(HI,xnγ) 1995Si29,1995Pa28

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	D. M. Symochko, E. Browne, J. K. Tuli	NDS 110,2945 (2009)	1-Dec-2008

1995Si29: ^{110}Pd(^{13}C,4nγ) E=66 MeV; measured γ, γγ, γγ(θ), DCO ratio. ^{110}Pd(^{12}C,3nγ) E=55 MeV; measured γ(θ). Enriched target (98%), thickness 1 mg/cm^2).

1995Pa28: ^{96}Zr(^{30}Si,α3nγ) E=135 MeV; measured γ, γγ, γγ(θ), DCO ratio; enriched target (500 μg/cm^2).

Other: 1995Si10 (see 1995Si29 for expt details).

The level scheme is that proposed from 1995Si29, except for several high lying levels which were reported by 1995Pa28. Order of 718γ-108γ cascade de-exciting the 7654.8 level is that from 1995Pa28, but 1995Si29 has given inverse order.

^{119}Te Levels

E(level)[†#]	Jπ[#]	$T_{1/2}$	Comments
0.0	1/2$^+$		
257.3 *5*	3/2$^+$		
260.96 *5*	11/2$^-$	4.70[#] d *4*	Additional information 1.
320.6 *5*	5/2$^+$		
467.9 *5*	9/2$^-$		
703.3 *6*	(7/2$^+$)		
901.08 *17*	15/2$^-$		
946.0 *6*	(9/2$^+$)		
979.93 *17*	(13/2$^-$)		
1280.8 *7*	(11/2$^+$)		
1586.4 *8*	(13/2$^+$)		
1598.60 *20*	(17/2$^-$)		
1618.79 *23*	(19/2$^-$)		
1939.5 *8*	(15/2$^+$)		
2101.79 *23*	(21/2$^-$)		
2272.2 *3*	(23/2$^-$)		
2629.0 *3*	(23/2$^-$)		
3006.7 *5*	(25/2$^-$)		
3181.0 *3*	(25/2$^-$)		
3348.0 *3*	(27/2$^-$)		
3381.8 *4*	(27/2)		
3623.7 *3*	(27/2$^-$)		
3668.4 *5*	(29/2$^-$)		
3762.6 *5*	(27/2$^-$)		
3804.6 *5*	(29/2)		
4378.2 *4*	(31/2$^-$)		
4449.3 *7*	(33/2$^-$)		
4571.8 *3*	(31/2$^-$)		
4669.3 *9*			
4730.2[‡] *8*			
5032.0 *8*	(37/2$^-$)		
5254.2 *4*	(35/2$^-$)		
5446.6 *4*	(39/2$^-$)		
5449.2 *11*	(41/2)		
6003.8 *6*	(43/2$^-$)		
6054.0[‡] *8*			
6466.8 *7*	(45/2$^-$)		
6513.0 *6*	(41/2$^-$)		
6727.6[‡] *7*	(43/2$^-$)		
6828.1 *5*	(43/2$^-$)		
6936.4[‡] *5*	(45/2$^-$)		

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(HI,xnγ) 1995Si29,1995Pa28 (continued)

^{119}Te Levels (continued)

E(level)[†#]	Jπ[#]	E(level)[†#]	Jπ[#]	E(level)[†#]	Jπ[#]	E(level)[†#]	Jπ[#]
6952.7 *10*	(47/2⁻)	7654.2[‡] *6*	(47/2⁻)	8354.4 *7*		9555.1[‡] *11*	
7025.1 *7*	(43/2⁻)	7936.2 *8*		8636.4[‡] *7*	(47/2⁻)	9698.3[‡] *11*	(55/2⁻)
7258.4[‡] *7*		7962.0[‡] *7*	(45/2⁻)	9067.4 *9*			
7359.9 *8*	(45/2⁻)	8062.0[‡] *9*		9383.5[‡] *10*	(51/2⁻)		

† From a least-squares fit by the evaluators to the adopted E(γ's).
‡ From 1995Pa28.
# From Adopted Levels.

