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VAMOS : Performances and Physics Opportunities

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The Variable Mode Spectrometer (VAMOS) is a large acceptance magnetic spectrometer at the Grand Accélérateur National d'Ions Lourds (GANIL), France, that allows to reconstruct charged-particle trajectories. The performances of the spectrometer allow to identify a large range of products in terms of mass, nuclear charge, ionic charge state and velocity vector from nuclear reactions. During the last years, different experimental campaigns were carried out using the VAMOS spectrometer both, in a single mode, such as the fission program in inverse kinematics, or coupled with additional detectors. Particularly remarkable was the coupled operation with the Advanced GAMMA Tracking Array (AGATA) exploring physical cases covering nuclear structure and nuclear reactions studies. The highly-segmented silicon array (MUGAST) campaign offered the opportunity to study nuclear structure and astrophysics from direct reactions benefiting from exotic SPIRAL1 beams.

Along with the different campaigns, the VAMOS spectrometer underwent continuous improvement in terms of detection and electronics that allowed to exploit its capacity reaching unprecedented results.

In this talk, I will present an overview of the recent experimental campaigns that were carried out with the VAMOS spectrometer as well as the improvements of the setup that drove the spectrometer and the associated detectors to the current state.

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