

which is in good agreement with the theoretical value for the I. C. E. mechanism

$$T_{K\gamma}/T_K = 1.7 \times 10^{-3}.$$

These results can be compared with the transition probability for the $e\gamma$ process which proceeds via the virtual state of a nucleus. From Beusch's⁴⁾ experiment on the $\gamma\gamma$ process in ^{137}Ba , and by assuming that the energy distribution is known²⁾, we calculated the contribution of this mechanism to be

$$T_{K\gamma}/T_K = 3.8 \times 10^{-8}.$$

This value is very small compared with our experimental result and we can conclude that in the case of ^{137}Ba the $e\gamma$ process proceeds mostly via the I. C. E. mechanism.

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E3 Gamma-Gamma Angular Correlation Measurements with a Ge(Li) Detector in one Channel

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A Ge(Li)—NaI(Tl) system with a planar $2.5 \text{ cm}^2 \times 3 \text{ mm}$ Ge detector for coincident and directional gamma-gamma angular correlation measurements with a two-dimensional analysing system is described. The overall work of the system was tested by the lifetime measurement of the 482 keV level in ^{181}Ta and by the anisotropy measurement for the 1.172—1.332 MeV cascade gamma transition in ^{60}Ni . The system was used for angular correlation measurement of the very weak 71.66—249.69 keV cascade gamma-gamma transition in ^{177}Hf . Previous measurements performed using NaI(Tl)—NaI(Tl) systems, were not satisfactory because of their poor energy resolution and high background of the intense gamma transitions in ^{177}Hf . The correlation coefficients obtained in the present measurement were $A_{22} = -0.114 \pm 0.018$ and $A_{44} = 0$. The upper limit $|\delta| < 0.05$ was deduced for the $M2/E1$ mixing ratio for the 71.66 keV transition.

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