بسم الله الرحمن الرحيم

شبكة المعلومـــــات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

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Level Structure In Some Slightly And Strongly Deformed Nuclei.

THESIS
SUBMITTED FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY
IN NUCLEAR PHYSICS

By
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ABSTRACT

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Gamma singles spectra as well as electron singles spectra measurements were performed using hyper pure Ge detector and sillicon detector. Making use of internal conversion electron measurements and X - ray sum peak technique, the multipolarity of the following gamma transitions in ^{240}Pu were identified as 251.4 (E1), 263.3 (E1), 289.2 M1(E2), 303.1 (E1), 340.7 (M1), 507.3 (E1), 554.5 (E1), 597.4 (E1), 758.65 (E2) and 817.9 (E2) keV.

A Possible new gamma transition of 1116 keV was identified beside the weak gamma lines of 1113.38 keV - 1223.77 keV previously reported were confirmed. Also the multipolarity of 100.18 keV gamma transition was formed to be E2.

Furtheremore, we have described several methods of calculating the observed energy levels making use of different theoretical models (VMI, VMINS3, NS, and IBM models).

In addition, the effective charges of proton and neutron in the region of study were found to be $e_\pi = 0.52$ eb and $e_\nu = 0.24$ eb.

Key words

Even-Even nuclei, (Th, U, Pu) isotopes, rotational, vibrational, Variable moment of inertia, Nuclear softness, Variable moment of inertia nuclear softness, inter acting boson model.

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