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WASA-FRS HypHI experiment at GSI for studying light hypernuclei

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Very recently, from January till March in 2022, the WASA-FRS HypHI experiment was performed at GSI for measuring the lifetime of the hypertriton and the ${}^{4}_{\Lambda}\mathrm{H}$ hypernucleus precisely as well as for confirming whether or not the $nn\Lambda$ bound state can exist. The experiment has been carried out with the WASA central detector with a complex of additional dedicated detectors mounted together at the mid-focal plane of the high-momentum-resolution forward spectrometer, so-called the fragment separator FRS. Hypernuclei of interest have been produced by induced reactions of ${}^{6}\mathrm{Li}$ projectiles at $1.96\,\mathrm{AGeV}$ on a diamond target of $9.87\,\mathrm{g/cm^2}$. Negative charged π mesons from two-body decays of hypernuclei of interest are measured by the WASA and the other detectors, and residual nuclei after the π^- decay are measured by the FRS with a momentum resolving power of 10^4. Details of the experiment and preliminary results will be discussed.

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