



Contribution ID: 47

Type: **not specified**

## NC dynamic effects, reproducibility

*Tuesday 28 November 2023 09:30 (1 hour)*

This lecture concerns the techniques to measure and model mathematically non-linear effects in iron-dominated magnets, with the aim to control the magnetic field with a high precision, 100 ppm or better, as typically required in particle accelerators. The topics covered include a review of the physical phenomenology of magnetic saturation, hysteresis and eddy currents in material samples and accelerator magnets, as well of the most popular models to represent them; a discussion on the available instrumentation and measurement techniques; and a survey of open-loop and closed-loop (feedback-based) magnetic field control methods, with a critical comparison about their cost and effectiveness.

**Presenter:** BUZIO, Marco (CERN)