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Discrepancies between (p,p') and (g,xn) experiments

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High energy-resolution proton inelastic scattering experiments with $E_{p'} = 200$ MeV were performed on the even-even Nd isotope chain and ^{152}Sm . The experiments focussed on the excitation-energy region of the Isovector Giant Dipole Resonance (IVGDR) and made use of the zero-degree mode of the K600 magnetic spectrometer at iThemba LABS. A goal of the highlighted study was to confirm the K -splitting observed in previous photo-absorption measurements at Saclay. The comparison of the shape of the IVGDR in the transition from spherical to deformed nuclei yielded significant discrepancies between equivalent photo-absorption cross sections obtained from the K600 data and the photo-absorption data obtained at Saclay. In addition, discrepancies have also been observed between photo-absorption data taken at the Saclay and Livermore laboratories. These discrepancies will be discussed along with future investigations into the possible reasons for them, which include coincident particle detection experiments to study the (g,p) contribution to the overall cross section.

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

No

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

N/A

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