

Commissioning of the hypertriton binding energy measurement at MAMI

Wednesday, 29 June 2022 10:10 (20 minutes)

A new experiment is prepared at the Mainz Microtron facility to determine the hypertriton Lambda binding energy via decay pion spectroscopy, which was successfully pioneered with hydrogen-4- Λ in the last decade. The experiment makes use of a novel high luminosity lithium target with a length of 50 mm while being only 0.75 mm thick to keep momentum smearing of the decay pions low.

A proper target to beam alignment as well as the observation of the deposited heat is achieved with a newly developed thermal imaging system. Together with a precise beam energy determination via the undulator light interference method a recalibration of the magnetic spectrometers will be done to obtain a statistical and systematic error of about 20 keV. The experiment will run during summer of 2022.

This project is supported by the Deutsche Forschungsgemeinschaft, Grant Number PO256/7-1 and the European Union's Horizon 2020 research and innovation programme No. 824093.

Primary author: ECKERT, Philipp (JGU Mainz)

Co-authors: ACHENBACH, P.; AKIYAMA, T.; DISTLER, M. O.; ESSER, A.; GERATZ, J.; HOEK, M.; ITABASHI, K.; KANETA, M.; KINO, R.; KLAG, P.; MA, Y.; MERKEL, H.; MIZUNO, M.; MÜLLER, U.; NAGAO, S.; NAKAMURA, S. N.; NAKAMURA, Y. N.; OKUYAMA, K.; POCHODZALLA, J.; SCHLIMME, B. S.; SFIENTI, C.; SHAO, T.; CHEN, J.; SPRECKELS, R.; STEINEN, M.; TACHIBANA, K.; THIEL, M.; TOYAMA, Y.; UEHARA, K.

Presenter: ECKERT, Philipp (JGU Mainz)

Session Classification: 3; Wed-I