

SAIP 2011



Contribution ID : 331

Search for Low Spin Collective Structures in ^{158}Er and ^{159}Er

Thursday 14 Jul 2011 at 11:15 (00h15')

Content :

The nuclei $^{158,159}\text{Er}$ are classic examples of many phenomena in the study of nuclei at high spin. However, although the multi-quasi particle structures of $^{158,159}\text{Er}$ are well established, there is not much spectroscopic information on the vibrational structures in ^{158}Er or how these couple to the odd neutron in ^{159}Er . Additionally, there are several bands where the spins and/or parities are not firmly assigned. The relative lack of information at low spins is probably due to a combination of the low spins of the ground states of the nuclei $^{158,159}\text{Tm}$ that β^+/ec decay to $^{158,159}\text{Er}$, 2- and 5/2+ respectively. Two experiments were performed in the AFRODITE spectrometer to populate ^{158}Er and ^{159}Er using $1\text{mg}/\text{cm}^2$ $^{150}\text{Sm}(^{12}\text{C},4n)$ and $^{150}\text{Sm}(^{13}\text{C},4n)$ reactions respectively at 65MeV. The intention is to study their yrare states below spin 20 \hbar . Preliminary results will be presented. A Coulomb excitation of ^{155}Gd with ^{86}Kr ions experiment is scheduled for early May at iThemba LABS. The Physics interest is in looking for collective core excitations of ^{154}Gd that are coupled to the ground state neutron in ^{155}Gd . The outcome of this experiment will be presented as well.

Level (Hons, MSc, PhD, other)? :

PhD

Consider for a student award (Yes / No)? :

Yes

Short Paper :

Yes

Primary authors : Mr. DINOKO, Tshepo (University of the Western Cape)

Co-authors : Prof. SHARPEY-SCHAFFER, John (iThemba LABS) ; Dr. NEWMAN, Richard (iThemba LABS) ; Mr. NTSHANGASE, Sifiso (University of Cape Town) ; Prof. SIMPSON, John (STFC Daresbury Laboratory) ; Dr. WIEDEKING, Mathis (iThemba LABS) ; Dr. ORCE, Nico (University of the Western Cape) ; Dr. BARK, Rob (iThemba LABS) ; Dr. LAWRIE, Elena (iThemba LABS) ; Dr. LAWRIE, Kobus (iThemba LABS) ; Mr. MAJOLA, Siyabonga (University of Cape Town) ; Ms. BVUMBI, Suzan (University of Johannesburg) ; Mr. MASITENG, Lusiki (University of Johannesburg)

Presenter : Mr. DINOKO, Tshepo (University of the Western Cape)

Session classification : NPRP

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

Type : Oral Presentation