Contribution ID: **132**   Type: **Poster Presentation**

Measurement of the photoabsorption cross section of ^{24}Mg.

Accurate nuclear data is a key factor in determining the suitability and reliability of many theoretical nuclear models and large scale calculations. One of the main ingredients of these calculations is how the nuclei respond to an electromagnetic field. This study investigates the total photoabsorption cross section of ^{24}Mg by excitation of the giant dipole resonance (GDR). The E1 excitation of the GDR is of particular importance in studies as this is the main mode of interaction of these cosmic rays with the extragalactic medium en route to Earth.

The GDR in ^{24}Mg was excited using the inelastic scattering of 200 MeV protons, which are produced using the Separated Sector Cyclotron (SSC) at the iThemba LABS facility. The detection system used was the K600 magnetic spectrometer in the zero degree configuration. This configuration of the spectrometer together with the high energy of the proton beam, has been demonstrated to be a powerful technique to investigate the GDR and therefore the photo absorption response in nuclei. The total photoabsorption cross section will be extracted from the data using the equivalent virtual-photon method. The results of this project can be used to supplement astrophysical calculations relating to the propagation distance of UHECRs. I will discuss the methods used to extract the cross section as well as the calculation of the E1 strength using the virtual-photon model.

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

Yes

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

MSc

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Session Classification: Poster Session

Track Classification: Track B - Nuclear, Particle and Radiation Physics