Frontiers in Gamma Ray Spectroscopy FIG18

Contribution ID : 13

High Spin State Of ^{48}Ti Using DHF Model

Content :

Studies of shell structures of neutron rich A~50 are gaining much attention from both the theoretical experimental point of view. One example of N=32 and/or 34 sub shell closer by changing the single particles orbit in this mass region [1]. A spectroscopic study of the yrast high spin state provides important information on the presence of shell gap, since large jumps in transition energies at high spin values are often assessed as an indicator for excitation that involves breaking of core i.e. state with higher angular momentum are generated from excitation across a shell gap[2-4]. The high spin structure of the nucleus ^{48}Ti has been studied by microscopic Hartree-Fock and angular momentum projection techniques [4]. We have performed constraint HF calculation to do potential energy surface study (PES) and obtain several different deformed solutions both in prolate and oblate sides. The band structure (ground and excited) of nucleus is calculated with β=0.27 and results of deformed band are compared with experimentally observed bands. We have also made calculation for several excited configuration of 0qp, 2qp, and 4qp nature. Along with this B(E2) and B(M2) for all bands are calculated. Also the values of Q$_s$, Q$_0$, β and μ for band heads are predicted for future reference.

References

[1] M.Niikuru etal., Eur. Phys. J. A 42, 471–475 (2009).
[2] J. Styczen et al., Nucl. Phys. A 327, 295 (1979).
[3] B. Fornal et al., Phys. Rev. C 70, 064304 (2004).
[4] Zashmir Naik and C. R. Praharaj, Phys. Rev C 67, 054318 (2003).

Primary authors : Mr. KUSHAL, M.Kushal (School of physics sambalpur university jyotivihar, Burla 768019 INDIA)

Co-authors : Dr. SAHU, B.B.Sahu (Kalinga Institute of Industrial Tecnology (KIIT) University, Bhubaneswar-751024, india) ; Dr. NAIK, Z.Naik (School of physics sambalpur University Jyoti Vihar, Burla-768019, india) ; Prof. PRAHARAJ, C.R. Praharaj (Institute of Physics, Sachivalaya Marg, Bhubaneswar-751005, india)

Presenter : Mr. KUSHAL, M.Kushal (School of physics sambalpur university jyotivihar, Burla 768019 INDIA)

Session classification : --not yet classified--

Track classification : --not yet classified--

Type : Poster