Adopted Levels, Gammas

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan	NDS 125, 201 (2015)	31-Dec-2014

Q(β^-)=5671 *4*; S(n)=7638 *5*; S(p)=11543 *4*; Q(α)=−9547 *3* 2012Wa38
S(2n)=13279 *4*; S(2p)=26619 *4* (2012Wa38).

^{83}As Levels

Cross Reference (XREF) Flags

A ^{83}Ge β^- decay
B ^{208}Pb(^{18}O,Xγ)
C ^{238}U(^{82}Se,^{83}Asγ)

E(level)†	J$^\pi$‡	$T_{1/2}$	XREF	Comments
0.0	(5/2$^-$)	13.4 s *4*	ABC	%β^-=100 $T_{1/2}$: weighted average of 14.1 s *11* (1968De19), 13.3 s *4* (1969ScZY), 13.3 s *6* (1974KrZG). J$^\pi$: the first two orbitals located above the Z=28 shell closure are πf5/2 and πp3/2, thus the low-lying levels are expected to have J^π=3/2$^-$,5/2$^-$. ^{85}Br (Z=35) has J^π(g.s.)=3/2$^-$, suggesting that the f5/2 orbital is filled first; therefore, ^{83}As(Z=33) should have J^π(g.s.)=5/2$^-$. Non observation of the 306-keV level in ^{208}Pb(^{18}O,Xγ) further suggests the spin of the ground state is higher than that of the 306-keV level.
306.51 *4*	(3/2$^-$)		A C	J$^\pi$: see comment on J^π of ground state.
711.67 *5*			A	
1193.70 *10*			A	
1196.53 *14*			A	
1256.76 *9*			A	
1329.87 *10*			A	
1415.11 *10*			A	
1434.92 *9*			A	
1525.48 *13*			A	
1543.41 *15*	(9/2)		ABC	J$^\pi$: Q 1543γ to (5/2$^-$).
1804.78 *11*			A	
1866.21 *25*	(11/2)		BC	J$^\pi$: D 323γ to (9/2).
1977.86 *18*			A	
2222.89 *21*			A	
2777.3 *4*			BC	
3093.9 *3*	(13/2)		BC	J$^\pi$: D 1228γ to (11/2).
3100.2? *3*			A	
3206.4 *5*			BC	
3456.7 *5*	(15/2)		BC	J$^\pi$: D 363γ to (13/2).
3522.6 *3*			A	
3733.5 *4*			A	
3956.5 *3*			A	
3999.7 *4*			A	
4030.6? *5*			A	
4130.11 *23*			A	
4191.5 *4*			A	
4221.2 *4*			A	
4228.3 *4*			A	
4364.4 *5*			A	
4405.7 *3*			A	
4434.1 *3*			A	
4841.8 *7*			A	

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Adopted Levels, Gammas (continued)

^{83}As Levels (continued)

† From a least-squares fit to Eγ, by evaluator.
‡ For levels with spin assignments above 1.5 MeV, there is the assumption of increasing spin with increasing excitation energy for levels populated in heavy-ion induced reactions. Based on systematics of neighboring N=50 nuclei, negative parity is proposed for the 1543-, 1866-, 3094-, and 3457-keV levels in both ^{208}Pb(^{18}O,Xγ) and ^{238}U(^{82}Se,^{83}Asγ) (2011Po13,2012Sa46).

