The $^{185-187}$Pt nuclei have been studied simultaneously by

1) $^{176-178}$Yb ($^{160,5}$n) reactions on the Orsay variable energy cyclotron (1) and tandem Van de Graaf accelerator (excitation functions, $\gamma-\gamma$ coincidences, angular distributions, decay periods)

2) radioactivity of gold on the Orsay on-line separator ISOCELE ($\gamma$ and $e^-$ spectra, $\gamma-\gamma$ coincidences, $e^-\gamma$ coincidences using a double lens $\beta$ spectrometer) and on the CERN on-line separator ISOLDE (coincidences $e^-\gamma$ using a Si(Li) detector, lifetime measurements, $e^-$ spectra using a 180° flat spectrograph).

The results previously obtained with ($HI,xn$) reactions have shown the transition from the oblate shape in the $^{187}$Pt to the prolate one in the $^{185}$Pt (1).

The decay period of the $^{185}$Pt nuclei produced with ($HI,xn$) reactions is $1/2 = 70$ ms. The decay properties (2) of this state to the $^{185}$Ir agree with the $9/2$ spin for the ground state of the normal band observed (1) in the $^{185}$Pt and thus confirm the prolate shape for this nucleus.

The transition probabilities between low lying states of the $^{187}$Pt are being determined from lifetime measurements and transition multipolarities and compared with those given by an asymmetric rotor-plus-particle model (3).

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(1) M.A. Deleplanque et al. C.R. Acad. Sc. 280 (1975) 515
(2) C. Sebille-Schück private communication
[1] radioactivity studies
[2] ($HI,xn$) reaction studies
\[ C.S.N.S.M. ORSAY France \]
\[ Institute of Physics, University of Stockholm, Sweden \]
\[ C.R.K. Strasbourg France \]
\[ Institute of Nuclear Study, Tokyo, Japan \]