γ(^{119}Te)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	Comments
63.2 *7*		320.6	5/2⁺	257.3	3/2⁺		
108.6 *5*		6936.4	(45/2⁻)	6828.1	(43/2⁻)	D	Mult.: DCO≈0.50 (1995Pa28).
143.1[#] *7*		9698.3	(55/2⁻)	9555.1			Mult.: DCO≈1.0.
170.4 *2*	15.8 *16*	2272.2	(23/2⁻)	2101.79	(21/2⁻)	M1	Mult.: DCO=0.57 *7*; A_2=−0.27 *6*, A_4=0.16 *8*.
192.4 *2*	55 *6*	5446.6	(39/2⁻)	5254.2	(35/2⁻)	E2	Mult.: DCO=0.98 *5*; A_2=0.30 *5*, A_4=0.00 *6*.
193.5 *7*	1.5 *5*	4571.8	(31/2⁻)	4378.2	(31/2⁻)		
200.8 *2*	17.0 *17*	3381.8	(27/2)	3181.0	(25/2⁻)	D	Mult.: DCO=0.57 *7*; A_2=−0.21 *5*, A_4=0.01 *7*.
206.9 *7*	2.6 *8*	467.9	9/2⁻	260.96	11/2⁻	M1	Mult.: DCO=0.50 *6*; A_2=−0.07 *16*, A_4=−0.25 *20*.
208.8[#] *7*		6936.4	(45/2⁻)	6727.6	(43/2⁻)		
242.6 *7*	1.0 *5*	946.0	(9/2⁺)	703.3	(7/2⁺)	M1	Mult.: DCO=0.56 *23*.
257.3 *5*	7.3 *15*	257.3	3/2⁺	0.0	1/2⁺	M1	Mult.: DCO=0.62 *14*.
280.5[#] *7*		4730.2		4449.3	(33/2⁻)		
286.4 *7*	0.5 *5*	3668.4	(29/2⁻)	3381.8	(27/2)		
305.5 *7*	1.0 *5*	1586.4	(13/2⁺)	1280.8	(11/2⁺)		
320.6 *5*	4.1 *8*	320.6	5/2⁺	0.0	1/2⁺	E2	Mult.: DCO=1.04 *25*.
334.9 *7*	2.3 *7*	1280.8	(11/2⁺)	946.0	(9/2⁺)	M1	Mult.: DCO=0.46 *22*.
353.1 *7*	1.0 *5*	1939.5	(15/2⁺)	1586.4	(13/2⁺)		
356.6 *5*	5.6 *11*	2629.0	(23/2⁻)	2272.2	(23/2⁻)	E2+M1	Mult.: DCO=1.17 *20*; A_2=−0.03 *10*, A_4=0.12 *19*.
382.6 *5*	5.0 *10*	703.3	(7/2⁺)	320.6	5/2⁺	M1	Mult.: DCO=0.49 *16*.
392.5[#] *7*		8354.4		7962.0	(45/2⁻)		
395.9[#] *7*		7654.2	(47/2⁻)	7258.4			
417.2 *7*	1.4 *4*	5449.2	(41/2)	5032.0	(37/2⁻)		
418.2 *7*	1.6 *5*	8354.4		7936.2		(E2)	Mult.: DCO=1.07 *29*.
422.8 *5*	9.2 *18*	3804.6	(29/2)	3381.8	(27/2)	D	Mult.: DCO=0.52 *5*; A_2=−0.20 *3*, A_4=−0.04.
423.5[#] *7*		6936.4	(45/2⁻)	6513.0	(41/2⁻)		
430.3[#] *7*		7258.4		6828.1	(43/2⁻)		
442.5 *7*	1.0 *3*	3623.7	(27/2⁻)	3181.0	(25/2⁻)		
462.8 *5*	4.5 *9*	6466.8	(45/2⁻)	6003.8	(43/2⁻)	M1+E2	Mult.: DCO=0.50 *8*, A_2=−0.70 *5*, A_4=−0.21 *15*.
469.0[#] *7*		6936.4	(45/2⁻)	6466.8	(45/2⁻)		
483.0 *2*	21.6 *22*	2101.79	(21/2⁻)	1618.79	(19/2⁻)	M1+E2	Mult.: DCO=0.53 *9*; A_2=−0.82 *5*, A_4=0.09 *1*.
485.9 *7*	2.0 *6*	6952.7	(47/2⁻)	6466.8	(45/2⁻)	D	Mult.: DCO=0.59 *18*.
487.3 *7*	0.5 *5*	3668.4	(29/2⁻)	3181.0	(25/2⁻)		
487.7[#]		9555.1		9067.4			
503.1 *2*	20.7 *21*	2101.79	(21/2⁻)	1598.60	(17/2⁻)	E2	Mult.: DCO=0.99 *15*; A_2=0.29 *6*, A_4=−0.16 *6*.
511.9 *7*	2.5 *8*	979.93	(13/2⁻)	467.9	9/2⁻	E2	Mult.: DCO=1.01 *15*.
527.1 *5*	3.4 *6*	2629.0	(23/2⁻)	2101.79	(21/2⁻)		
552.1 *5*	5.0 *10*	3181.0	(25/2⁻)	2629.0	(23/2⁻)	M1+E2	Mult.: DCO=0.63 *15*; A_2=0.04 *5*, A_4=−0.16.

