



ID de la contribución : 881

Tipo : no especificado

## In-beam gamma-ray spectroscopy of $^{136}\text{Te}$ within the HiCARI project

*miércoles, 20 de noviembre de 2024 10:45 (15)*

With the arrival of the HiCARI campaign [1] to the RIBF facility at RIKEN (Japan), a series of in-beam  $\gamma$ -ray spectroscopy experiments was performed in order to expand the previous spectroscopic information on exotic, neutron-rich nuclei of intermediate mass. Previously, incompatible results regarding the reduced transition probability for the decay of the first excited  $2^+$  state,  $B(E2)$ , in  $^{136}\text{Te}$  were reported from Coulex experiments and direct lifetime measurements using the fast-timing technique [2-5]. Due to the better energy resolution of the Ge detectors forming the HiCARI array, as compared to the previously used DALI2 NaI(Tl) array [6], in experiment NP1912-RIBF193 it is possible to extract, from the same data set,  $B(E2)$  values from the cross sections measured for the inelastic excitation on Au and Be targets on the one hand and the analysis of Doppler-shifted lineshapes on the other. The new results will shed light on the conflict between transition strengths derived from Coulex and lifetime measurements reported for several nuclei in the literature. In this conference I aim to present lifetime results for the excited states of  $^{136}\text{Te}$ , populated via Coulex and one neutron knockout reactions. Moreover, a comprehensive description of the employed analysis methods, as well as a full characterization of the HiCARI array and its sources of systematic uncertainties will be presented, as other cases corresponding to different lifetime regimes (e.g.  $^{131}\text{Sn}$ ,  $^{131}\text{In}$ ) were studied in detail too.

### References

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### Abstract

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**Clasificación de la sesión** : Red FNUC (Red Temática de Física Nuclear)

**Clasificación de temáticas** : Red Temática de Física Nuclear (FNUC)