^{76}Ge(α,p2nγ) 1996Do05

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	30-Sep-2020

1996Do05: E=32, 36, 40 MeV. Measured Eγ, Iγ, $\gamma\gamma$, proton-gated excitation functions, $\gamma\gamma(\theta)$ (DCO).

Other: 2005Lu07: ^{238}U(^{82}Se,X) E=505 MeV, measured fragment yields and γ-ray spectra using PRISMA magnetic spectrometer and CLARA γ-ray array. A mass spectrum of As nuclides and a γ-ray spectrum of ^{77}As are shown in this conference report but no other structure information is presented.

^{77}As Levels

E(level)	J$^\pi$[†]	$T_{1/2}$	E(level)	J$^\pi$[†]	E(level)	J$^\pi$[†]
0.0	3/2$^-$[‡]		1189.8 *3*	7/2$^-$[‡]	2585.0[@] *4*	(13/2$^-$)
215.5 *2*	3/2$^-$[‡]		1221.3 *2*	(11/2$^+$)	2745.3[@] *4*	(15/2$^-$)
264.4 *1*	5/2$^-$[‡]		1736.8 *3*	(13/2$^+$)	3002.8[@] *5*	(17/2$^-$)
475.5[#] *1*	9/2$^+$[‡]	114.0[‡] μs *25*	1888.5 *3*	(15/2$^+$)	3151.0[#] *5*	(21/2$^+$)
632.0 *2*	5/2$^+$[‡]		1929.9 *4*		3363.7[@] *5*	(19/2$^-$)
889.5 *3*			2000.4[#] *3*	(17/2$^+$)	3855.7[@] *6*	(21/2$^-$)
1048.4[#] *2*	(13/2$^+$)		2124 *1*		4456.3[#] *7*	(25/2$^+$)
1059.3 *2*	(9/2$^-$)		2512.9 *4*			

[†] From 1996Do05, unless otherwise stated. Parentheses are added by the evaluator.

[‡] From Adopted Levels.

[#] Band(A): ΔJ=2, $\pi g_{9/2}$ band. Band assignment from 1996Do05.

[@] Band(B): ΔJ=1 band. Probable 3-quasiparticle configuration=$\pi g_{9/2}\otimes\nu g_{9/2}\otimes\nu(p_{1/2},p_{3/2},f_{5/2})$ (1996Do05).

γ(^{77}As)

DCO(D) and DCO(Q) are for gates on ΔJ=1, dipole, and ΔJ=2, quadrupole transitions, respectively.

E$_\gamma$	I$_\gamma$[†]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.	Comments
160.3 *2*	5 *1*	2745.3	(15/2$^-$)	2585.0	(13/2$^-$)	D[‡]	DCO(D)=1.03 *4*
211.1 *1*		475.5	9/2$^+$	264.4	5/2$^-$		DCO(D)=1.01 *3* The alignment is attenuated due to long $T_{1/2}$ (114 μs) of 475.5 level.
215.5 *2*	14 *1*	215.5	3/2$^-$	0.0	3/2$^-$		
257.5 *2*	10 *2*	3002.8	(17/2$^-$)	2745.3	(15/2$^-$)	D[‡]	DCO(D)=1.09 *23*; DCO(Q)=0.57 *8*
264.4 *1*	43 *2*	264.4	5/2$^-$	0.0	3/2$^-$		
360.9 *2*	7 *2*	3363.7	(19/2$^-$)	3002.8	(17/2$^-$)	D[‡]	DCO(D)=0.94 *21*; DCO(D)=0.98 *11*; DCO(Q)=0.55 *5*
367.6 *2*	≈2	632.0	5/2$^+$	264.4	5/2$^-$		DCO(D)=1.61 *26*
416.6 *3*	≈3	632.0	5/2$^+$	215.5	3/2$^-$		
492.0 *2*	5 *1*	3855.7	(21/2$^-$)	3363.7	(19/2$^-$)	D[‡]	DCO(Q)=0.52 *7*
515.5 *2*	20 *4*	1736.8	(13/2$^+$)	1221.3	(11/2$^+$)	D(+Q)[‡]	DCO(D)=1.03 *9*
557.8 *2*	8 *2*	1189.8	7/2$^-$	632.0	5/2$^+$		
572.9 *2*	100 *4*	1048.4	(13/2$^+$)	475.5	9/2$^+$	Q	DCO(Q)=1.08 *10*
624.4 *2*	≈6	2512.9		1888.5	(15/2$^+$)		
625.1 *3*	≈2	889.5		264.4	5/2$^-$		
667.0 *4*	≈2	1888.5	(15/2$^+$)	1221.3	(11/2$^+$)		
674.1 *4*	≈2	889.5		215.5	3/2$^-$		
709 *1*	≈2	1929.9		1221.3	(11/2$^+$)		

