

(HL,xnγ) **1991Ju02**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	J. Tuli	ENSDF	15-Aug-2015

¹⁴⁴Sm(³²S,p2n), E(³²S)=163 MeV, enriched ¹⁴⁴Sm targets (95%); ¹¹⁸Sn(⁵⁸Ni,p2n), E(¹¹⁸Sn)=270 MeV, recoil-mass separation. Measured excitation functions, E_γ, I_γ (28 Compton-suppressed germanium detectors in multidetector array), Xγ coin, γγ coin, γ-ray angular distributions and angular correlations; used cranked-shell model to interpret level structure.

¹⁷³Ir Levels

E(level)	J ^π †	E(level)	J ^π †	E(level)	J ^π †	E(level)	J ^π †
0.0+y		1605.1+y [#] 12	21/2 ⁺	4779.5+y [#] 17	45/2 ⁺	1347.1+x [@] 4	21/2 ⁻
71.1+y 14		1635.9+y [‡] 13	21/2 ⁻	4890.3+y [‡] 25	45/2 ⁻	1347.3+x 4	
155.4+y 10		1981.5+y [#] 12	25/2 ⁺	5497.9+y [#] 20	49/2 ⁺	1592.0+x [@] 4	23/2 ⁻
374.6+y 19		2219.3+y [‡] 14	25/2 ⁻	5589+y [‡] 3	49/2 ⁻	1648.3+x 4	19/2
424.4+y [‡] 13	9/2 ⁻	2420.8+y [#] 12	29/2 ⁺	6254+y [#] 2	(53/2 ⁺)	1853.2+x [@] 5	25/2 ⁻
516.4+y 16		2796.5+y [‡] 15	29/2 ⁻	0.0+x [@]	11/2 ⁻	2124.0+x [@] 5	27/2 ⁻
580.3+y 11		2922.9+y [#] 12	33/2 ⁺	374.5+x [@] 1	13/2 ⁻	2409.4+x [@] 6	29/2 ⁻
686.8+y [‡] 13	13/2 ⁻	3258.5+y [‡] 18	33/2 ⁻	567.0+x [@] 1	15/2 ⁻	2702.7+x [@] 6	31/2 ⁻
789.5+y 13		3486.4+y [#] 13	37/2 ⁺	764.8+x 5	(15/2 ⁻)	2999.9+x [@] 7	33/2 ⁻
1095.0+y [#] 12	13/2 ⁺	3720.5+y [‡] 20	37/2 ⁻	875.0+x [@] 2	17/2 ⁻	3287.3+x [@] 9	35/2 ⁻
1109.3+y [‡] 13	17/2 ⁻	4107.1+y [#] 14	41/2 ⁺	1099.6+x [@] 3	19/2 ⁻	3577.4+x [@] 10	37/2 ⁻
1295.3+y [#] 12	17/2 ⁺	4262.3+y [‡] 23	41/2 ⁻	1177.4+x 6		3881+x [@] 2	(39/2 ⁻)

† From γ-ray multiplicities, coincidence data, and analysis of band structure. Bandhead assignments were based on systematics for neighboring odd-Z nuclei. See ¹⁷³Ir Adopted Levels for evaluator's assignments.

‡ Member of h_{9/2}, ω=1/2 (1/2[541]) band.

Member of i_{13/2}, ω=1/2 (1/2[660]) band.

@ Member of h_{11/2}, ω=11/2 (11/2[505]) band.

γ(¹⁷³Ir)

E _γ †	I _γ ‡	E _i (level)	J _i ^π	E _f	J _f ^π	Mult.#
^x 111.2 ^{&} 10	20 6					
^x 134.8 [@] 10	<89					
141.8 10	22 5	516.4+y		374.6+y		
155.4 10	57 11	155.4+y		0.0+y		
^x 175.3 ^{&} 10	71 14					
^x 176.0 [@] 10	33 7					
185.9 5	107 10	1295.3+y	17/2 ⁺	1109.3+y	17/2 ⁻	
192.6 5	240 30	567.0+x	15/2 ⁻	374.5+x	13/2 ⁻	D
200.3 1	820 40	1295.3+y	17/2 ⁺	1095.0+y	13/2 ⁺	
224.4 5	330 40	1099.6+x	19/2 ⁻	875.0+x	17/2 ⁻	D
244.7 5	230 50	1592.0+x	23/2 ⁻	1347.1+x	21/2 ⁻	
247.5 5	360 70	1347.1+x	21/2 ⁻	1099.6+x	19/2 ⁻	D
^x 249 ^{&} 1	<40					
^x 260 ^{&} 1	<40					
261.3 5	185 20	1853.2+x	25/2 ⁻	1592.0+x	23/2 ⁻	(D)
262.4 1	1000	686.8+y	13/2 ⁻	424.4+y	9/2 ⁻	

