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Gamma-ray tracking with AGATA: A new perspective for spectroscopy at RIB facilities

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The Advanced GAMMA Tracking Array is a next generation high-resolution gamma-ray spectrometer for nuclear structure studies based on the novel principle of gamma-ray tracking. It is built from a novel type of high-fold segmented germanium detectors which will operate in position-sensitive mode by employing digital electronics and pulse-shape decomposition algorithms. The unique combination of highest detection efficiency and position sensitivity allows sensitive spectroscopy studies with instable beams of lowest intensity. The first implementation of the array consisted of five AGATA modules; it was operated at INFN Legnaro. A larger array of AGATA modules was used at GSI for experiments with unstable ion beams at relativistic energies. At the moment the spectrometer is hosted by GANIL. In the near future AGATA will be employed at the leading infrastructures for nuclear structure studies in Europe. The presentation will illustrate the potential of the novel gamma-ray tracking method by physics cases from the different exploitation sites. Perspectives and opportunities for future RIB facilities given by the new spectrometer will be presented.

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