

THREE-QUASIPARTICLE EXCITATION IN $^{141}_{61}\text{Pm}_{80}$;
NEW SHORT-LIVED ISOTOPE $^{141}_{62}\text{Sm}_{79}$

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Using a rapid chemical separation method for rare earths [1] we have prepared sources of ^{141}Sm by irradiating Dy-targets with 680 MeV protons. The decay of the earlier identified [2] high spin isomeric state $^{141\text{m}}\text{Sm}$ ($T_{1/2} = 22,5$ m, $I = 11/2^-$) has been investigated, using single γ and $\gamma\gamma$ -coincidence measurements with two large volume Ge(Li) counters (sens. vol. 30 cm^3 and 33 cm^3). In this way we have found three levels with high excitation energies in the ^{141}Pm nucleus (1982,6 keV; 2091,6 keV; 2119,0 keV). They are populated via β -decay with low $\log ft$ values (5,6; 5,6; 5,4). We interpretate this levels as the low spin members of a three-quasiparticle multiplet with the configuration $p(d_{5/2})^{-3}, n_1(d_{3/2})^{-1}, n_2(h_{11/2})^{-1}$ ($I^\pi = 9/2^-, 11/2^-, 13/2^-$), which are populated from the isomeric state in ^{141}Sm with the structure $[p(d_{5/2})^{-2}, n_1(d_{3/2})^{-2}, n_2(h_{11/2})^{-1}] 11/2^-$. The halflife of the earlier unknown groundstate $^{141\text{g}}\text{Sm}$ ($I^\pi = 1/2^+$ or $3/2^+$) has been determined to be $9,5 \pm 0,5$ m. This investigation is a part of the YASNAPP programme of investigations of short-lived isotopes with the external beam of the 680 MeV Dubna synchrocyclotron.

- [1] G. Beyer et al., J. Inorg.Nucl.Chem., 31,(1969), 2135
[2] R. Arlt et al., preprint P6 - 3540, Dubna 1967.