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(HI,xn γ) 1991Ju02 (continued) $\gamma(^{173}\text{Ir})$ (continued)

E_γ †	I_γ ‡	E_i (level)	J_i^π	E_f	J_f^π	Mult. #
270.7 5	180 20	2124.0+x	27/2 ⁻	1853.2+x	25/2 ⁻	D
273.1 10	95 10	789.5+y		516.4+y		
^x 274.3 & 10	30 10					
285.5 5	135 30	2409.4+x	29/2 ⁻	2124.0+x	27/2 ⁻	D
287.6 10	80 15	3287.3+x	35/2 ⁻	2999.9+x	33/2 ⁻	
^x 288 & 1	110 40					
290.7 10	57 11	3577.4+x	37/2 ⁻	3287.3+x	35/2 ⁻	
293.5 5	114 14	2702.7+x	31/2 ⁻	2409.4+x	29/2 ⁻	D
297.2 5	100 13	2999.9+x	33/2 ⁻	2702.7+x	31/2 ⁻	D
301.4 10	41 8	1648.3+x	19/2	1347.1+x	21/2 ⁻	
304 1	42 10	3881+x	(39/2 ⁻)	3577.4+x	37/2 ⁻	
305.5 5	171 15	1095.0+y	13/2 ⁺	789.5+y		D
307.9 1	610 60	875.0+x	17/2 ⁻	567.0+x	15/2 ⁻	
309.8 1	800 50	1605.1+y	21/2 ⁺	1295.3+y	17/2 ⁺	
353.3 ^a 5	150 20	424.4+y	9/2 ⁻	71.1+y		(E2)
365.2 ^a 10	42 11	789.5+y		424.4+y	9/2 ⁻	
374.5 1	1.04×10 ³ 10	374.5+x	13/2 ⁻	0.0+x	11/2 ⁻	
376.4 1	750 60	1981.5+y	25/2 ⁺	1605.1+y	21/2 ⁺	(E2)
390.3 5	180 20	764.8+x	(15/2 ⁻)	374.5+x	13/2 ⁻	
408.3 5	390 20	1095.0+y	13/2 ⁺	686.8+y	13/2 ⁻	
412.3 10	60 20	1177.4+x		764.8+x	(15/2 ⁻)	
^x 415.4 & 5	112 12					
422.5 1	600 30	1109.3+y	17/2 ⁻	686.8+y	13/2 ⁻	(E2)
424.9 5	450 50	580.3+y		155.4+y		D
^x 430 @ 1	90 20					
439.3 1	700 50	2420.8+y	29/2 ⁺	1981.5+y	25/2 ⁺	(E2)
462 1	340 40	3258.5+y	33/2 ⁻	2796.5+y	29/2 ⁻	E2
462 1		3720.5+y	37/2 ⁻	3258.5+y	33/2 ⁻	
471 ^a 1	<77	1648.3+x	19/2	1177.4+x		
472.3 5	290 30	1347.1+x	21/2 ⁻	875.0+x	17/2 ⁻	
492.3 5	250 30	1592.0+x	23/2 ⁻	1099.6+x	19/2 ⁻	E2
501.0 5	310 30	875.0+x	17/2 ⁻	374.5+x	13/2 ⁻	(E2)
502.1 1	520 40	2922.9+y	33/2 ⁺	2420.8+y	29/2 ⁺	(E2)
506.1 5	240 20	1853.2+x	25/2 ⁻	1347.1+x	21/2 ⁻	(E2)
514.7 5	450 50	1095.0+y	13/2 ⁺	580.3+y		
^x 518 @ 1	72 10					
526.6 1	540 40	1635.9+y	21/2 ⁻	1109.3+y	17/2 ⁻	(E2)
532.0 5	270 50	2124.0+x	27/2 ⁻	1592.0+x	23/2 ⁻	E2
532.7 5	330 60	1099.6+x	19/2 ⁻	567.0+x	15/2 ⁻	
541.8 10	66 11	4262.3+y	41/2 ⁻	3720.5+y	37/2 ⁻	
556.3 5	190 20	2409.4+x	29/2 ⁻	1853.2+x	25/2 ⁻	E2
563.5 5	340 20	3486.4+y	37/2 ⁺	2922.9+y	33/2 ⁺	E2
567.0 1	720 60	567.0+x	15/2 ⁻	0.0+x	11/2 ⁻	
577 1	100 30	3577.4+x	37/2 ⁻	2999.9+x	33/2 ⁻	E2
577.2 5	280 30	2796.5+y	29/2 ⁻	2219.3+y	25/2 ⁻	E2
578.5 5	280 40	2702.7+x	31/2 ⁻	2124.0+x	27/2 ⁻	E2
583.4 5	370 30	2219.3+y	25/2 ⁻	1635.9+y	21/2 ⁻	
585.0 10	80 20	3287.3+x	35/2 ⁻	2702.7+x	31/2 ⁻	E2
590.3 5	210 20	2999.9+x	33/2 ⁻	2409.4+x	29/2 ⁻	E2
^x 610 @ 1	70 20					
620.7 5	180 20	4107.1+y	41/2 ⁺	3486.4+y	37/2 ⁺	E2
628 1	48 20	4890.3+y	45/2 ⁻	4262.3+y	41/2 ⁻	
672.4 10	86 10	4779.5+y	45/2 ⁺	4107.1+y	41/2 ⁺	E2
^x 697 @ 1	25 5					