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^{76}Ge(α,p2nγ) 1996Do05 (continued)

$\gamma(^{77}As)$ (continued)

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
745.8 *2*	36 *3*	1221.3	$(11/2^+)$	475.5	$9/2^+$	D(+Q)[‡]	DCO(D)=0.91 *10*
794.9 *2*	12 *1*	1059.3	$(9/2^-)$	264.4	$5/2^-$	Q[#]	DCO(D)=2.22 *21*
840.1 *2*	28 *3*	1888.5	$(15/2^+)$	1048.4	$(13/2^+)$	D(+Q)[‡]	DCO(Q)=0.36 *6*
881.5 *3*	5 *2*	1929.9		1048.4	$(13/2^+)$		
952.0 *2*	33 *3*	2000.4	$(17/2^+)$	1048.4	$(13/2^+)$	Q[#]	DCO(Q)=0.94 *8*
1008.4 *5*	5 *3*	2745.3	$(15/2^-)$	1736.8	$(13/2^+)$		
1065 *1*	≈2	2124		1059.3	$(9/2^-)$		
1150.6 *3*	11 *3*	3151.0	$(21/2^+)$	2000.4	$(17/2^+)$	Q[#]	DCO(Q)=1.10 *17*
1305.3 *5*	4 *2*	4456.3	$(25/2^+)$	3151.0	$(21/2^+)$	Q[#]	DCO(Q)=1.16 *21*
1363.8 *5*	4 *2*	2585.0	$(13/2^-)$	1221.3	$(11/2^+)$		
1696.9 *6*	6 *3*	2745.3	$(15/2^-)$	1048.4	$(13/2^+)$	D[‡]	DCO(Q)=0.44 *12*

[†] From proton-gated spectrum at E=40 MeV.
[‡] $\gamma\gamma(\theta)$ (DCO) suggests $\Delta J=1$, dipole or D+Q.
[#] $\gamma\gamma(\theta)$ (DCO) suggests $\Delta J=2$, quadrupole (most likely E2).