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(HI,xnγ) 1995Si29,1995Pa28 (continued)

γ(^{119}Te) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	Comments
556.9 *5*	7.2 *14*	6003.8	(43/2$^-$)	5446.6	(39/2$^-$)	E2	
577.5 *5*	3.7 *7*	1280.8	(11/2$^+$)	703.3	(7/2$^+$)	E2	Mult.: DCO=1.53 *40*.
582.7 *5*	3.9 *8*	5032.0	(37/2$^-$)	4449.3	(33/2$^-$)	E2	Mult.: DCO=1.01 *22*.
618.7 *2*	14.4 *14*	1598.60	(17/2$^-$)	979.93	(13/2$^-$)	E2	Mult.: DCO=1.12 *9*; A_2=0.33 *16*, A_4=−0.23 *18*.
625.5 *5*	6.3 *13*	946.0	(9/2$^+$)	320.6	5/2$^+$	E2	Mult.: DCO=1.01 *22*.
629 *1*	1.0 *5*	7654.2	(47/2$^-$)	7025.1	(43/2$^-$)		
630.9[#] *7*		9698.3	(55/2$^-$)	9067.4		Q	Mult.: DCO≈1.0.
640.1 *2*	100 *10*	901.08	15/2$^-$	260.96	11/2$^-$	E2	Mult.: DCO=0.99 *6*; A_2=0.28 *4*, A_4=−0.09 *4*.
640.4 *7*	5.0 *15*	1586.4	(13/2$^+$)	946.0	(9/2$^+$)	E2	Mult.: DCO=1.35 *30*.
653.5 *2*	45 *9*	2272.2	(23/2$^-$)	1618.79	(19/2$^-$)	E2	Mult.: DCO=1.06 *10*; A_2=0.25 *5*, A_4=−0.15 *6*.
658.7 *5*	4.0 *8*	1939.5	(15/2$^+$)	1280.8	(11/2$^+$)		
661.6 *5*	7.0 *14*	3668.4	(29/2$^-$)	3006.7	(25/2$^-$)	E2	Mult.: DCO=0.94 *10*; A_2=0.16 *9*, A_4=−0.29 *10*.
674.4[#] *7*		8636.4	(47/2$^-$)	7962.0	(45/2$^-$)		
682.5 *2*	32 *3*	5254.2	(35/2$^-$)	4571.8	(31/2$^-$)	E2	Mult.: DCO=1.03 *9*; A_2=0.18 *7*, A=0.04 *8*.
697.4 *2*	13.3 *13*	1598.60	(17/2$^-$)	901.08	15/2$^-$	M1(+E2)	Mult.: DCO=0.60 *7*.
700.1 *5*	5.5 *11*	8354.4		7654.2	(47/2$^-$)		DCO=0.99 *20* (1995Si29), ≈0.5 (1995Pa28).
713.0 *5*	5.0 *10*	9067.4		8354.4			Mult.: DCO=1.04 *27* (1995Si29), ≈0.5 (1995Pa28).
717.8 *2*	89 *9*	1618.79	(19/2$^-$)	901.08	15/2$^-$	E2	Mult.: DCO=1.00 *7*. I_γ: intensity includes that of other transition (feeding to 45/2$^-$ state at 6936 keV).
717.9 *7*		7654.2	(47/2$^-$)	6936.4	(45/2$^-$)		
719.0 *2*	12.0 *12*	979.93	(13/2$^-$)	260.96	11/2$^-$	M1+E2	Mult.: DCO=0.70 *10*.
719.0	4.6 *9*	3348.0	(27/2$^-$)	2629.0	(23/2$^-$)		E_γ: Eγ determined from level energy difference.
734.5 *7*	1.7 *5*	3006.7	(25/2$^-$)	2272.2	(23/2$^-$)		
747.1[#] *7*		9383.5	(51/2$^-$)	8636.4	(47/2$^-$)	Q	Mult.: DCO≈1.0.
767.1 *7*	0.5 *5*	4571.8	(31/2$^-$)	3804.6	(29/2)		
780.8 *5*	5.9 *12*	4449.3	(33/2$^-$)	3668.4	(29/2$^-$)	E2	Mult.: DCO=0.99 *17*; A_2=0.32 *14*, A_4=−0.27 *17*.
