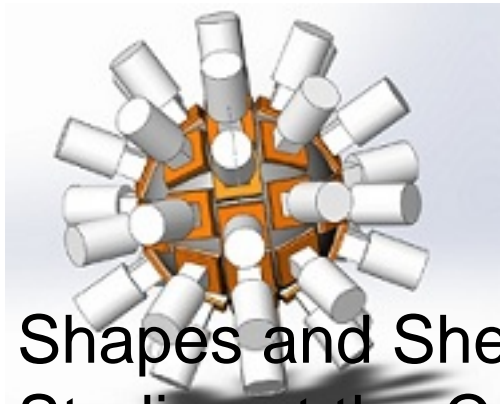


Frontiers in Gamma Ray Spectroscopy FIG18



Contribution ID : 76

Of Signals, Shapes and Shells: Nuclear Structure Studies at the Consortium

Wednesday 14 Mar 2018 at 09:00 (00h30')

Content :

The Kolkata Centre of the UGC-DAE Consortium for Scientific Research has been contributing to the nuclear structure research in the country for around two decades starting with setting up a modest clover array at TIFR in 1999 and later working towards conception and installation of the Indian National Gamma Array (INGA). The Consortium has been one of the key partners in the use, operation, maintenance and evolution of the facility over the period.

Recently the group at the Consortium has been active while working in collaboration with TIFR, VECC, IUAC and Universities in the domain of instrumentation for the data acquisition and sorting and the data analysis codes and the pursuits in nuclear physics in the vicinity of shell closures.

Consortium has been able to incorporate the use of a unique digitizer based pulse processing and data acquisition system at the ongoing campaign of INGA at the room temperature K130 cyclotron of the Variable Energy Cyclotron Centre (VECC), Kolkata.

A versatile package of codes, IUCPIX, for reducing the acquired data from the digital DAQ has been developed.

The nuclear lifetime analysis code has been extended to the applicability of the Doppler Shift Attenuation Method (DSAM) beyond the conventional thin-target-on-thick-backing setups to atypical configurations involving thick elemental or even molecular targets required, at times, to cater to specific experimental aspirations.

The particular physics interest of the Group centers around nuclei in the vicinity of shell closures and systematic studies of the same have been undertaken in the $A \sim 30, 60, 200$ regions. The experimental results are interpreted from large basis shell model calculations that feature as one of the principal components of the aforementioned pursuits.

These various R & D efforts of the Consortium in domain of gamma ray spectroscopy

shall be elaborated in the conference.

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