

(HI,xn γ) [1995Th05,2005Mo20](#)

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 113, 515 (2012)	1-Jan-2012

2005Mo20: $^{93}\text{Nb}(^{24}\text{Mg},\text{p}2\text{n}\gamma)$ E=90 MeV Measured $E\gamma$, $I\gamma$, $\gamma\gamma$, lifetimes with one Euroball cluster detector, five large volume HPGe detectors and a coincidence plunger device.

1995Th05: $^{54}\text{Fe}(^{63}\text{Cu},3\text{p}\gamma)$ E=245 MeV and $^{64}\text{Ni}(^{56}\text{Fe},\alpha 2\text{n}\gamma)$ E=236 MeV, Eurogam ii, gammasphere.

1985JaZZ: $^{94}\text{Mo}(^{23}\text{Na},\text{p}2\text{n}\gamma)$ E=90 MeV, enriched targets.

Also $^{92}\text{Mo}(^{28}\text{Si},\alpha 2\text{p})$ E=125 MeV.

Measured: γ , $\gamma\gamma$, $\gamma(\theta)$.

1995Mo04: $^{89}\text{Y}(^{28}\text{Si},\text{p}2\text{n}\gamma)$ E=106 MeV, $^{89}\text{Y}(^{29}\text{Si},\text{p}3\text{n}\gamma)$ E=108 MeV.

Measured: γ , $\gamma\gamma$, $\gamma(\theta)$, 6 Ge with BGO anticompton.

The level scheme below 9469 keV was already given by [1985JaZZ](#). See comment on the 3880 level for the placement of the 792 γ . Level scheme of [1995Th05](#) is most extensive. All the levels above 9469 keV are only from [1995Th05](#).

1995Mo04 agree with previous works and show levels at 1390.7(2⁺), 2026.1 (4⁺) 2343.5 (6⁺) and a level at 6452.6 above the 5509 (14⁺).

The yrast band at high spin involves 4p2h (h11/2)+2(g7/2)+2(g9/2)–2 proton configuration coupled to the n(g7/2,d5/2)+8(h11/2)+4 neutron configuration.

Three rotational intruder bands are observed with the so-called smooth band termination with dynamic moment of inertia gradually decreasing with spin.

 ^{114}Te Levels

E(level)	J ^{π}	T _{1/2} ^{$\ddagger$}	Comments
0	0 ⁺	15.2 min 7	T _{1/2} : From Adopted Levels.
708.8 [#] 3	2 ⁺	2.83 ps 23	
1483.8 [#] 5	4 ⁺	2.16 ps 21	
2217.3 [#] 5	6 ⁺	1.90 ps 35	
2605.7 5	6 ⁺		
3088.1 [#] 5	8 ⁺	1.3 ps 5	
3153.5 ^d 6	(7 ⁻)		
3278.9 ^d 6	(8 ⁻)	0.65 ns 10	
3506.9 6	8 ⁺		
3513.5 ^e 6	(9 ⁻)	29.8 ps 28	
3722.8 6	9 ⁺		
3880.6 ^{†@} 6	10 ⁺		
3919.2 [#] 6	10 ⁺	23.4 ps 14	
4063.1 ^d 7	(10 ⁻)		
4303.8 ^e 6	(11 ⁻)		
4515.5 [#] 6	12 ⁺	2.9 ps 6	
4688.6 [@] 7	12 ⁺		
4824.0 ^d 7	(12 ⁻)		
5033.0 ^e 7	(13 ⁻)		
5252.7 [#] 7	14 ⁺		
5258.8 ^d 7	(14 ⁻)		
5308.9 10	(13 ⁻)		
5509.3 [@] 7	14 ⁺		
5636.0 ^{&} 12	(14 ⁻)		
5779.9 ^e 10	(15 ⁻)		
5944.5 [#] 8	16 ⁺		
6100 ^c	(15)		Additional information 1.

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(HI,xn γ) 1995Th05,2005Mo20 (continued) ^{114}Te Levels (continued)

