Study of Excited Ξ Baryons in $\bar{p}p$-Collisions with $\overline{\text{P}}$ANDA

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Abstract

One of the main goals of non-perturbative QCD is the understanding of the excited baryon spectrum. The PANDA experiment is well-suited for a comprehensive baryon spectroscopy program. A large fraction of channels produced in $\bar{\mathrm{p}}\mathrm{p}$ collisions are resulting in a baryon-antibaryon pair in the final state.
Antiproton-proton collisions allow also the study of baryon-antibaryon final states in their respective excited states. Mostly interesting is the study of Ξ baryons due to the rare information about their excited states. The comparison of these excited states to the better known excited spectrum of nucleons should offer a deeper understanding of the inner structure of baryons.
A strategy of studying excited Ξ baryons in antiproton-proton collisions based on an example will be presented.

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1 Motivation

2 Event generation

Here comes the EvtGeneration!
first key words!!!!
- parameter for evt generation

Table 2.1: Parameter for event generation

Parameter	Value
Beam momentum	4.6 GeV/c^2
Production	PHSP
Tracking	Ideal
Particle ID	Ideal

- beam momentum: 100 MeV over threshold
- assumed: highest cross section (Quelle!!!!!!)
- Software Framework: Pandaroot

Table 2.2: Used software versions

Software	Version
FairSoft	mar15
FairRoot	v-15.03a
PandaRoot	trunk revision 28555
Geant	3
Genfit	1

3 Analysis

4 Background