Contribution ID: **388** Type: **Oral Presentation**

The formulation of a hybrid nuclear cluster potential

Friday, 13 July 2012 09:00 (20 minutes)

Abstract content
   (Max 300 words)

In study of nuclear structure, as seen in light stable nuclei, clustering phenomenon is one of the essential features which has been studied in great detail. In the physics of unstable nuclei, clustering is one of the central subjects of interest. The cluster-core interaction lies central to the identification of clustering in the nuclear matter and the description of clustering phenomenon in various nuclei. During the last decade, the modified phenomenological Saxon-Woods plus Cubic Saxon-Woods cluster potential have successfully described various phenomena related to alpha clustering in light as well as heavy nuclei. In order to fully describe clustering in nuclei, a systematic study of the cluster model's predictive power over a range of measurable observable quantities is required. In this project, the predictive power of the cluster model to three closed shell nuclei is investigated. The model is tested on observable quantities related to the alpha-core quasi-bound states as well as the elastic scattering of alpha's off 16O, 40Ca and 208Pb. Results of predictions made with the recently developed hybrid cluster potential is presented.

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

Yes

Level for award
 (Hons, MSc,
   PhD)?

MSc

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

Prof. Shaun M. Wyngaardt, shaunmw@sun.ac.za, Stellenbosch University

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

No

Primary author: Mrs KAMBLAWE, Amany (Stellenbosch University)

Presenter: Mrs KAMBLAWE, Amany (Stellenbosch University)

Session Classification: NPRP

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