Nuclear Level Density with Non-zero Angular Momentum

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Abstract: The statistical properties of interacting fermions have been studied for various angular momentum with the inclusion of pairing interaction. The dependence of the critical temperature on angular momentum for several nuclei, have been studied. The yrast energy as a function of angular momentum for ^{28}Si and ^{24}Mg nuclei have been calculated up to 60.0 MeV of excitation energy. The computed limiting angular momenta are compared with the experimental results for ^{26}Al produced by ^{12}C+^{14}N reaction. The relevant nuclear level densities for non-zero angular momentum have been computed for ^{44}Ti and ^{136}Ba nuclei. The results are compared with their corresponding values obtained from the approximate formulas.

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