E(level)	J $^{\pi}$	E(level)	J $^{\pi}$	E(level)	J $^{\pi}$	E(level)	J $^{\pi}$
6306.9 [@] 8	16 ⁺	8513 ^b 1	21 ⁺	11961.1 ^a 22	(26)	19159 ^{&} 4	(36 ⁻)
6425.8 ^d 12	(15 ⁻)	8721 ^c 1	(21)	12635.7 [@] 25	28 ⁺	19345 ^a 4	(36)
6472.0 ^{&} 16	(16 ⁻)	9173 ^b 1	(23 ⁺)	12939 ^{&} 3	(28 ⁻)	19896 [@] 4	38 ⁺
6599.9 ^d 13	(16 ⁻)	9216.7 [@] 17	22 ⁺	12975 ^b 1	(28 ⁺)	21059 ^{&} 4	(38 ⁻)
6920.5 [#] 8	18 ⁺	9347.0 ^{&} 24	(22 ⁻)	13219.1 ^a 24	(28)	21184 ^a 4	(38)
6923.9 ^e 14	(17 ⁻)	9668.1 ^a 17	(22)	13919 [@] 3	30 ⁺	21658 [@] 4	40 ⁺
6940.0 ^c 10	(17)	9723 ^c 1	(23)	14331 ^{&} 3	(30 ⁻)	23109 ^{&} 4	(40 ⁻)
7232.7 [@] 10	18 ⁺	10092 ^b 1	(25 ⁺)	14575 ^a 3	(30)	23166 ^a 4	(40)
7360.0 ^{&} 19	(18 ⁻)	10298.7 [@] 20	24 ⁺	15283 [@] 3	32 ⁺	23584 [@] 4	42 ⁺
7715 ^d 1		10437 ^{&} 3	(24 ⁻)	15822 ^{&} 4	(32 ⁻)	25288 ^{&} 4	(42 ⁻)
7804.0 ^c 15	(19)	10787.1 ^a 20	(24)	16045 ^a 3	(32)	25675 [@] 4	44 ⁺
7816.1 9	20 ⁺	11225 ^b 1	(26 ⁺)	16735 [@] 3	34 ⁺	27933 [@] 4	46 ⁺
7915 ^b 1	20 ⁺	11435.7 [@] 23	26 ⁺	17426 ^{&} 4	(34 ⁻)	30351 [@] 4	48 ⁺
8202.7 [@] 14	20 ⁺	11642 ^{&} 3	(26 ⁻)	17629 ^a 3	(34)	32926 [@] 5	(50 ⁺)
8319.0 ^{&} 21	(20 ⁻)	11840 ^b 1	(27 ⁺)	18269 [@] 4	36 ⁺		

[†] Level proposed by 1995Th05, agree with 1993Ko31 in (α ,2n γ) and 1986Lo14 in (^3He ,3n γ) but different in (^{23}Na ,p2n γ) 1985JaZZ.

[‡] From 2005Mo20.

Band(A): g.s. band.

@ Band(B): band 1.

& Band(C): band 2.

^a Band(D): band 3.

^b Band(E): Positive parity sequence.

^c Band(F): Gamma sequence.

^d Band(G): Negative parity sequence, $\alpha=0$.

^e Band(H): Negative parity sequence, $\alpha=1$.

 $\gamma(^{114}\text{Te})$

E $_{\gamma}$ [†]	I $_{\gamma}$ [†]	E $_i$ (level)	J $^{\pi}_i$	E $_f$	J $^{\pi}_f$	Mult. [‡]	Comments
125.2 3	15	3278.9	(8 ⁻)	3153.5	(7 ⁻)	M1,E2	Mult.: A ₂ =0.05 6; A ₄ =-0.20 7.
174.1 3	3	6599.9	(16 ⁻)	6425.8	(15 ⁻)	M1,E2	Mult.: A ₂ =-0.20 17; A ₄ =-0.07 26.
196.4 3	4	3919.2	10 ⁺	3722.8	9 ⁺	M1,E2	Mult.: A ₂ =0.00 11; A ₄ =-0.15 13.
208.9 3	3	3722.8	9 ⁺	3513.5	(9 ⁻)		
209		5033.0	(13 ⁻)	4824.0	(12 ⁻)		
225.6 3	4	5258.8	(14 ⁻)	5033.0	(13 ⁻)	M1,E2	Mult.: A ₂ =-0.46 11; A ₄ =-0.08 11.
234.4 3	6	3513.5	(9 ⁻)	3278.9	(8 ⁻)	M1,E2	Mult.: A ₂ =0.11 8; A ₄ =-0.05 9.
276		5308.9	(13 ⁻)	5033.0	(13 ⁻)		
^x 310.4 3	1						
360.1 3	2	3513.5	(9 ⁻)	3153.5	(7 ⁻)		
388.5 3	6	2605.7	6 ⁺	2217.3	6 ⁺	M1+E2	Mult.: A ₂ =-0.10 27; A ₄ =0.17 31.
411.9 3	10	3919.2	10 ⁺	3506.9	8 ⁺		
425.0 3	20	3513.5	(9 ⁻)	3088.1	8 ⁺	E1	Mult.: A ₂ =-0.28 4; A ₄ =-0.03 4.
434.9 3	8	5258.8	(14 ⁻)	4824.0	(12 ⁻)		Mult.: A ₂ =0.11 8; A ₄ =-0.03 9.
^x 443.5 3	2						
482.3 3	3	3088.1	8 ⁺	2605.7	6 ⁺		

