^{198}Pt(^{76}Ge,Xγ) 2000As05

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 178, 41 (2021).	12-Nov-2021

2000As05 (also 2001Is02): E=8 MeV/nucleon. Measured Eγ, γ(t), γγ, (projectile-like fragment)(γ)(t), γ(θ) using Ge detector for γ rays and Si ΔE-E silicon-strip detector for fragments.

Mass identification is within one unit, but the first excited state in ^{63}Co is at 995 keV and in ^{65}Co at ≈1200 keV, thus the isomer observed at 834 is assigned to ^{64}Co.

^{64}Co Levels

E(level)†	Jπ‡	$T_{1/2}$	Comments
0.0	(1+)		E(level): assumed as the g.s. by 2000As05 based on level spacings of the 867, 804, 703, 463 and 0 levels in (t,^{3}He) (1972Fl17) being similar to the 64-97-232-441 cascading γ-ray energies from the 6.4-ns isomer, and non-observation of a 33 keV group in (t,^{3}He).
441.1 *3*	(2+,3+)		
672.9 *3*	(3+)		
769.9 *4*	(4+)		
833.6 *5*	(5+)	6.4 ns *3*	$T_{1/2}$: from (projectile-like-fragment)γ(t) (2000As05).

† From a least-squares fit to Eγ data.

‡ As proposed by 2000As05 based on γ-ray multipolarity assignments and model considerations. The assignments for excited states are the same in Adopted Levels.

γ(^{64}Co)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.†	α‡	Comments
63.7 *5*	71 *6*	833.6	(5+)	769.9	(4+)	(M1)	0.138 *4*	α(K)=0.124 *4*; α(L)=0.0126 *4*; α(M)=0.00176 *5*; α(N)=7.57×10^{-5} *20*
97.0 *5*	83 *5*	769.9	(4+)	672.9	(3+)	(M1)	0.0441 *9*	α(K)=0.0395 *8*; α(L)=0.00397 *8*; α(M)=0.000554 *11*; α(N)=2.41×10^{-5} *5*
160.7 *5*	6 *2*	833.6	(5+)	672.9	(3+)	[E2]	0.0866 *16*	α(K)=0.0774 *15*; α(L)=0.00803 *15*; α(M)=0.001109 *21*; α(N)=4.42×10^{-5} *8*
231.8 *3*	55 *3*	672.9	(3+)	441.1	(2+,3+)	(M1)		
328.7 *4*	5 *1*	769.9	(4+)	441.1	(2+,3+)			
441.0 *3*	63 *4*	441.1	(2+,3+)	0.0	(1+)			Mult.: anisotropy suggests ΔJ=2, E2, which is consistent with only the 3+ assignment by 2000As05, not 2+. However, no data for anisotropy measurements are available.
673.0 *3*	37 *3*	672.9	(3+)	0.0	(1+)	(E2)		

† From asymmetry ratio of γ intensities in the reaction plane and out of the reaction plane. Parity is not determined by this ratio, but stretched quadrupole transitions are most likely E2 transitions. The stretched dipole (ΔJ=1) transitions are considered by 2000As05 as M1. The measured values of γ-ray asymmetry ratios are not listed by 2000As05, thus all assignments are considered as tentative by the evaluators.

‡ Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

^{198}Pt(^{76}Ge,Xγ) 2000As05

Level Scheme

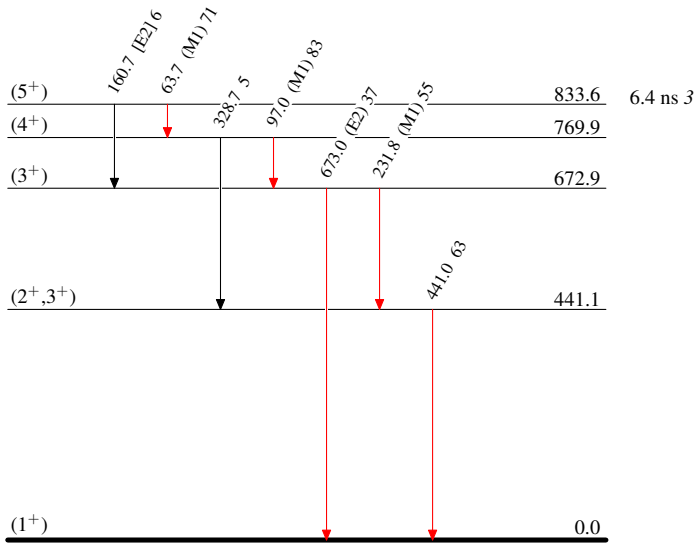
Intensities: Relative I_γ

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$



$^{64}_{27}Co_{37}$