^{115}I IT decay (144 μs) 1973Co32

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 113, 2391 (2012)	1-Sep-2012

Parent: ^{115}I: E=413; J^π=(11/2$^-$); $T_{1/2}$=144 μs *15*; %IT decay=100.0

Activity produced via ^{107}Ag,^{109}Ag(^{12}C,xn) E=88 MeV,Ge(Li).

Measured delayed photon spectrum between beam pulses,Ge(Li) detector.

The 11/2$^-$ isomeric level at 413 keV proposed by 1973Co32 is not confirmed (1985Pi02). The proposed levels at 47 and 322 keV from the same authors have also not been adopted.

^{115}I Levels

E(level)	J^π	$T_{1/2}$	Comments
0.0	(5/2$^+$)	1.3 min *2*	
47	(3/2$^+$)		
322	(7/2$^+$)		E(level): the 318-keV γ ray observed in coin with emission via the ^{116}Cs precursor (1978Da07) may correspond with the 322.5γ but the 275.3γ, which also deexcites the 322 level in the scheme of 1973Co32, is not observed by 1978Da07. This level, thus, appears as questionable.
413	(11/2$^-$)	144 μs *15*	%IT=100 E(level): low-lying 11/2$^-$ states in ^{117}I, ^{119}I, ^{121}I occur, respectively, at 661,687,812 keV (1977Go04,1977Fo03). $T_{1/2}$: av of K x ray, 91γ, 322γ decay curves. J^π: in disagreement with the (11/2$^-$) bandhead level observed at 837.5 keV by 1985Pi02.

γ(^{115}I)

Iγ normalization: for Ti(91γ,M2)+Ti(414γ,E3)=100.

γ spectrum assigned to ^{115}I or ^{117}I by 1973Co32; ^{117}I is ruled out by ^{117}I studies (1977Go04,1977Fo03,1982Ga21) via ^{114}Sn(^{6}Li,3nγ).

E_γ[†]	I_γ[‡#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α[@]	Comments
46.9 *10*	9.5 *24*	47	(3/2$^+$)	0.0	(5/2$^+$)	(M1)	6.79	α(K)=5.82; α(L)=0.766; α(M)=0.1535 Mult.: compatible with I(γ+ce) balance about E(level)=47.
x74.6[&]								$T_{1/2}$(74.6γ)≈10 μs; assignment uncertain.
90.9 *6*	9.3 *9*	413	(11/2$^-$)	322	(7/2$^+$)	(M2)	11.0	α(K)=8.72; α(L)=1.803; α(M)=0.377; α(N+..)=0.0967 Mult.: α(exp)(91γ)=13 deduced from I(γ+ce) balance about 322 level, compatible with α(M2 theory). Hf(M2,91γ)=8.4 W.u. For comparable Hf(M2) in the region, see 1973Co32.
275.3 *6*	33 *7*	322	(7/2$^+$)	47	(3/2$^+$)	[E2]	0.0533	α(K)=0.0439; α(L)=0.00755; α(M)=0.00154; α(N+..)=0.00037
322.5 *4*	97 *5*	322	(7/2$^+$)	0.0	(5/2$^+$)	[M1]	0.0312	α(K)=0.0269; α(L)=0.00342; α(M)=0.00068; α(N+..)=0.00017
414[&] *2*	≈3	413	(11/2$^-$)	0.0	(5/2$^+$)	[E3]	0.0453	α(K)=0.0356; α(L)=0.00769; α(M)=0.0016; α(N+..)=0.00038 Hf(E3,414γ)≈8 W.u.

[†] Low-energy γ's via IT decay may correspond with Eγ=55 *5*, 107 *5*, 318 *5* keV observed in p emission via ^{116}Cs precursor; see 1978Da07.

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^{115}I IT decay (144 μs) 1973Co32 (continued)

$\gamma(^{115}I)$ (continued)

‡ I(Kα x ray)=71 *18*.
# For absolute intensity per 100 decays, multiply by 0.87 *9*.
@ 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.
& Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.