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(HI,xn γ) [1995Th05,2005Mo20](#) (continued) $\gamma(^{114}\text{Te})$ (continued)

E_γ [†]	I_γ [†]	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [‡]	Comments
521		5779.9	(15 ⁻)	5258.8	(14 ⁻)		
596.1 3	28	4515.5	12 ⁺	3919.2	10 ⁺	E2	Mult.: $A_2=0.30$ 3; $A_4=-0.16$ 4.
598		8513	21 ⁺	7915	20 ⁺		
615		11840	(27 ⁺)	11225	(26 ⁺)		
635.0 3	13	3722.8	9 ⁺	3088.1	8 ⁺		
635		4515.5	12 ⁺	3880.6	10 ⁺		
660		9173	(23 ⁺)	8513	21 ⁺		
691.7 3	16	5944.5	16 ⁺	5252.7	14 ⁺	E2	Mult.: $A_2=0.32$ 4; $A_4=-0.13$ 5.
^x 698.0 3	4						
708.8 3	100	708.8	2 ⁺	0	0 ⁺	E2	Mult.: $A_2=0.28$ 2; $A_4=-0.10$ 3.
729.1 3	14	5033.0	(13 ⁻)	4303.8	(11 ⁻)	E2	Mult.: $A_2=0.23$ 5; $A_4=-0.05$ 6.
733.7 3	93	2217.3	6 ⁺	1483.8	4 ⁺	E2	Mult.: $A_2=0.32$ 2; $A_4=-0.11$ 3.
737.1 3	25	5252.7	14 ⁺	4515.5	12 ⁺	E2	Mult.: $A_2=0.37$ 4; $A_4=-0.17$ 7.
747		5779.9	(15 ⁻)	5033.0	(13 ⁻)		
^x 747.3 3	3						
761.0 3	10	4824.0	(12 ⁻)	4063.1	(10 ⁻)	E2	Mult.: $A_2=0.33$ 6; $A_4=-0.17$ 7.
775.0 3	100	1483.8	4 ⁺	708.8	2 ⁺	E2	Mult.: $A_2=0.29$ 2; $A_4=-0.11$ 3.
784.3 3	13	4063.1	(10 ⁻)	3278.9	(8 ⁻)	E2	Mult.: $A_2=0.29$ 5; $A_4=0.05$ 6.
790.2 3	19	4303.8	(11 ⁻)	3513.5	(9 ⁻)	E2	Mult.: $A_2=0.19$ 5; $A_4=-0.09$ 6.
^x 792.5 3	13					(E2)	Mult.: $A_2=0.36$ 4; $A_4=-0.08$ 5.
							E_γ : 1985JaZZ give two gammas deexciting two 12 ⁺ levels, now in 1995Th05 the 792 γ is between the 10 ⁺ – 8 ⁺ levels.
792.6 3	6	3880.6	10 ⁺	3088.1	8 ⁺	(E2)	Mult.: $A_2=0.36$ 4; $A_4=-0.08$ 5.
797.7 3	2	6306.9	16 ⁺	5509.3	14 ⁺		
808.1 3	7	4688.6	12 ⁺	3880.6	10 ⁺		Mult.: $A_2=0.16$ 12; $A_4=0.04$ 13.
812		5636.0	(14 ⁻)	4824.0	(12 ⁻)		
820.8 3	3	5509.3	14 ⁺	4688.6	12 ⁺	E2	Mult.: $A_2=0.27$ 11; $A_4=-0.17$ 13.
831.4 3	14	3919.2	10 ⁺	3088.1	8 ⁺	E2	Mult.: $A_2=0.38$ 5; $A_4=-0.13$ 6.
836		6472.0	(16 ⁻)	5636.0	(14 ⁻)		
840		6940.0	(17)	6100	(15)		
^x 844.3 3	2						
864		7804.0	(19)	6940.0	(17)		
871.3 3	57	3088.1	8 ⁺	2217.3	6 ⁺	E2	Mult.: $A_2=0.26$ 3; $A_4=-0.08$ 3.
888		7360.0	(18 ⁻)	6472.0	(16 ⁻)		
895.6 3	5	7816.1	20 ⁺	6920.5	18 ⁺	E2	Mult.: $A_2=0.28$ 13; $A_4=0.37$ 14.
901.2 3	6	3506.9	8 ⁺	2605.7	6 ⁺	E2	Mult.: $A_2=0.38$ 9; $A_4=-0.22$ 12.
917		8721	(21)	7804.0	(19)		
919		10092	(25 ⁺)	9173	(23 ⁺)		
927		7232.7	18 ⁺	6306.9	16 ⁺		
936.2 3	21	3153.5	(7 ⁻)	2217.3	6 ⁺	E1	Mult.: $A_2=-0.30$ 4; $A_4=-0.05$ 4.
959		8319.0	(20 ⁻)	7360.0	(18 ⁻)		
970		8202.7	20 ⁺	7232.7	18 ⁺		
976.0 3	11	6920.5	18 ⁺	5944.5	16 ⁺	E2	Mult.: $A_2=0.17$ 6; $A_4=-0.17$ 7.
995		7915	20 ⁺	6920.5	18 ⁺		
1002		9723	(23)	8721	(21)		
1005		5308.9	(13 ⁻)	4303.8	(11 ⁻)		
1014		9216.7	22 ⁺	8202.7	20 ⁺		
1028		9347.0	(22 ⁻)	8319.0	(20 ⁻)		
1054 1		6306.9	16 ⁺	5252.7	14 ⁺		
1082		10298.7	24 ⁺	9216.7	22 ⁺		
1090		10437	(24 ⁻)	9347.0	(22 ⁻)		
1115		7715		6599.9	(16 ⁻)		
1119		10787.1	(24)	9668.1	(22)		
1121.8 3	5	2605.7	6 ⁺	1483.8	4 ⁺	E2	Mult.: $A_2=0.50$ 14; $A_4=-0.14$ 15.
1133		11225	(26 ⁺)	10092	(25 ⁺)		
1135		12975	(28 ⁺)	11840	(27 ⁺)		