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(HI,xn γ) 1991Ju02 (continued) $\gamma(^{173}\text{Ir})$ (continued)

E_γ^\dagger	I_γ^\ddagger	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [#]
699 1	20 11	5589+y	49/2 ⁻	4890.3+y	45/2 ⁻	
718.4 10	33 13	5497.9+y	49/2 ⁺	4779.5+y	45/2 ⁺	E2
756 ^a 1	19 9	6254+y	(53/2 ⁺)	5497.9+y	49/2 ⁺	
773.3 5	260 40	1648.3+x	19/2	875.0+x	17/2 ⁻	D
803.3 10	55 10	1177.4+x		374.5+x	13/2 ⁻	
^x 807 [@] 1	30 15					
^x 857 [@] 1	56 10					
^x 898 [@] 1	48 9					
972.9 5	112 11	1347.3+x		374.5+x	13/2 ⁻	

[†] ΔE not explicitly stated, but authors report variation from 0.1 keV to 1 keV, depending on intensity. Evaluator estimated 0.1 keV for $I_\gamma > 500$, 0.5 keV for $I_\gamma = 100-500$, and 1 keV for $I_\gamma < 100$.

[‡] Arbitrary units for $^{144}\text{Sm}(^{32}\text{S}, p2n)$, relative to $I_\gamma(262.4\gamma) = 1000$.

[#] Inferred from γ -ray angular distributions (A_2 only reported). Stretched E2 assignments were based on $A_2 > +0.25$, and dipole, on A_2 negative or $< +0.05$.

[@] In coincidence with 200.3 γ .

[&] In coincidence with 374.5 γ .

^a Placement of transition in the level scheme is uncertain.

