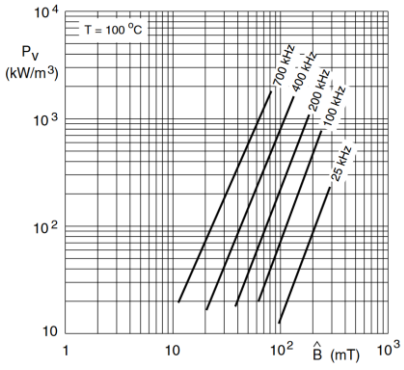
Laboratory set-up for power loss measurement in soft ferrites used for power conversion

Master's Thesis

Contact: Yoann Pascal — Prof. Dr.-Ing. M. Liserre

Email: yopa@tf.uni-kiel.de

***Abstract*– Losses in soft magnetic materials commonly used in power electronics converters are complex physical phenomena, yet to be fully understood. Due to a lack of analytical and numerical models, extensive testing is required to assess magnetic losses. Small signal measurements are quite trivial but high-induction measurements are also required because said materials are highly non-linear.**



Background–This thesis will focus on the design of a set-up able to characterise losses in soft magnetic materials under high-amplitude triangular excitation with DC-bias (0-200 mT), over a wide bandwidth (up 1 or 10 MHz). It is intended to characterise commercial materials as well as samples developed at the TF. One further issue resides in the shape of the samples, which are cylindrical.

Objectives:

- Review of set-up for loss-measurement in soft magnetic materials under moderately high induction
- Simulation and design of a set-up.
- Experimental tests aiming at proving the validity of the approach.

Type of the Work:

- Simulations
- Laboratory

Language of the Thesis:

- English

Connected Project:

N.A.

PE