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Level Scheme

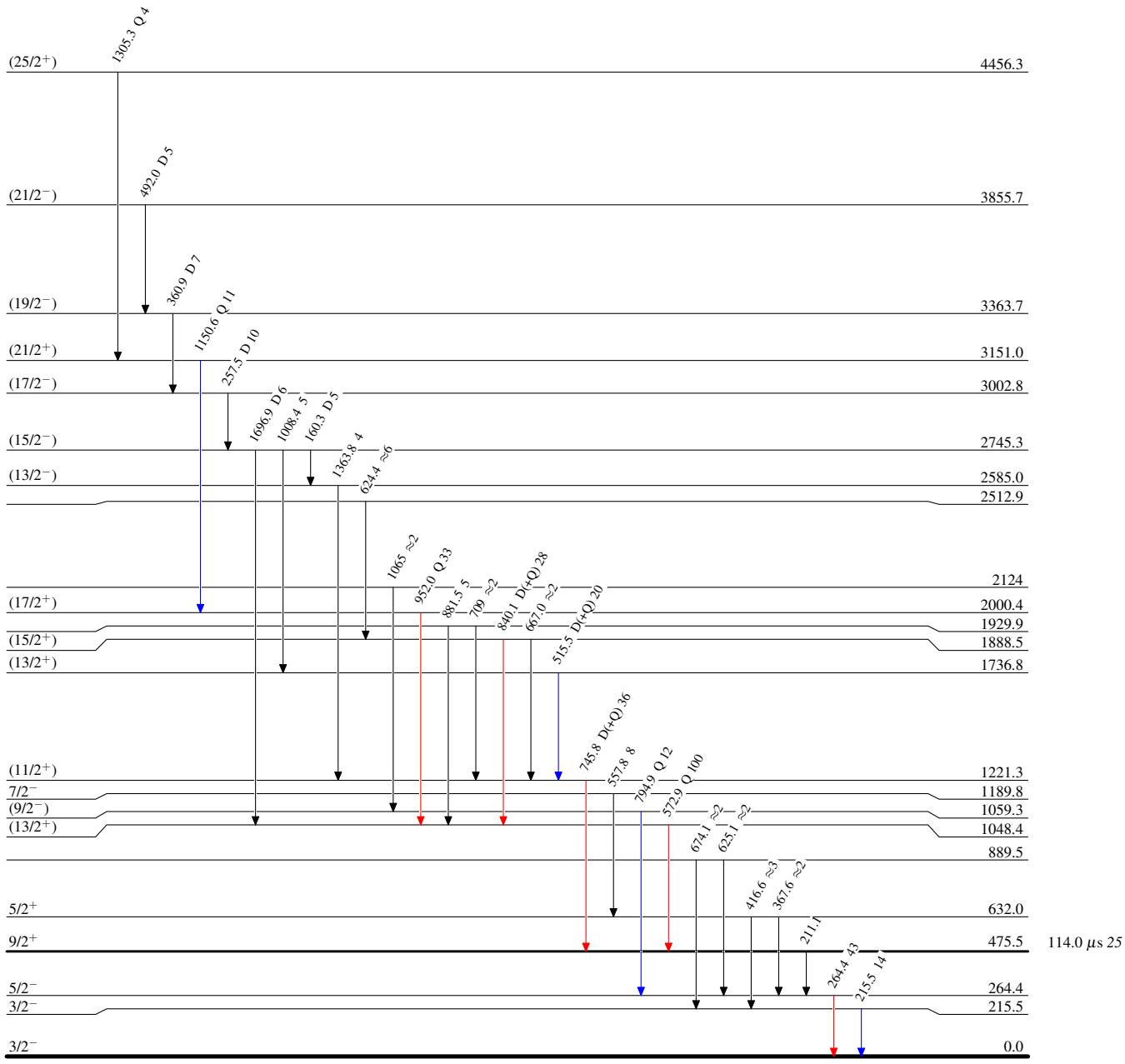
Intensities: Relative I_γ

Legend

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

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

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



$^{77}_{33}As_{44}$

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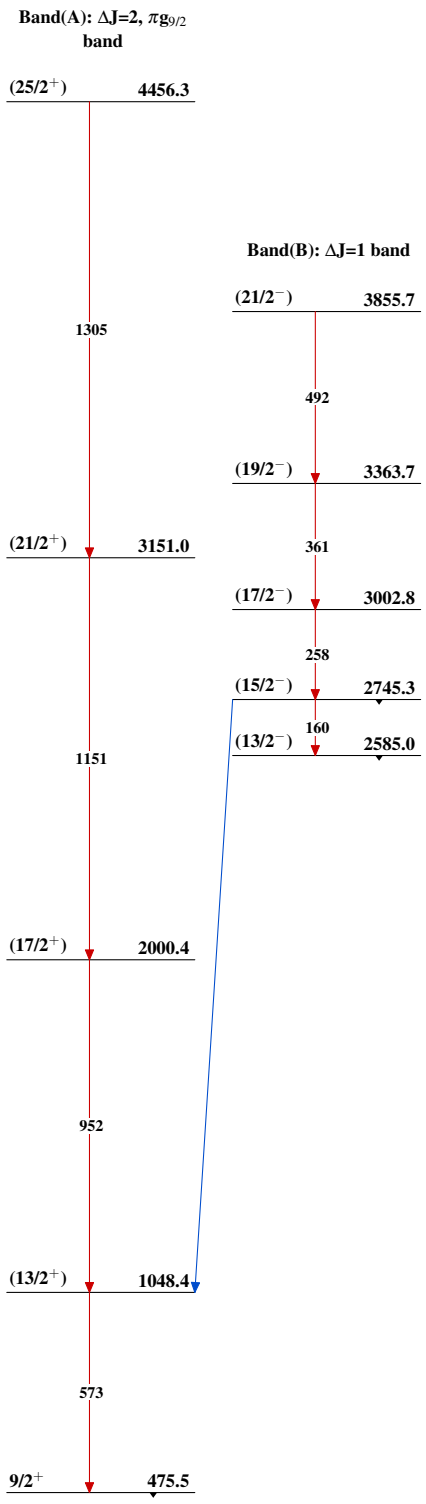

$^{77}_{33}As_{44}$