

Abstract Submitted
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Microscopic study of Nuclear Spin Cut-off Parameter¹ AZIZ BEHKAMI, Mahabad, Azad University, Iran, MEHMET KILDIR, MEHRDAD GHOLAMI, Middle East Technical University, Turkey — Spin cut-off parameter and effective moment of inertia have been investigated within the microscopic approach based on BCS- Hamiltonian. The spin cut-off parameter has been calculated at neutron binding energies over a large range of nuclear mass A , using the BCS theory. The results are compared with their corresponding macroscopic values. It is found that the values of $\sigma^2(E)$ do not increase smoothly with A as expected based on macroscopic theory. Instead, the values of $\sigma^2(E)$ shows structure reflecting the angular momentum of the shell model orbitals near the Fermi energy. The spin cut-off parameter $\sigma^2(E)$ has also been computed from the knowledge of nuclear level density, at neutron binding energy, B_n and the average S-wave neutron spacing, $\sigma^2 = 1/2\rho(B_n) \langle D_{1/2} \rangle$. These are also compared with their corresponding values from the model calculations. The results will be presented and discussed.

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