		γ(^{83}As)				
E_i(level)	J_i^π	E_γ†	I_γ†	E_f	J_f^π	Mult.#
306.51	(3/2$^-$)	306.51 *5*	100	0.0	(5/2$^-$)	
711.67		405.18 *5*	100 *6*	306.51	(3/2$^-$)	
		711.66 *8*	27 *3*	0.0	(5/2$^-$)	
1193.70		886.96 *20*	10.7 *24*	306.51	(3/2$^-$)	
		1193.77 *11*	100 *6*	0.0	(5/2$^-$)	
1196.53		890.01 *15*	100 *8*	306.51	(3/2$^-$)	
		1196.2 *5*	7 *5*	0.0	(5/2$^-$)	
1256.76		950.14 *18*	27 *3*	306.51	(3/2$^-$)	
		1256.81 *11*	100 *8*	0.0	(5/2$^-$)	
1329.87		618.37 *12*	36 *4*	711.67		
		1023.1 *3*	37 *10*	306.51	(3/2$^-$)	
		1329.61 *18*	100 *16*	0.0	(5/2$^-$)	
1415.11		1108.4 *3*	13 *3*	306.51	(3/2$^-$)	
		1415.09 *11*	100 *7*	0.0	(5/2$^-$)	
1434.92		1128.52 *16*	53 *7*	306.51	(3/2$^-$)	
		1434.87 *11*	100 *7*	0.0	(5/2$^-$)	
1525.48		1219.5 *24*	15 *3*	306.51	(3/2$^-$)	
		1525.50 *14*	100 *9*	0.0	(5/2$^-$)	
1543.41	(9/2)	1543.39 *15*	100	0.0	(5/2$^-$)	Q
1804.78		1093.10 *10*	100	711.67		
1866.21	(11/2)	322.8‡ *2*	100‡	1543.41	(9/2)	D
1977.86		562.6 *3*	42 *12*	1415.11		
		1671.2 *3*	85 *15*	306.51	(3/2$^-$)	
		1978.1 *3*	100 *19*	0.0	(5/2$^-$)	
2222.89		966.24 *22*	67 *13*	1256.76		
		1916.0 *4*	100 *42*	306.51	(3/2$^-$)	
2777.3		911.1‡ *3*	94@ *24*	1866.21	(11/2)	D
		1234‡ *1*	100@ *40*	1543.41	(9/2)	
3093.9	(13/2)	1227.7‡ *1*	100‡	1866.21	(11/2)	D
3100.2?		2793.6 *3*	100	306.51	(3/2$^-$)	
3206.4		429.1‡ *3*	100‡	2777.3		D
3456.7	(15/2)	362.8‡ *4*	100‡	3093.9	(13/2)	D
3522.6		2087.7 *3*	100 *13*	1434.92		
		2325.9 *4*	75 *16*	1196.53		
3733.5		3427.1 *5*	100 *12*	306.51	(3/2$^-$)	
		3733.1 *6*	45 *9*	0.0	(5/2$^-$)	
3956.5		2626.8 *4*	100 *17*	1329.87		
		3649.4 *6*	44 *8*	306.51	(3/2$^-$)	
3999.7		2194.7 *6*	59 *23*	1804.78		
		3693.2 *6*	100 *23*	306.51	(3/2$^-$)	
4030.6?		2834.0 *5*	100	1196.53		
4130.11		2604.8 *4*	28 *7*	1525.48		
		2873.3 *4*	47 *7*	1256.76		
		3823.2 *6*	54 *16*	306.51	(3/2$^-$)	
		4129.9 *5*	100 *9*	0.0	(5/2$^-$)	
4191.5		4191.4 *4*	100	0.0	(5/2$^-$)	

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Adopted Levels, Gammas (continued)

$\gamma(^{83}As)$ (continued)

