

Preparation for polarization experiments/magnetic field mapping

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We discussed plans for preparation of

- Pre-magnetization of the foils of the polarizers
- Characterization of the polarizers' magnetic field properties
- Magnetic field mapping

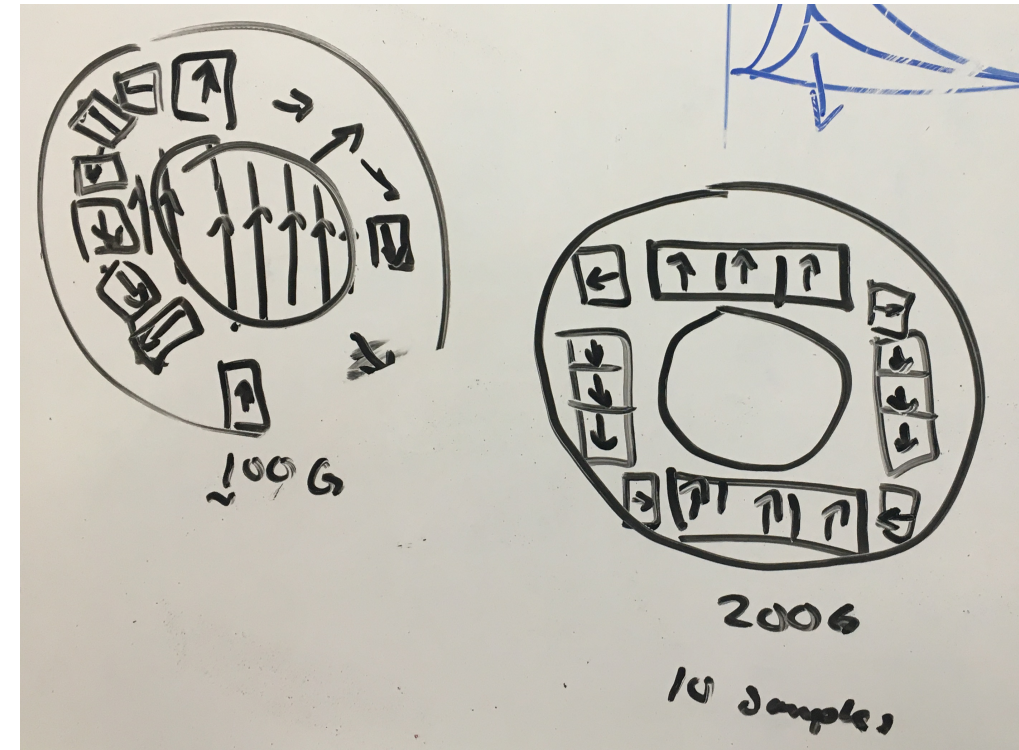
Pre-magnetization of the foils

- The foils of the polarizers must be magnetized prior to the installation of the holder with permanent magnets
- We will use a coil in the proton hall extension, which was used for degaussing the floor in summer
 - Can apply up to 20 mT (200 G), even 40 mT (400 G) with a higher-current power supply
 - We will place the foil at the center of the coil, ramp up the field, slowly turn it off
 - To transport it without demagnetizing it, we will sandwich it with mu-metal sheets
- We need...
 - To ask permission to use the coil and to borrow the power supply and mu-metal sheets → Fabian (Today)
 - To prepare a holder to keep the foil vertical against the floor during (and height adjuster), mu-metal sheets → Sean HR
 - Characterize the field before actual the magnetization.



Characterization of the polarizers

- After the Halbach array-holder arrives to TRIUMF (next Friday?) and the foil is placed,
 - To check the identity and confirm the orientation of the foils
 - Sean to confirm the date
- We will characterize the field around the polarizers using the mapping stand
 - Sean HR & Fabian



Magnetic field mapping

- The plan is to do a mapping with the layout of TCN19-050
 - With SCM ON (should use a Hall probe) and OFF
- Would like to assemble the setup, and then remove the guides between the polarizers before mapping
 - Measure the B-gradient as a function of position to help setup the SF parameters
 - Also to confirm that the adiabaticity condition is satisfied and there is no zero-crossing
- Will assemble the mapping stand to check the feasibility
 - Fabian (today)
- Will re-write a LabVIEW program for the Hall probe
 - Takashi (today)
- Will estimate how much time we need for measurement
 - In summer: 5 s for one point, 3.5 h for >400 points (incl. breaks) (so probably less than 3h)
 - Fabian & Takashi (today)

