

# Bachelor Thesis

## Program for demagnetizing power transformer cores with a power amplifier

### Initial situation and motivation

The Institute of Electrical Systems and Networks (IEAN) is conducting tests with power transformers in the saturation range as part of a research project. Due to the hysteresis curve of the magnetic transformer core, a residual magnetization, the remanence, remains after switching off. Therefore, the transformer must be demagnetized before or after each test. To do this, the voltage and, if necessary, the frequency is changed with a variable source, thereby reducing the remanence to almost 0 Vs. Two freely programmable power amplifiers are available at the IEAN that can be controlled via Simulink.



Abb.1 Laborversuch mit Leistungstransformatoren am IEAN

### Research questions

- How could a control of voltage, current, and frequency be implemented in Simulink?
- Which physical quantities must be measured how and where in order to use the control?
- What is the residual remanence after demagnetization?

### Tasks

- Development of a control in Simulink
- Implementation and testing of the control algorithm at PHIL/lab of IEAN
- Measurement setup on the power transformer
- Development of a graphical user interface for easy control of the program

### Organization matters

**Start immediately**

**Language: German or English**

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