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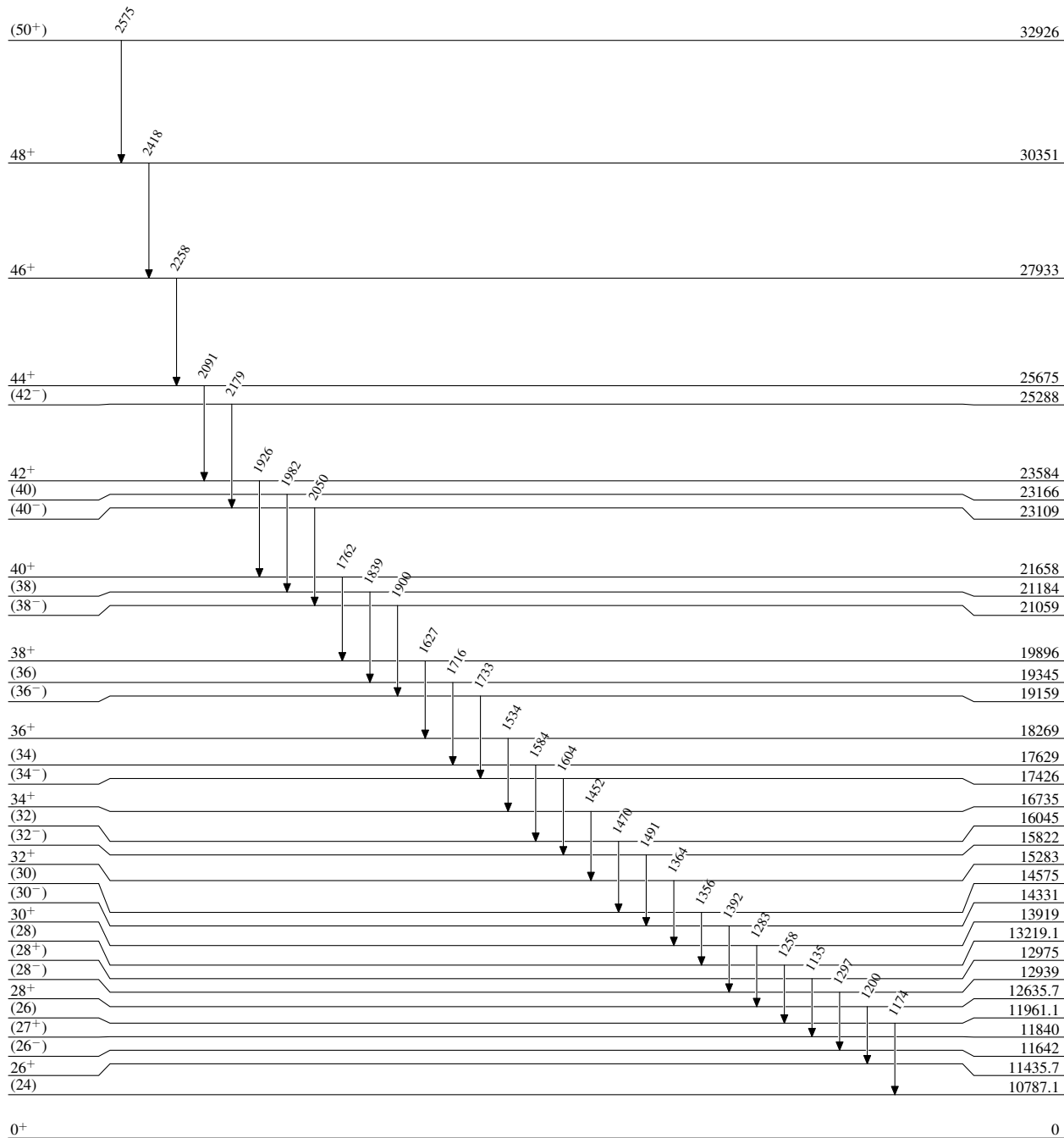
(HI,xn γ) [1995Th05,2005Mo20](#) (continued) $\gamma(^{114}\text{Te})$ (continued)

