

Magnetic Flux Density of a Coil of Wire

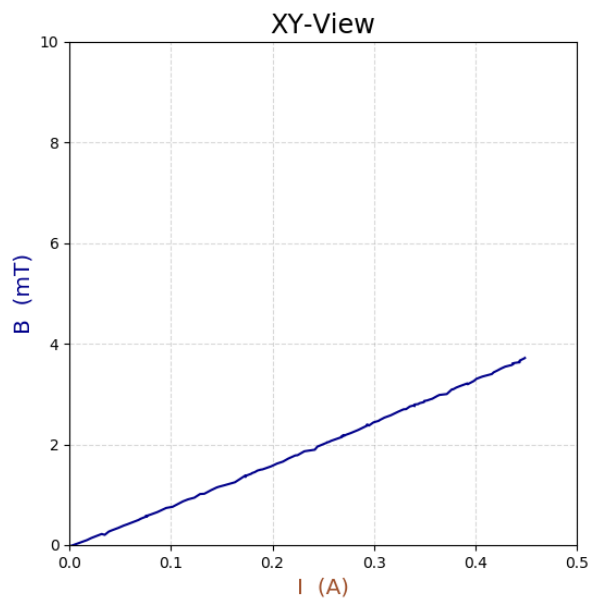
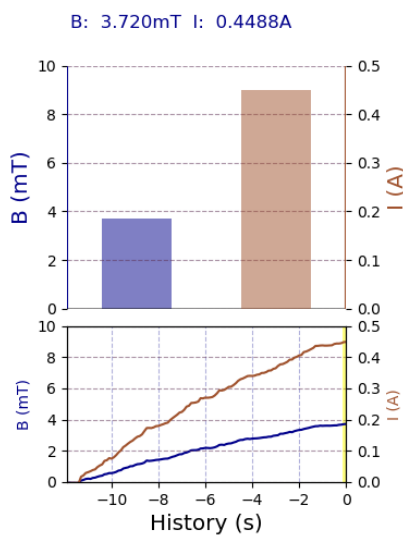
PhyPiDAQ
Digital Measurement System Based on Raspberry Pi



Objectives:

- Measure the magnetic flux density at the centre of a coil of wire when the current is gradually increased by connecting the MLX90393 triple-axis magnetic sensor and the INA219 current measuring sensor at the Raspberry Pi.
- Use various graphical capabilities of the PhyPiDAQ-Software to visualize the magnetic induction at the centre of the coil against the current intensity for different coils.
- Employ spreadsheets like LibreOffice or Excel to the recorded data to compute the magnetic permeability.

Magnetic induction B in the center of a coil



Various graphical representations on the PhyPiDAQ-window as measuring the magnetic flux density at the centre of a coil carrying a linear increasing current.

Configurations:

-Configure the experiment and the two sensors, the INA219 current measuring sensor and the MLX90393 triple-axis magnetic sensor on the Graphical Interface of the PhyPiDAQ Software according to

[Magnetfeld_B+I300Wdg.daq](#)
[INA219Config.yaml](#)
[MLX90393Config.yaml](#)

Circuit Diagram

