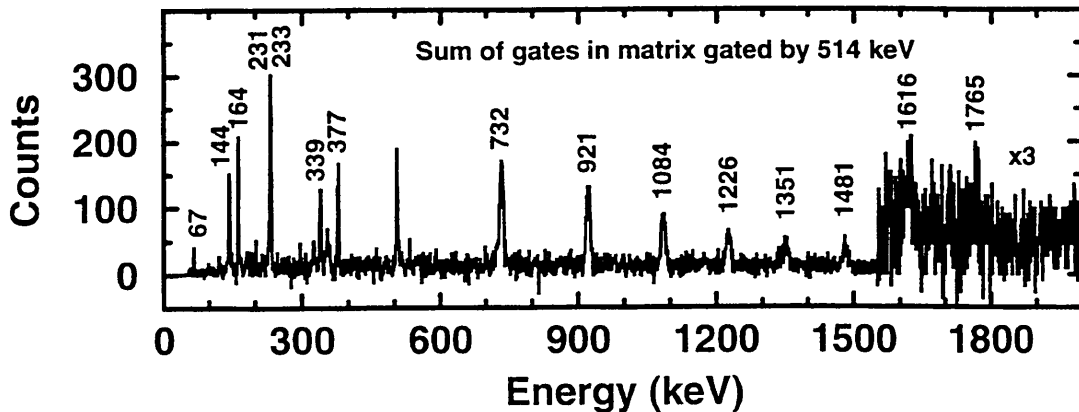


Identification of Excited States in the $T_z=\frac{1}{2}$ Nucleus $^{75}\text{Rb}^*$

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Excited states in the $T_z=\frac{1}{2}$ nucleus ^{75}Rb were observed for the first time using the 45 Compton-suppressed Ge Detectors of EUROGAM, the Daresbury recoil separator, and the reaction $^{40}\text{Ca}(^{40}\text{Ca},\alpha p)$ at 128 MeV. Recoiling nuclei were mass separated and passed through an ionization chamber which provided discrimination between ^{75}Rb and ^{75}Kr ions. The data was sorted into several γ gated two dimensional $\gamma\gamma$ matrices which were used to construct a level scheme. The data reveal a complicated level structure at low spin more similar to the light Br isotopes than to the other odd mass Rb nuclei. Only one rotational band is observed stretching up to $I^\pi=(\frac{41}{2}^+)$. The band's kinematical moment of inertia is larger (21-22 \hbar^2/MeV) than most of the neighboring nuclei which may be characteristic of a reduction in pairing. Weaker pairing correlations are expected due to the large deformed shell gap at $N=Z=38$ and the blocking of the unpaired proton. In the same experiment, a cascade relationship is observed between the three γ -rays previously assigned [1] to the self-conjugate nucleus ^{76}Sr . The kinematical moment of inertia of ^{76}Sr is slightly larger than ^{78}Sr which is suggestive of a slight change in deformation or pairing correlations in ^{76}Sr .



[1] C.J. Lister, *et al.*, Phys. Rev. C **42**, R1191 (1990).

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