Stress-Testing AGATA: Benchmarking the High-Spin Capabilities of the 1π AGATA Spectrometer at LNL

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The Advanced Gamma Tracking Array (AGATA) is currently undergoing a series of upgrades and commissioning phases at Laboratori Nazionali di Legnaro (LNL). Central to its success is the ability of the spectrometer to achieve maximum sensitivity and spectral quality under the extreme data rates characteristic of high-spin nuclear structure studies.

This presentation discusses the ongoing analysis of a dedicated commissioning experiment designed to benchmark the current 1π configuration of AGATA in both standalone and ancillary-coupled modes. Using the 130Te(32S,4n) reaction to populate high-spin states in 158Er, the study evaluates the spectrometer's performance across varying event rates. We explore key performance metrics, including the stability of the trigger processor and the impact of hardware "fold" triggers on the resulting high-fold coincidence data and spectrum quality.

Current progress of the analysis is presented, alongside a comparison with historical high-spin benchmarks to contextualise the current capabilities of the array. Finally, we discuss the implications of these findings for the future of high-spin spectroscopy with tracking detectors, particularly in view of the transition toward Phase 2 electronics and upcoming experimental campaigns.