$E_\gamma^\dagger$	$I_\gamma^\dagger$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	$E_\gamma^\dagger$	$E_i(\text{level})$	J_i^π	E_f	J_f^π
1137		11435.7	26 ⁺	10298.7	24 ⁺	1534	18269	36 ⁺	16735	34 ⁺
1144		6923.9	(17 ⁻)	5779.9	(15 ⁻)	1584	17629	(34)	16045	(32)
1156		9668.1	(22)	8513	21 ⁺	1604	17426	(34 ⁻)	15822	(32 ⁻)
1167		6425.8	(15 ⁻)	5258.8	(14 ⁻)	1627	19896	38 ⁺	18269	36 ⁺
1174		11961.1	(26)	10787.1	(24)	1716	19345	(36)	17629	(34)
1200		12635.7	28 ⁺	11435.7	26 ⁺	1733	19159	(36 ⁻)	17426	(34 ⁻)
1205		11642	(26 ⁻)	10437	(24 ⁻)	1762	21658	40 ⁺	19896	38 ⁺
1258		13219.1	(28)	11961.1	(26)	1839	21184	(38)	19345	(36)
1283		13919	30 ⁺	12635.7	28 ⁺	1900	21059	(38 ⁻)	19159	(36 ⁻)
1287		7232.7	18 ⁺	5944.5	16 ⁺	1926	23584	42 ⁺	21658	40 ⁺
1289.2 3	<2	3506.9	8 ⁺	2217.3	6 ⁺	1982	23166	(40)	21184	(38)
1297		12939	(28 ⁻)	11642	(26 ⁻)	2050	23109	(40 ⁻)	21059	(38 ⁻)
1356		14575	(30)	13219.1	(28)	2091	25675	44 ⁺	23584	42 ⁺
1364		15283	32 ⁺	13919	30 ⁺	2179	25288	(42 ⁻)	23109	(40 ⁻)
1392		14331	(30 ⁻)	12939	(28 ⁻)	2258	27933	46 ⁺	25675	44 ⁺
1452		16735	34 ⁺	15283	32 ⁺	2418	30351	48 ⁺	27933	46 ⁺
1470		16045	(32)	14575	(30)	2575	32926	(50 ⁺)	30351	48 ⁺
1491		15822	(32 ⁻)	14331	(30 ⁻)					

[†] E_γ with I_γ are from [1985JaZZ](#), others without decimal point are from [1995Th05](#).

[‡] Mult and A_2 are from [1985JaZZ](#).

^x γ ray not placed in level scheme.

