

Gamma-ray spectroscopy on ^{87}Sr and the energy - B(E2)
rule

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In - beam γ - ray measurements following the reaction $^{84}\text{Kr} (\alpha, n\gamma) ^{87}\text{Sr}$ are performed. The level scheme has been established with γ - γ coincidence measurements. Mean lifetimes were obtained with the DSA method. New spin-parity assignments have been made for a number of levels with angular distribution and linear polarization measurements.

The quintuplet $g_{9/2}^{-1} \times ^{88}\text{Sr} (2_1^+)$ is discussed in terms of a new energy - B(E2) rule²⁾. It turns out that the states $5/2_1^+$, $7/2_1^+$, $9/2_1^+$, $11/2_1^+$, $13/2_1^+$ in ^{87}Sr provide an illustration for the Energy-B(E2) rule. Energies and B(E2)'s for these states clearly show complementarity in the deviations from the harmonic limit and can be reproduced by the Energy - B(E2) rule using $Q(2_1) = +0.2$ cb, which is the only free parameter. It is suggested to measure this parameter directly (quadrupole moment of $^{88}\text{Sr} (2_1)$), which would be a test of internal consistency of the rule.

1) L.P.Ekström, G.D.Jones, F.Kearns, T.P.Morrison, A.Nilsson, V.Paar, P.J.Twin, R.Wadsworth, E.Wallander and N.J.Ward, J.Phys.G7(1981)85

2) V.Paar, Nucl.Phys. A351 (1981)1