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The ISOLDE Decay Station: recent activities and perspectives

The ISOLDE Decay Station (IDS) was designed as a flexible tool for decay spectroscopy studies, operating since 2014 at ISOLDE. At the core of IDS there are 4-6 HPGe clovers to detect γ rays with high energy resolution together with a moving tape system and a complex array of ancillary detectors such as LaBr₃:Ce crystals to measure excited-state lifetimes down to a few picoseconds, silicon detectors (annular, PAD, DSSSD, Solar Cell) for charged particle (p , α , e^- , e^+) or β -delayed fission fragments spectroscopy and an efficient plastic scintillator array acting as a neutron Time-of-Flight detector for β -delayed neutron emission studies. In recent years, IDS has also been used as a decay-spectroscopy tool for in-source laser spectroscopy studies together with RILIS.

Following the end of the CERN Long Shutdown 2 development campaign, ISOLDE has resumed the experimental campaign in June 2021 and implemented a major upgrade for the support structure of the detectors in April 2023. There have been several new decay spectroscopy experiments performed at IDS that will be highlighted in the current presentation, including the May 2023 fast-timing campaign, alongside a detailed description of the setup and future development plans.

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