809.2 *7*	2.8 *8*	4571.8	(31/2$^-$)	3762.6	(27/2$^-$)		
825.9 *7*	2.7 *5*	7654.2	(47/2$^-$)	6828.1	(43/2$^-$)	E2	Mult.: DCO=1.09 *20*.
846.9 *5*	3.6 *7*	7359.9	(45/2$^-$)	6513.0	(41/2$^-$)	E2	Mult.: DCO=1.06 *20*.
864.7 *7*	1.3 *4*	4669.3		3804.6	(29/2)		
876.0 *2*	29 *3*	5254.2	(35/2$^-$)	4378.2	(31/2$^-$)	E2	Mult.: DCO=1.03 *10*; A_2=0.21 *4*, A=−0.19 *5*.
882.0[#] *7*		6936.4	(45/2$^-$)	6054.0			
904.8 *5*	8.1 *16*	3006.7	(25/2$^-$)	2101.79	(21/2$^-$)	E2	Mult.: DCO=1.01 *16*.
908.6 *5*	6.5 *13*	3181.0	(25/2$^-$)	2272.2	(23/2$^-$)	M1+E2	Mult.: DCO=0.66 *17*; A_2=−0.36 *11*, A_4=−0.07 *14*.
911.1 *7*	1.9 *6*	7936.2		7025.1	(43/2$^-$)		
948.1 *2*	12.1 *12*	4571.8	(31/2$^-$)	3623.7	(27/2$^-$)	E2	Mult.: DCO=1.04 *13*; A_2=0.33 *15*, A_4=−0.48 *17*.
994.7 *2*	12.7 *13*	3623.7	(27/2$^-$)	2629.0	(23/2$^-$)	E2	Mult.: DCO=1.05 *17*; A_2=0.25 *7*, A_4=−0.18.
1010.2 *2*	18.8 *19*	2629.0	(23/2$^-$)	1618.79	(19/2$^-$)	E2	Mult.: DCO=1.06 *11*; A_2=0.24 *4*, A_4=−0.15 *5*.
1030.2 *2*	30 *3*	4378.2	(31/2$^-$)	3348.0	(27/2$^-$)	E2	Mult.: DCO=1.06 *10*; A_2=0.23 *4*, A_4=−0.09 *5*.
1066.5 *5*	4.2 *8*	6513.0	(41/2$^-$)	5446.6	(39/2$^-$)	M1	Mult.: DCO=0.58 *17*; A_2=−0.53 *7*, A_4=−0.01 *9*.
1075.8 *2*	41 *4*	3348.0	(27/2$^-$)	2272.2	(23/2$^-$)	E2	Mult.: DCO=1.05 *10*; A_2=0.15 *2*, A_4=−0.02.
1079.2 *2*	13.8 *14*	3181.0	(25/2$^-$)	2101.79	(21/2$^-$)	E2	Mult.: DCO=0.96 *10*; A_2=0.11 *3*, A_4=−0.02 *4*.
1133.6 *5*	5.0 *10*	3762.6	(27/2$^-$)	2629.0	(23/2$^-$)	(E2)	Mult.: DCO 0.95 *25*. I_γ: intensity includes that of other transition (feeding to 43/2$^-$ state at 6828 keV).
1133.9[#] *7*	5.0 *10*	7962.0	(45/2$^-$)	6828.1	(43/2$^-$)	D	I_γ: given for a doublet of 1133.6γ+1133.9γ. Mult.: DCO≈0.5 (1995Pa28), 0.95 *25* (1995Si25). Iγ and DCO given for a doublet of 1133.9γ+1133γ.
1223.8 *2*	14.3 *14*	4571.8	(31/2$^-$)	3348.0	(27/2$^-$)	E2	Mult.: DCO=1.06 *14*; A_2=0.14 *8*, A_4=−0.08 *10*.
1233.8[#] *7*		8062.0		6828.1	(43/2$^-$)		
1281.1[#] *7*		6727.6	(43/2$^-$)	5446.6	(39/2$^-$)	Q	Mult.: DCO≈1.0.
1323.5[#] *7*		6054.0		4730.2			
1381.6 *2*	22.5 *23*	6828.1	(43/2$^-$)	5446.6	(39/2$^-$)	E2	Mult.: DCO=1.10 *14*, A_2=0.46 *8*, A_4=0.09 *9*.

