Contribution ID: **418** Type: **Poster Presentation**

Fine structure of the Isoscalar Giant Monopole Resonance in ²⁰⁸Pb, ⁹⁰Zr, ⁵⁸Ni and ⁴⁰Ca using medium energy Alpha-particle Scattering at Zero Degree

Tuesday, 5 July 2016 16:10 (1h 50m)

Abstract content
   (Max 300 words)
Formatting &
Special chars

A systematic experimental investigation was performed of the phenomenon associated with the fine structure of giant resonances, with emphasis on the Isoscalar Giant Monopole Resonance (ISGMR), for ²⁰⁸Pb, ⁹⁰Zr, ⁵⁸Ni and ⁴⁰Ca using a 200 MeV alpha-particle beam delivered by the Separated Sector Cyclotron of iThemba LABS. These nuclei are of special interest since they are doubly-magic, ²⁰⁸Pb and ⁴⁰Ca, and proton-magic, ⁹⁰Zr and ⁵⁸Ni. Measurements were made using the state-of-the-art K = 600 magnetic spectrometer to obtain unique high energy-resolution alpha-particle inelastic scattering excitation-energy spectra in the region of ISGMR at θlab = 0deg; where the cross-section of the ISGMR is at a maximum. In addition, measurements were also made for all four target nuclei at θlab = 4deg;, where the cross-section of the Isoscalar Giant Quadrupole Resonance (ISGQR) is at a maximum. This was done in order to subtract the contribution of the ISGQR from the excitation energy spectra taken at zero degrees. Preliminary results are presented.

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

No

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

PhD

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

Dr IT Usman,
Iyabo.Usman@wits.ac.za
School of Physics,
University of the Witwatersrand

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

No

Please indicate whether
this abstract may be
published online
(Yes / No)

Yes

Primary author: Mr BOTHA, Nolan (University of the Witwatersrand)

Co-authors: Dr SMIT, Frederick David (iThemba LABS); Dr USMAN, Iyabo (University of the Witwatersrand, Johannesburg.); Prof. CARTER, John (University of the Witwatersrand); Dr NEVELING, Retief (iThemba LABS)

Presenter: Mr BOTHA, Nolan (University of the Witwatersrand)

Session Classification: Poster Session (1)

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