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## Analysis of EXP-017 and EXP-022: Challenges, Solutions, and Future Directions

*vendredi 13 septembre 2024 12:30 (15 minutes)*

This presentation explores results from two experiments, EXP\_017 (23.015) and EXP\_022 (22.096), focussing on high-spin states in  $^{136,137}\text{Nd}$  and octupole deformation in uranium isotopes, respectively.

In EXP\_017, the investigation centered on the decays out of highly deformed rotational bands in  $^{136}\text{Nd}$  and  $^{137}\text{Nd}$ . These bands challenge existing nuclear structure theories by persisting in high-energy regions where damping is typically expected. The experiment aimed to utilise the AGATA detector array coupled to the EUCLIDES ancillary device to perform high-statistics measurements, enabling the identification of low-lying states and the determination of spin and parity. Despite challenges with efficiency and background, preliminary results suggest future promise at running this type of experiment with AGATA.

EXP\_022 aimed to study octupole deformation in  $^{226}\text{U}$  and  $^{228}\text{U}$  isotopes, which are predicted to exhibit “pear-shaped” structures. The experiment used the AGATA, PRISMA, and DANTE detector arrays to study these isotopes through multinucleon transfer reactions induced by a  $^{129}\text{Xe}$  beam on a  $^{232}\text{Th}$  target. Analysis of the experiment is ongoing and preliminary results are to be presented.

**Auteur principal:** SULLIVAN, Conor (University of Liverpool)

**Orateur:** SULLIVAN, Conor (University of Liverpool)

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