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(HI,xnγ) 1995Si29,1995Pa28 (continued)

γ(^{119}Te) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	Comments
1578.4 *7*	2.6 *8*	7025.1	(43/2$^-$)	5446.6	(39/2$^-$)	E2	Mult.: DCO=0.87 *18*; A_2=0.18 *7*, A_4=−0.09 *8*.
1808.2[#] *7*		8636.4	(47/2$^-$)	6828.1	(43/2$^-$)	Q	Mult.: DCO≈1.5.

[†] From 1995Si29, unless otherwise noted. In 1995Si29 ΔE are stated to be 0.2 keV for most transitions and 0.7 keV for weak or contaminated transitions. The evaluators assign uncertainties of 0.2 keV for Iγ≥1.0, 0.5 keV for 10>Iγ≥3 and 0.7 keV for Iγ<3 and contaminated γ′s.

[‡] ΔIγ are stated to be 5-15% for which γ′s and to be up to ≈30% for weak γ′s or multiplets (1995Si29). The evaluators assume Iγ uncertainties of 10% for Iγ≥10, 20% for 3<Iγ<10 and 30% for Iγ<3 and multiplets. No intensities were given by 1995Pa28.

[#] From 1995Pa28 but not reported by 1995Si29. Uncertainties of 0.7 keV are assumed by the evaluators.

[@] From γ(θ) and/or DCO ratio. Assigned Q for γ with DCO>0.7 and/or A_2>0.11, and D for γ with DCO<0.7 and/or A_2<0.1 by the evaluators. Parities assigned from the adopted J^π values.