(HI,xn γ) 1995Th05,2005Mo20Level SchemeIntensities: Relative I_γ 

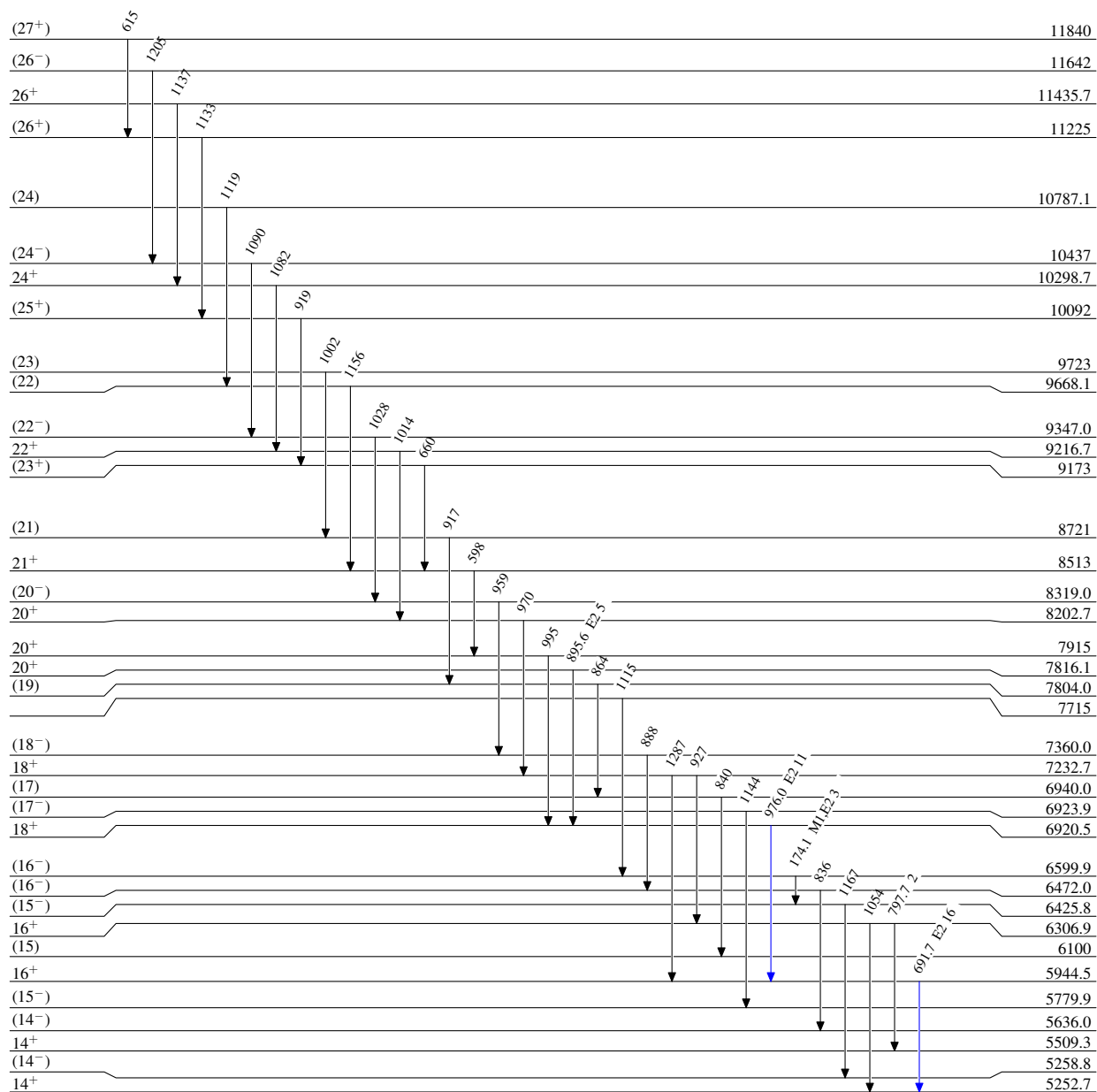
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 $^{114}_{52}\text{Te}_{62}$

(HI,xn γ) 1995Th05,2005Mo20**Level Scheme (continued)**Intensities: Relative I_γ

Legend

- $\longrightarrow$ $I_\gamma < 2\% \times I_\gamma^{\max}$
 $\longrightarrow$ $I_\gamma < 10\% \times I_\gamma^{\max}$
 $\longrightarrow$ $I_\gamma > 10\% \times I_\gamma^{\max}$

