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Disentangling second-order effects in Coulomb Excitation Theory: (Reorientation and Nuclear Polarizability Effects)

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Abstract content ** ** (Max 300 words) **Formatting &** **Special chars**

We aim at disentangling the second order-effects in Coulomb Excitation (Reorientation Effect and Nuclear Polarizability). A safe coulomb excitation experiment was performed to study the nuclear polarizability and reorientation effects through measuring the spectroscopic quadrupole moment Q_{2s} for the first 2_{1+} in ^{40}Ar . A beam of $^{40}\text{Ar}^{6+}$ at 134 MeV with typical currents of ≈ 0.5 to 1 nA was provided by the Cyclotron accelerator facility at iThemba Labs, which was Coulomb excited on a $\approx 1 \text{ mg/cm}^2$ ^{194}Pt target. A double sided CD-type S3 silicon detector was used to detect particles at forward angles in coincidence with gamma-rays. The deexcited gamma-rays from the residual nuclei were detected using the AFRODITE array (5 clover detectors at 90° and 3 at 135°). A semi-classical couple channel Coulomb Excitation code, GOSIA, will be utilized to extract the matrix element for the Q_{2s} (2_{1+}) from the experimental data.

Apply to be considered for a student award (Yes / No)?

Yes

Level for award (Hons, MSc, PhD, N/A)?

MSc

Main supervisor (name and email) and his / her institution

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Would you like to submit a short paper for the Conference Proceedings (Yes / No)?

No

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Yes

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