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Investigation of The Multipolarity of Electromagnetic Transitions in $^{88,90}\text{Kr}$ Nuclei

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Abstract: We have determined the most appropriate Hamiltonian that is needed for present calculations of nuclei about the $A \cong 80$ region by the view of Interacting Boson Model-2 (IBM-2). After obtaining the best Hamiltonian parameters, level energies and $B(E2)$ probabilities of some transitions in $^{88,90}\text{Kr}$ nuclei were estimated. Results are compared with previous experimental and theoretical data and it is observed that they are in good agreement. Finally, $R_1 = \frac{B(E2;4_1 \rightarrow 2_1)}{B(E2;2_1 \rightarrow 0_1)}$, $R_2 = \frac{B(E2;2_2 \rightarrow 2_1)}{B(E2;2_1 \rightarrow 0_1)}$, $R_3 = \frac{B(E2;0_2 \rightarrow 2_1)}{B(E2;2_1 \rightarrow 0_1)}$, $R_4 = \frac{B(E2;2_2 \rightarrow 0_1)}{B(E2;2_2 \rightarrow 2_1)}$, $R_5 = \frac{B(E2;3_1 \rightarrow 2_1)}{B(E2;3_1 \rightarrow 4_1)}$, $R_6 = \frac{B(E2;4_2 \rightarrow 4_1)}{B(E2;4_2 \rightarrow 2_2)}$ and $R_7 = \frac{B(E2;4_1 \rightarrow 2_1)}{B(E2;2_2 \rightarrow 2_1)}$ ratios are compared with the values of dynamic symmetry limits. (SO(6), SU(5), SU(3)).

Key Words: Electromagnetic transition, multipolarity, Interacting Boson Model-2 (IBM2), deformation parameters.

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