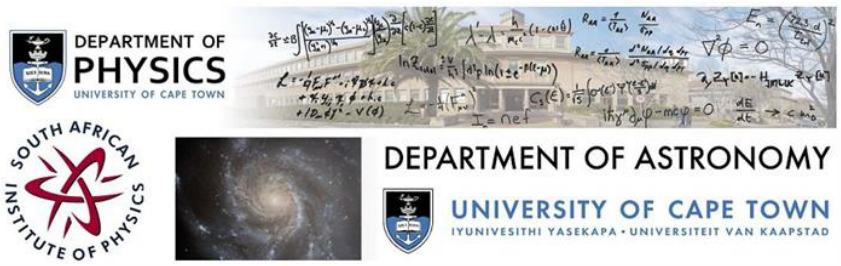

Contribution ID: **170** Type: **Oral Presentation**

Coupling of single proton configurations to collective core excitations in ¹⁶²Yb: the nucleus ¹⁶¹ Tm

Wednesday, 6 July 2016 09:40 (20 minutes)

Abstract content
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Most nuclei are deformed with some having axial symmetry and the rest being triaxial. For the study of nuclei more than two mass units away from the stability line, it is not possible to investigate their properties using direct reactions. Therefore gamma ray spectroscopy is the most productive way studying their structure. In recent years experimental evidence suggests that 0+ bands do not have properties of β vibrations [1]. This contradicts old models. Single particle orbitals in odd A nuclei with even-even N=92 as a core, will couple to any collective core excitations of that core. Previous experiments have been done on neutron deficient isotopes of Thalium [2]. In this research we focus on the ground state proton of 161Tm in [404]7/2⁺ Nilsson orbit that couples to any collective excitations in ¹⁶²Yb. The experiment ¹⁵²Sm(¹⁴N,5n)¹⁶¹Tm was performed to study this at iThemba LABS. An AFRODITE spectrometer was used.
This presentation will discuss the results and analysis of data obtained in the experiment.

[1] J. F. Sharpey-Schafer et al., Eur. Phys. J. A47, 5(2011)
[2] C. Foin et al.,Nucl. Phys.A417, 511(1984)

This work is supported by the National Research Foundation of South Africa

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Session Classification: Nuclear, Particle and Radiation Physics (1)

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