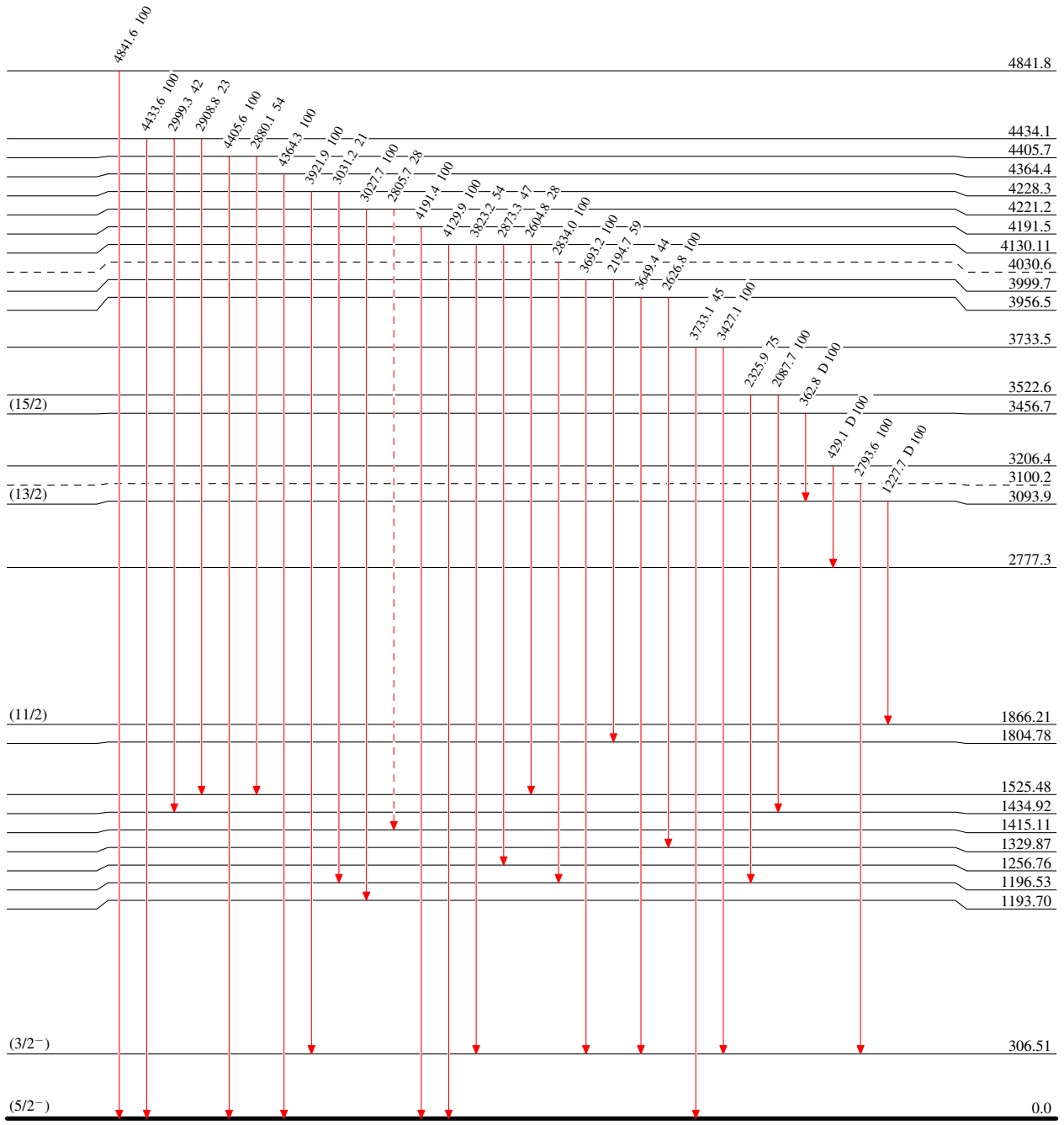
E_i(level)	E_γ[†]	I_γ[†]	E_f	J^π_f	E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f
4221.2	2805.7[&] *6*	28 *8*	1415.11		4405.7		4405.6 *6*	100 *18*	0.0	(5/2$^-$)
	3027.7 *5*	100 *12*	1193.70		4434.1		2908.8 *5*	23 *5*	1525.48	
4228.3	3031.2 *9*	21 *10*	1196.53				2999.3 *5*	42 *5*	1434.92	
	3921.9 *5*	100 *22*	306.51	(3/2$^-$)			4433.6 *5*	100 *10*	0.0	(5/2$^-$)
4364.4	4364.3 *5*	100	0.0	(5/2$^-$)	4841.8		4841.6 *7*	100	0.0	(5/2$^-$)
4405.7	2880.1 *4*	54 *10*	1525.48							

[†] From ^{83}Ge β^- decay, except where noted.
[‡] From ^{208}Pb(^{18}O,Xγ).
[#] From $\gamma(\theta)$ and R_{DCO} in ^{238}U(^{82}Se,^{83}Asγ).
[@] From ^{238}U(^{82}Se,^{83}Asγ). A limit on Iγ(1234γ) of Iγ(1234γ)/Iγ(911γ) < 0.33 is given in ^{208}Pb(^{18}O,Xγ) (2011Po13).
[&] Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Level Scheme

Intensities: Type not specified



$^{83}_{33}As_{50}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified