Recent Results from the DESPEC campaign at GSI

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The HISPEC-DESPEC collaboration aims at studying the evolution of the shell structure and exotic nuclear shapes in uncharted nuclear territory, providing spectroscopic information for the nucleosynthesis of medium to heavy nuclei, exploiting the uniqueness of the GSI-FAIR laboratory. In this first years after the restart of GSI, starting from early commissioning in 2019 to real experiments in 2020-2023, the collaboration focused on stopped-beams experiments, with the aim of providing a complete picture of the β-decay process and mapping the existence of new isomeric states. The use of the FATIMA array coupled to HPGe detectors provides, in fact, a detailed reconstruction of the decay scheme with a particular focus on specific observables, such as levels lifetimes [1, 2]. In this contribution a detailed description of the detection equipment and first results of the campaigns, together with an outlook onto the future experimental program will be given.

References

[1] A. K. Mistry et al., Nucl. Instrum. Methods Phys. Res. A 1033 (2022) 166662;

[2] M. Rudiger et al., Nucl. Inst. and Meth. A 969 (2020) 163967.