

Hybrid potential analysis of alpha cluster structure above doubly-closed shell

Wednesday, 20 March 2019 15:00 (30 minutes)

Phenomenological interactions have been successful in the description of the alpha cluster structure of light nuclei. The interactions however lack the required fundamental Nucleon-Nucleon character. This shortcoming is addressed by exploiting the known surface localization of the cluster that is well described by microscopic interactions. The ground-state band properties of ^{94}Mo and ^{136}Te were investigated using a Saxon-Woods type local interaction with parameters obtained from the microscopic double-folding potential. The hybrid interaction is supplemented with a short range interaction to correct the observed underbinding of the ground state resulting from possibly the core-cluster overlap. The energy spectra, reduced intra band transition rates, decay width and the root-mean-square charge radii were satisfactorily reproduced

Primary author: IBRAHIM, TAOFIQ (FEDERAL UNIVERSITY LOKOJA, LOKOJA NIGERIA)

Presenter: IBRAHIM, TAOFIQ (FEDERAL UNIVERSITY LOKOJA, LOKOJA NIGERIA)

Session Classification: Nuclear Structure Studies

Track Classification: Nuclear Structure Studies