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Polarized target at COMPASS

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In 2018 the COMPASS experiment at CERN applied a transversely solid polarized proton target with a negative pion beam to measure the Sivers asymmetry using Drell-Yan process. The target system consists of a 50 mK dilution refrigerator, a 2.5 T solenoid magnet, two sets of 70 GHz microwave system. Solid NH_3 beads of the target material was contained in 2-target-cell of 55-55 cm long with a 4 cm diameter. The longitudinal polarization of the target is obtained by the DNP method. After polarizing for 1 day, the spin was oriented perpendicular to the beam direction by using a 0.6 T dipole magnet and the data was taken for 6 days.

I will present the results of the proton polarization, the relaxation time during the data taking and the radiation damage of the target material.

In 2021 the experiment will exchange the NH_3 target material for ^{6}LiD as a polarized deuteron target in order to perform SIDIS program with muon beam.
I will also present the status of the preparation.

Summary

Primary author: Dr DOSHITA, Norihiro

Presenter: Dr DOSHITA, Norihiro

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