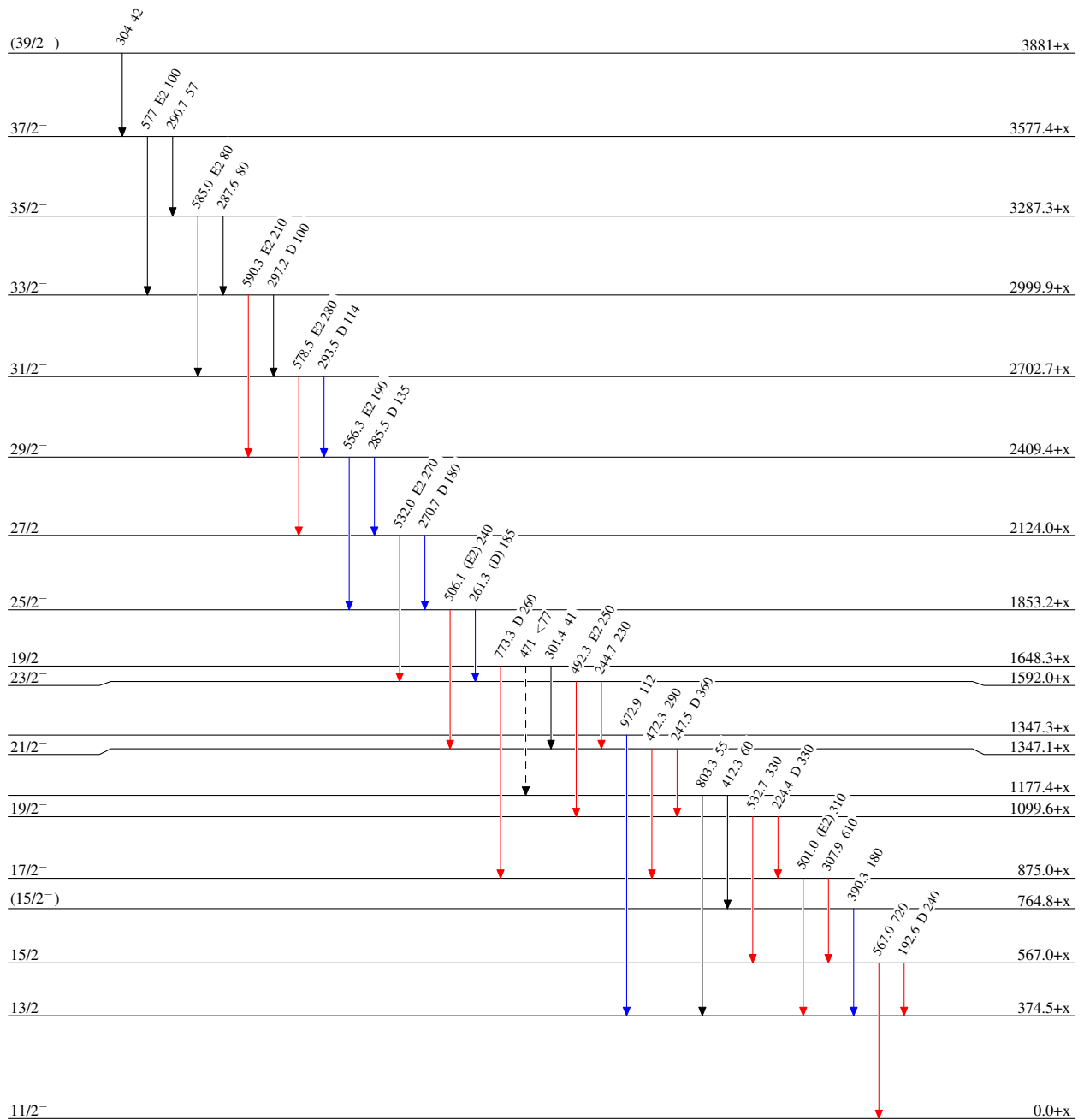
^x γ ray not placed in level scheme.

(HI,xn γ) 1991Ju02

Legend

Level SchemeIntensities: Relative I_{γ} for $^{144}\text{Sm}(^{32}\text{S},\text{P2N})$, $E(^{32}\text{S})=163$ MeV

- $I_{\gamma} < 2\% \times I_{\gamma}^{\text{max}}$
- $I_{\gamma} < 10\% \times I_{\gamma}^{\text{max}}$
- $I_{\gamma} > 10\% \times I_{\gamma}^{\text{max}}$
- - - - - γ Decay (Uncertain)

