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1. Introduction

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At CERN, a new electron cooler is being commissioned for the AD experiment. This cooler shoots electrons into ion-beam path. These electrons then collide with the beam particles, and momentum is transferred from the beam particles to the electrons. The electrons are then steered away from the beam path, into an electron collector.

In the beam path drift of the cooler, a solenoid magnet is used to orient the electron path. This magnet comes with strict requirements on field quality, in the order of $\vec{B}_{\perp}/\vec{B}_{\parallel} < 10\text{E}{-}10$. A new measurement system for solenoids has been proposed, using coils wound on a pcb. This pcb is then translated through the solenoid aperture, to obtain maps of the magnetic field. In this thesis, the metrological characterization of this system is presented, along with some post processing methods.

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