0⁺

0

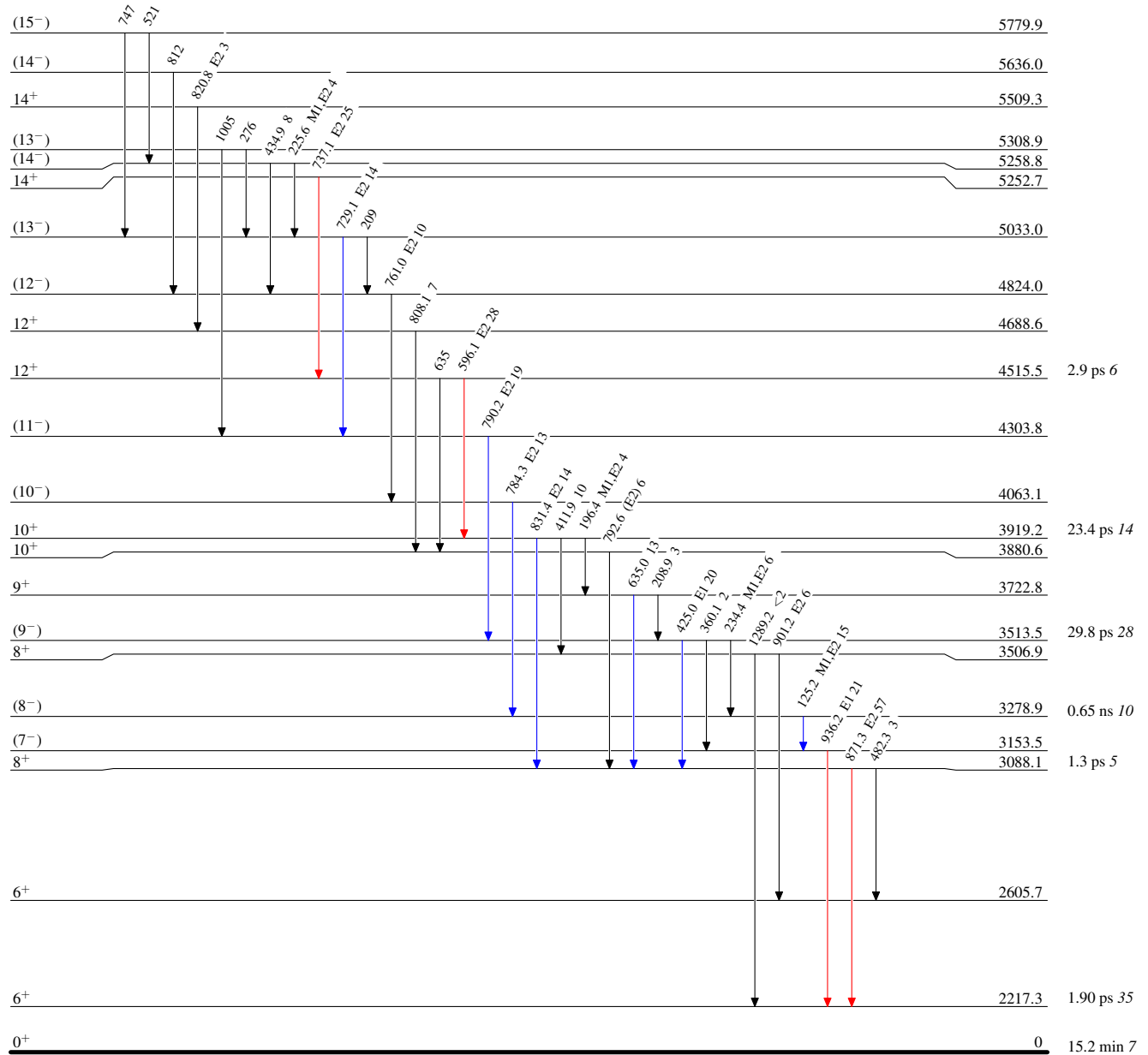
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 $^{114}_{52}\text{Te}_{62}$

(HI,xn γ) 1995Th05,2005Mo20**Level Scheme (continued)**Intensities: Relative I_γ

Legend

- $\longrightarrow$ $I_\gamma < 2\% \times I_\gamma^{\max}$
 $\longrightarrow$ $I_\gamma < 10\% \times I_\gamma^{\max}$
 $\longrightarrow$ $I_\gamma > 10\% \times I_\gamma^{\max}$



