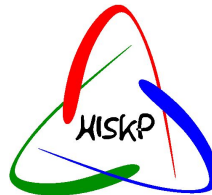


color
meets
flavor



UNIVERSITÄT BONN



A Dipole Magnet for INSIGHT

Sebastian Neubert

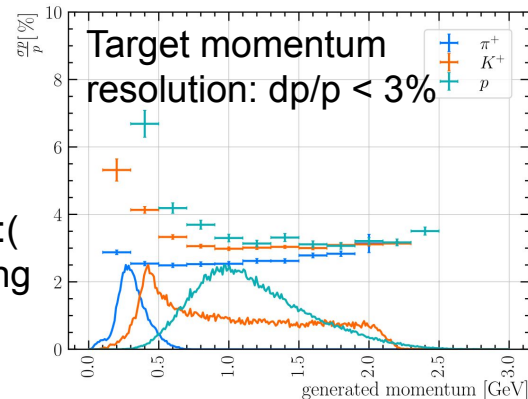
CmF TA1 Kick-Off Meeting 14.11.2025

First Magnet Design

- Developed together with Danfysik
- Momentum acceptance: $p > 100 \text{ MeV}/c$
- Field: $\sim 0.3\text{T} \rightarrow$ Bending power: $\sim 0.15\text{Tm}$
- Movable (every 3days) \rightarrow „light weight“ estimate: 16T
- Small residual field at pol target

First Simulation Studies

Postdoc left :
Genfit tracking

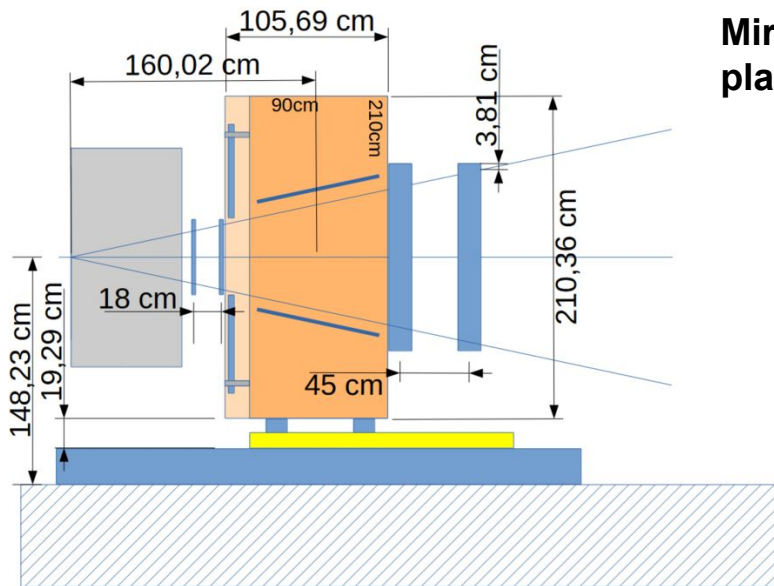
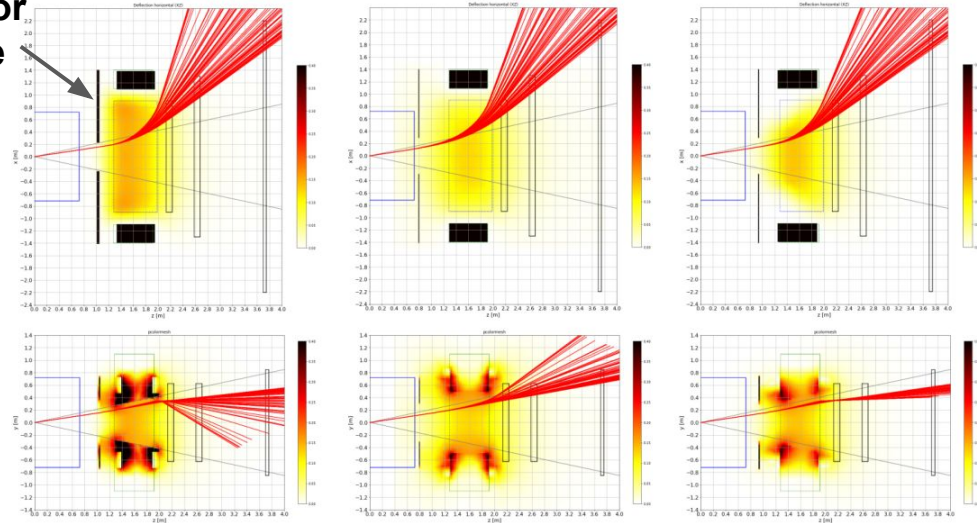


Tracks of charged pions with momentum of 50-100MeV/c

Mirror plate
First idea

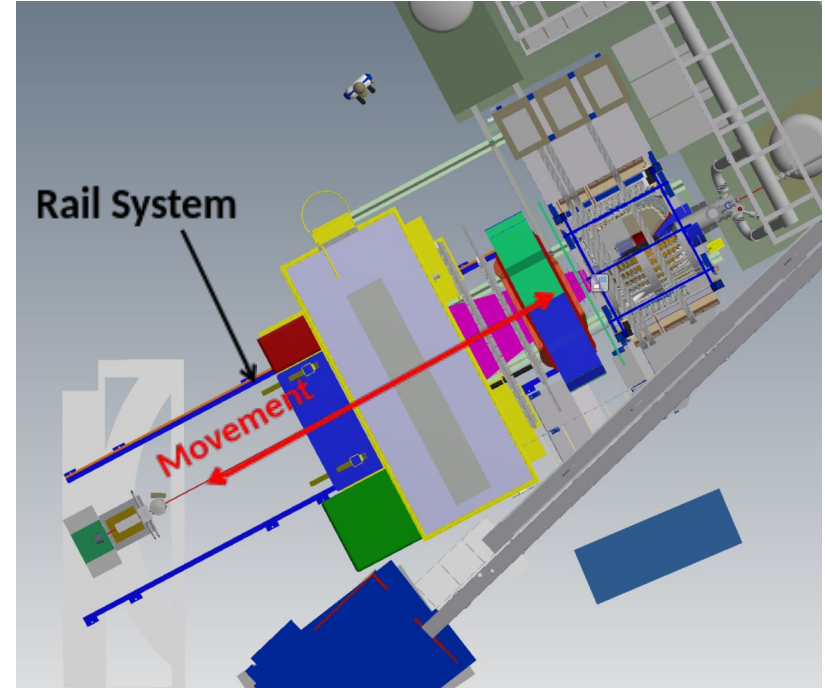
BGOOD

LHCb-like



Critical Requirements

- We need the magnet + power supply + monitoring & controls and rail system
- Proposal: Field-Map measurement as internal PHD project
- Field stability (inkl ripple) well below 1%, 10^{-4} seems feasible (ACT)
- Rail System, accuracy 10^{-4} would be challenging. Needs more studies and engineering input here!
- Compact power supply



Project needs action now!

- Two step development
 - a. **Design Project** working out specifications with engineering office
 - b. **Production Project**
- But: production companies like to have everything in one hand
- **Need a Postdoc to drive this project** (connections to tracking software and supervise fieldmap PhD)
- Potential team at HISKP: S.N., C. Schmidt, M. Gruener, M. Kerp (Technician),

Companies contacted (Summer 2024):

- Danfysik
- Partzsch
- **ACT Engineering office** (very productive interaction)
- SigmaPhi

Price and production time will be driven by production capacities (= mounting space) at the factories