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The Advance GAMMA Tracking Array at GANIL

The European experimental γ -ray spectroscopy community has a long-standing tradition of coordinated efforts to build large scale high-energy resolution arrays. However, the advent of position sensitive Ge detectors has opened the possibility to build arrays based on the γ -ray tracking concept, providing an unprecedented level of sensitivity and efficiency. In this context, AGATA is the result of a collaboration, involving more than 40 institutes in 12 countries, and its conceptual design foresees a 4π array with 180 Ge encapsulated detectors.

Since 2014 AGATA sub-arrays have been installed at GANIL, where experiments with high-intensity stable beams and reaccelerated ISOL radioactive beams have been performed. A large HPGe array associated to different ancillary detectors has opened unique opportunities for high-resolution γ -ray spectroscopy of exotic nuclei.

Using the VAMOS++ magnetic spectrometer, proton- and neutron-rich nuclei were populated via heavy-ion collisions to perform prompt spectroscopy, determining level schemes and lifetimes of excited states via different experimental techniques.

Making use of the NEDA neutron detector and the DIAMANT CsI array, nuclear species close to the proton drip line were investigated in heavy-ion fusion-evaporation reactions.

Finally, after the completion of the SPIRAL1 upgrade, radioactive elements have been investigated by secondary transfer reactions, using the MUGAST array.

Choix de session parallèle

6.1 SPIRAL 2 : programme scientifique et premiers résultats

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