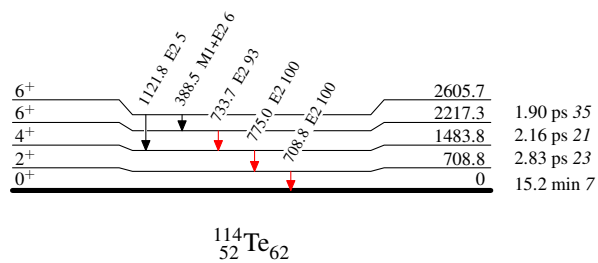
(HI,xn γ) 1995Th05,2005Mo20

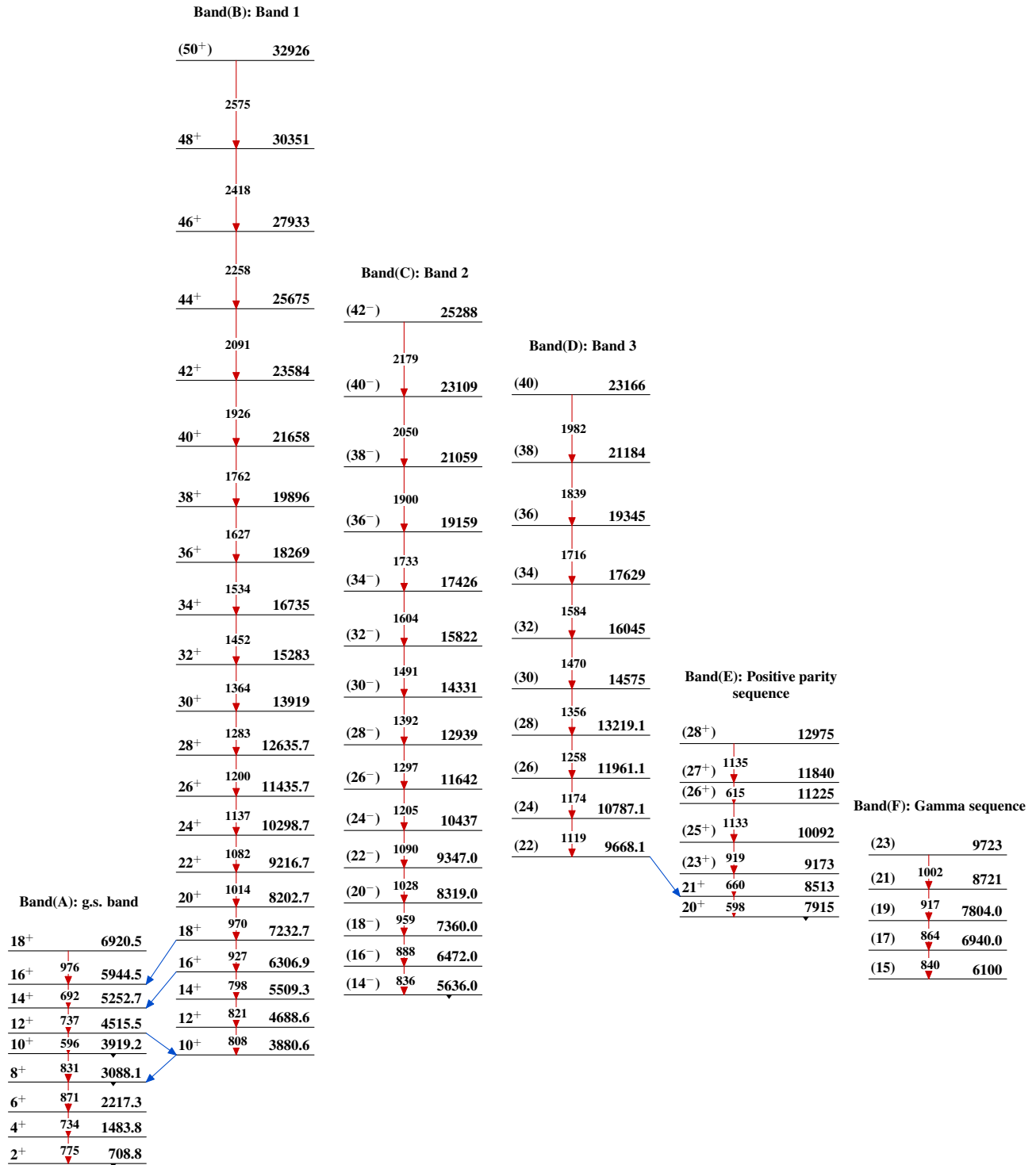
Level Scheme (continued)

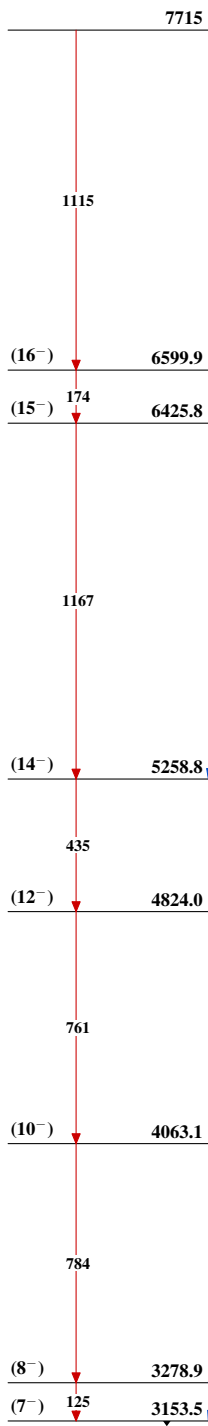
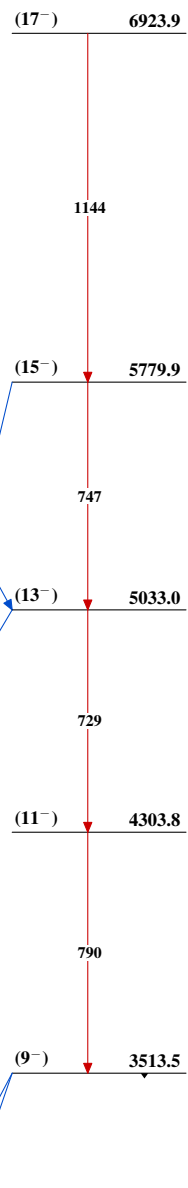
Intensities: Relative I_γ

Legend

- $I_\gamma < 2\% \times I_\gamma^{\max}$
- $I_\gamma < 10\% \times I_\gamma^{\max}$
- $I_\gamma > 10\% \times I_\gamma^{\max}$



(HI,xn γ) 1995Th05,2005Mo20

(HI,xn γ) 1995Th05,2005Mo20 (continued)**Band(G): Negative parity
sequence, $\alpha=0$** **Band(H): Negative parity
sequence, $\alpha=1$**  $^{114}_{52}\text{Te}_{62}$