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Hypernuclear Physics at PANDA

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Hypernuclear research will be one of the main topics addressed by the PANDA experiment at the planned Facility for Antiproton and Ion Research FAIR at Darmstadt, Germany. A copious production of double Lambda-hypernuclei at a dedicated internal target in the stored antiproton beam is expected, which will enable the high-precision gamma-spectroscopy of double strange systems for the first time.
In addition to the general purpose PANDA setup, the hypernuclear experiments require an active secondary target of alternating silicon and absorber material layers and high purity germanium (HPGe) detectors. The design of the setup and the development of these detectors is progressing: a first HPGe crystal with a new electromechanical cooling system was prepared as a prototype gamma-detector and the properties of a silicon strip detector for use in the secondary target were studied.
Simultaneously to the hardware projects, detailed Monte Carlo simulations were performed to predict the yield of particle stable hypernuclei, and a procedure for double hypernuclei identification by their decay particle detection was developed.

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