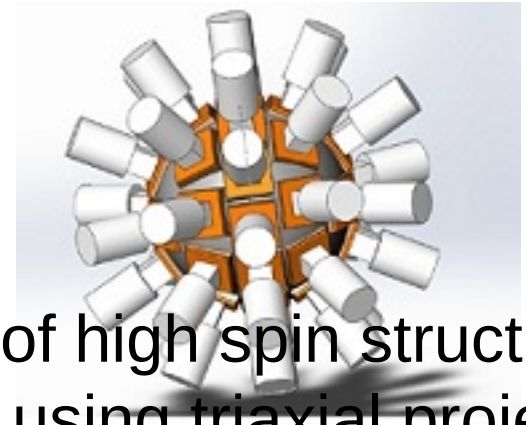
Frontiers in Gamma Ray Spectroscopy FIG18



Contribution ID : 12

Study of high spin structures in ^{76}Kr using triaxial projected shell model

Content :

The study of neutron-deficient Kr isotopes in the mass range A=70-80, which is in the transitional region [1], is quite interesting because these isotopes show different structures and particularly in ^{76}Kr shape co-existence near the ground state was observed [2, 3]. In present work, the multi-quasiparticle triaxial projected shell model (TPSM) approach [4-6] is employed to study the high spin band structures in ^{76}Kr. In this model, a triaxial configuration is superposition of several K-states and the projected states results in several bands originating from the same intrinsic configuration. The yrast band can be understood by considering interplay among all these band structures. A systematic investigation of the yrast- and γ band in ^{76}Kr has been performed using the multi-quasiparticle TPSM approach. It is shown that TPSM results for the yrast band and γ band-energies are in good agreement with known experimental energies upto spin I=26. The staggering parameter is plotted for the γ band before and after configuration mixing and TPSM calculation shows that the configuration mixing can result in a transition of staggering phases. The calculated kinematical moment of inertia (MOI) for the yrast band is compared with the available experimental data. An excellent reproduction of the experimental MOI is obtained by the TPSM calculation upto I=26. It has been demonstrated that the significant fluctuations in states from axial deformation can be properly described by taking a triaxial basis.

REFERENCES

[1] M. Hasegawa, K. Kaneko, T. Mizusaki, Y. Sun, Phys. Lett. B 656, 51 (2007).
[2] Kris Heyde, John L.Wood, Rev. Mod. Phy. 83, 1467 (2011).
[3] E. Cl´ement, et al., Phys. Rev. C 75, 054313 (2007).
[4] J.A. Sheikh and K. Hara, Phys. Rev. Lett. 82, 3968 (1999).
[5] R. Palit, J.A. Sheikh, Y. Sun, H.C. Jain, Nucl. Phys. A 686, 141 (2001).
[6] J. A. Sheikh, G. H. Bhat, R. Palit, Z. Naik, and Y. Sun, Nucl. Phys. A 824, 58 (2009).

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Session classification : --not yet classified--

Track classification : --not yet classified--

Type : Poster