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Measurements of the UCN energy spectra and their time evolution in a large storage volume

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The energy spectrum of ultracold neutrons (UCN) is an important factor in determining the systematic effects in precision measurements utilizing UCNs. We performed UCN energy spectrum measurements in a large storage tank filled by the PSI UCN source and studied its time evolution using OTUS - an oscillating spectrometer [1]. The obtained results will be compared to the TOF method and a detailed Monte Carlo simulation [2]. In this contribution, the current status of the OTUS project will be reported including the evolution of the energy spectrum for different UCNs storage times.

References:
[1] D. Rozpedzik, et al., EPJ Web of Conf. 219, 10007 (2019).
[2] G. Bison, et al., EPJ A 58, 103 (2022).

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