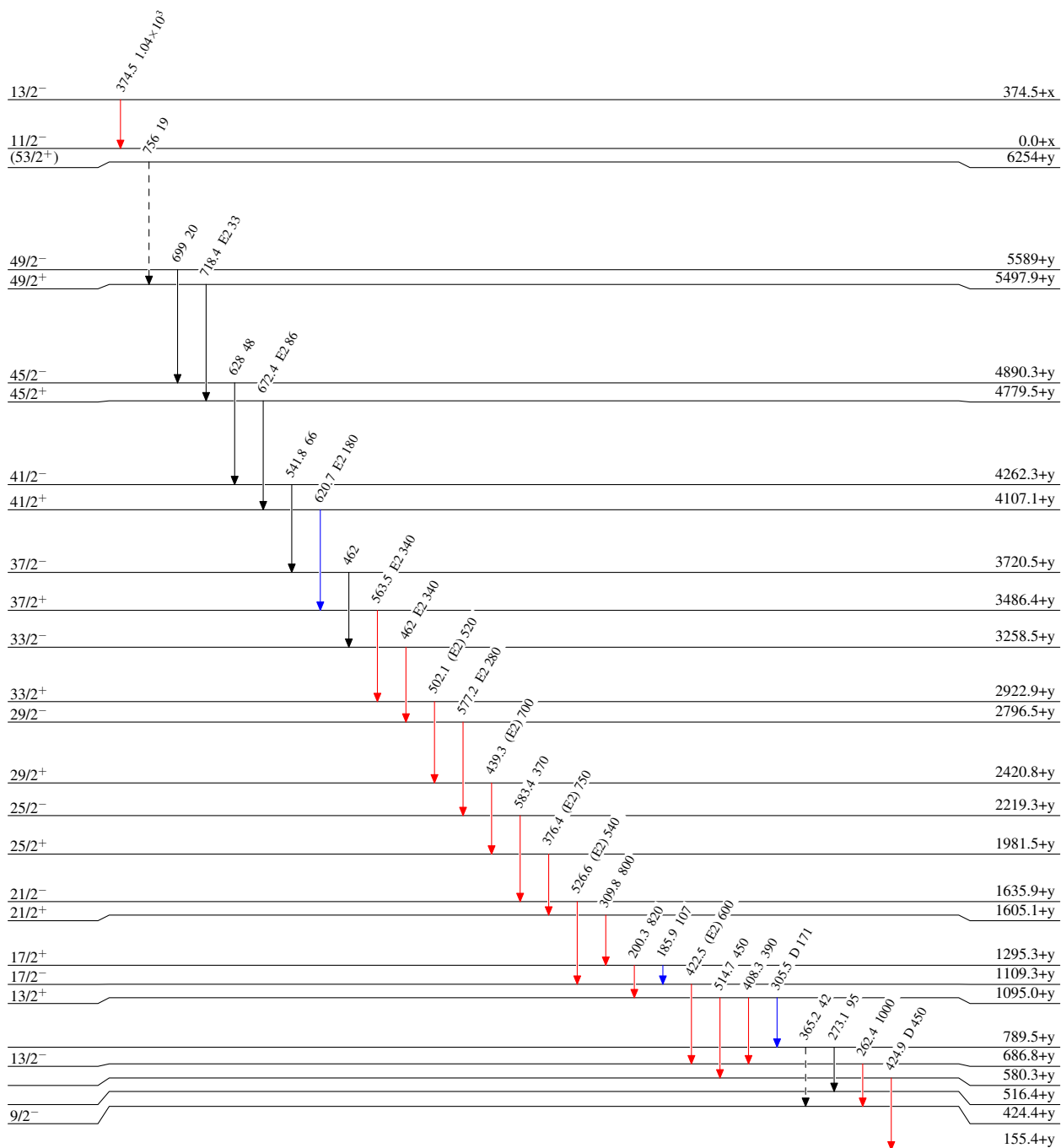
 $^{173}_{77}\text{Ir}_{96}$

(HI,xn γ) 1991Ju02

Legend

Level Scheme (continued)Intensities: Relative I_γ for $^{144}\text{Sm}(^{32}\text{S},\text{P2N})$, $E(^{32}\text{S})=163$ MeV

- $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- $I_\gamma > 10\% \times I_\gamma^{\text{max}}$
- - - - - γ Decay (Uncertain)

 $^{173}_{77}\text{Ir}_{96}$

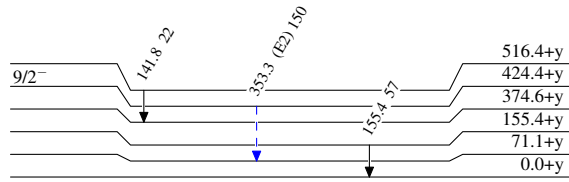
(HL,xn γ) 1991Ju02

Legend

Level Scheme (continued)

Intensities: Relative I_{γ} for $^{144}\text{Sm}(^{32}\text{S},\text{P2N})$, $E(^{32}\text{S})=163$ MeV

- ▶ $I_{\gamma} < 2\% \times I_{\gamma}^{\text{max}}$
- ▶ $I_{\gamma} < 10\% \times I_{\gamma}^{\text{max}}$
- ▶ $I_{\gamma} > 10\% \times I_{\gamma}^{\text{max}}$
- - - -▶ γ Decay (Uncertain)



$^{173}_{77}\text{Ir}_{96}$