Contribution ID: **256** Type: **Poster Presentation**

Coupling of single neutron and proton configurations to collective core excitations in ¹⁶²Yb.

Wednesday, 5 July 2017 17:10 (1h 50m)

The excited states of ¹⁶²Yb have been studied at iThemba Laboratory for Accelerator Based Sciences (iThemba LABS), using the ¹⁵⁰Sm (¹⁶O, 4n)¹⁶²Yb fusion-evaporation reaction. The beam of 83 MeV ¹⁶O was provided by the Separated-Sector Cyclotron (SSC) and used to bombard a 3 m/cm² ¹⁵⁰Sm target. The &gamma -rays emitted from the reaction products were detected using the AFRODITE &gamma -ray spectrometer, comprised of 8 Compton-suppressed clover detectors. Attempts have been made to identify the low-lying excited states in ¹⁶²Yb. Many levels have been found. In particular the first excited 0₂⁺ band and the even and odd sequences of the &gamma band have been firmly established. The 0₂⁺ band and the even spin members of the &gamma band are observed to exhibit a Laundau-Zenner crossing. This crossing demonstrates that the signature splitting in &gamma bands is mainly caused by band mixing. The data will be discussed in terms of the Triaxial Projected Shell Model and also with the predictions of the 5-Dimensional Collective Model (5-DCM).

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

Dr. S. S. Ntshangase
ntshangases@unizulu.ac.za
University of Zululand

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

No

Primary author: Mr MDLETSHE, Linda (University of Zululand)

Co-authors: Mr SITHOLE, A. M (University of the Western Cape); Prof. SHARPEY-SCHAFER, J. F (University of the Western Cape); Ms KHUMALO, N. A (University of the Western Cape); Dr BARK, R. A (iThemba LABS); Ms

JONGILE, S (University of Zululand); Dr MAJOLA, S. N. T (iThemba LABS); Dr NTSHANGASE, S. S (University of Zululand); Dr DINOKO, T. S (iThemba LABS)

Presenter: Mr MDLETSHE, Linda (University of Zululand)

Session Classification: Poster Session 2

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