Contribution ID : **116** Type : **poster**

Status of the analysis for the search of polarization in the antiproton production process

Saturday, 4 June 2016 16:00 (1:30)

Collaboration

P-349

Abstract content

A wide range of fundamental effects in the hadronic sector can be investigated only by means of controlling the spin degrees of freedom. Even though polarized beams of protons are routinely produced, preparation of polarized antiproton beam still poses a formidable challenge [1].
The way to achieve it would be relatively easy if some polarization is created during the antiprotons production. For the time being there are no experimental studies performed in this direction. However, e.g. in the hyperon production in the collisions of high energy unpolarized protons with an unpolarized target the produced hyperons show a significant degree of polarization [2]. The goal of the P-349 experiment performed at the T11 beamline of the CERN/PS complex is to find out whether also produced antiprotons show polarization [3].
Antiprotons with a momentum spectrum peaked around 3.5 GeV/c were produced by bombarding the solid target with an unpolarized proton beam of momenta equal to about 24 GeV/c. This corresponds to the typical conditions of the antiproton beam production in existent and planned facilities. The degree of antiprotons polarisation will be investigated via the measurement of asymmetry in the direction of the antiprotons elastic scattering on a liquid hydrogen target (in the reaction $\bar{p}p \to \bar{p}p$) in the Coulomb-nuclear interference region with the expected analyzing power A_y equal to about 4.5% [3].
In this presentation the experimental setup wil be presented and the status of the ongoing analysis focused on the track reconstruction and particle indentification will be shown.
[1] E. Steffens, AIP Conf.Proc. 1149, 80-89 (2009)
[2] E. J. Ramberg, Phys. Lett. B 338, 403-408 (1994)
[3] D. Grzonka, et. al., Acta Phys. Polon. B 46 191 (2015)

Primary author(s) : ALFS, Dominika (Institute of Physics, Jagiellonian University, Kraków)

Presenter(s) : ALFS, Dominika (Institute of Physics, Jagiellonian University, Kraków)

Session Classification : Poster Session