(HI,xnγ) 1995Si29,1995Pa28

Level Scheme

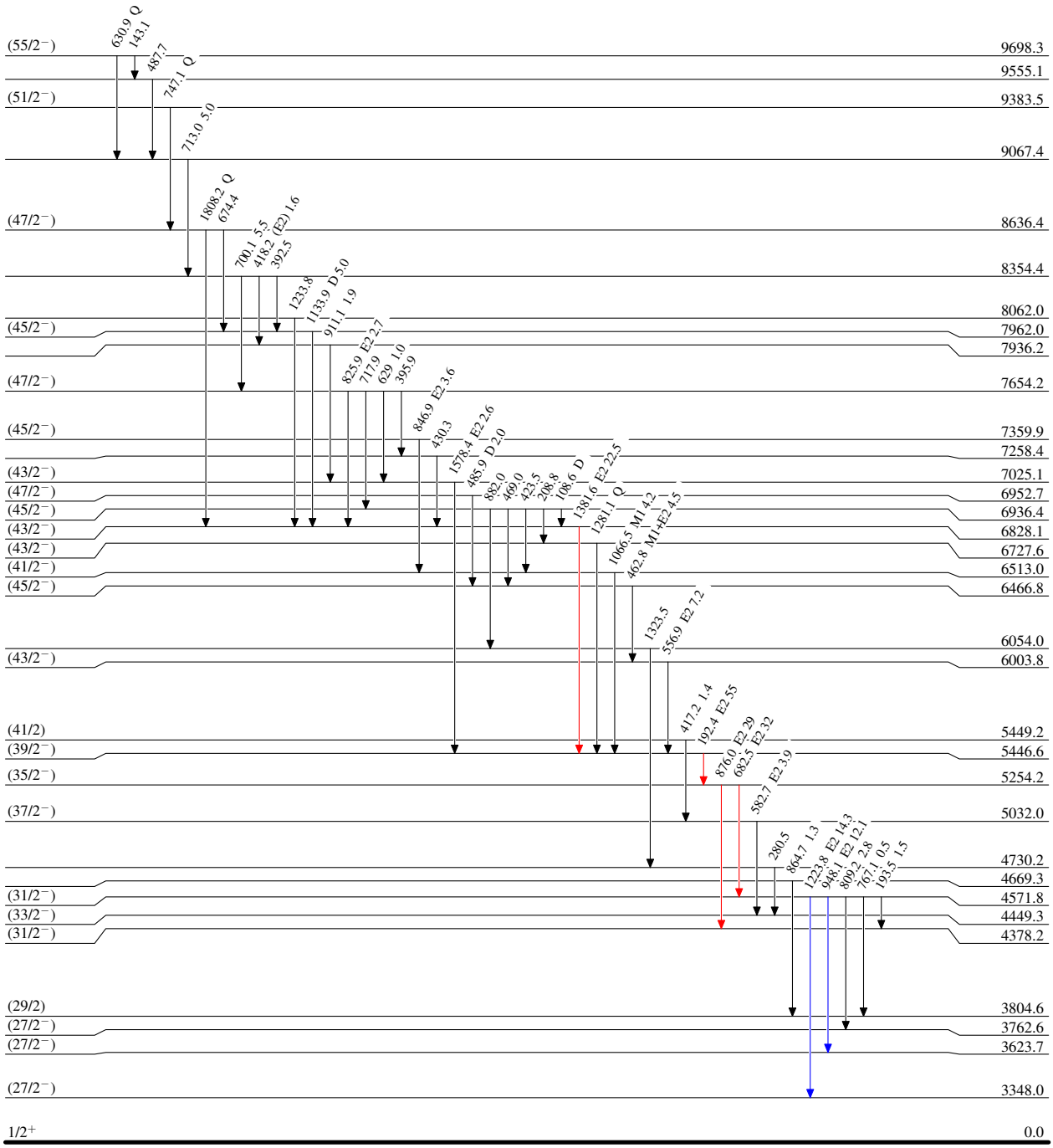
Intensities: Type not specified

Legend

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

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

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

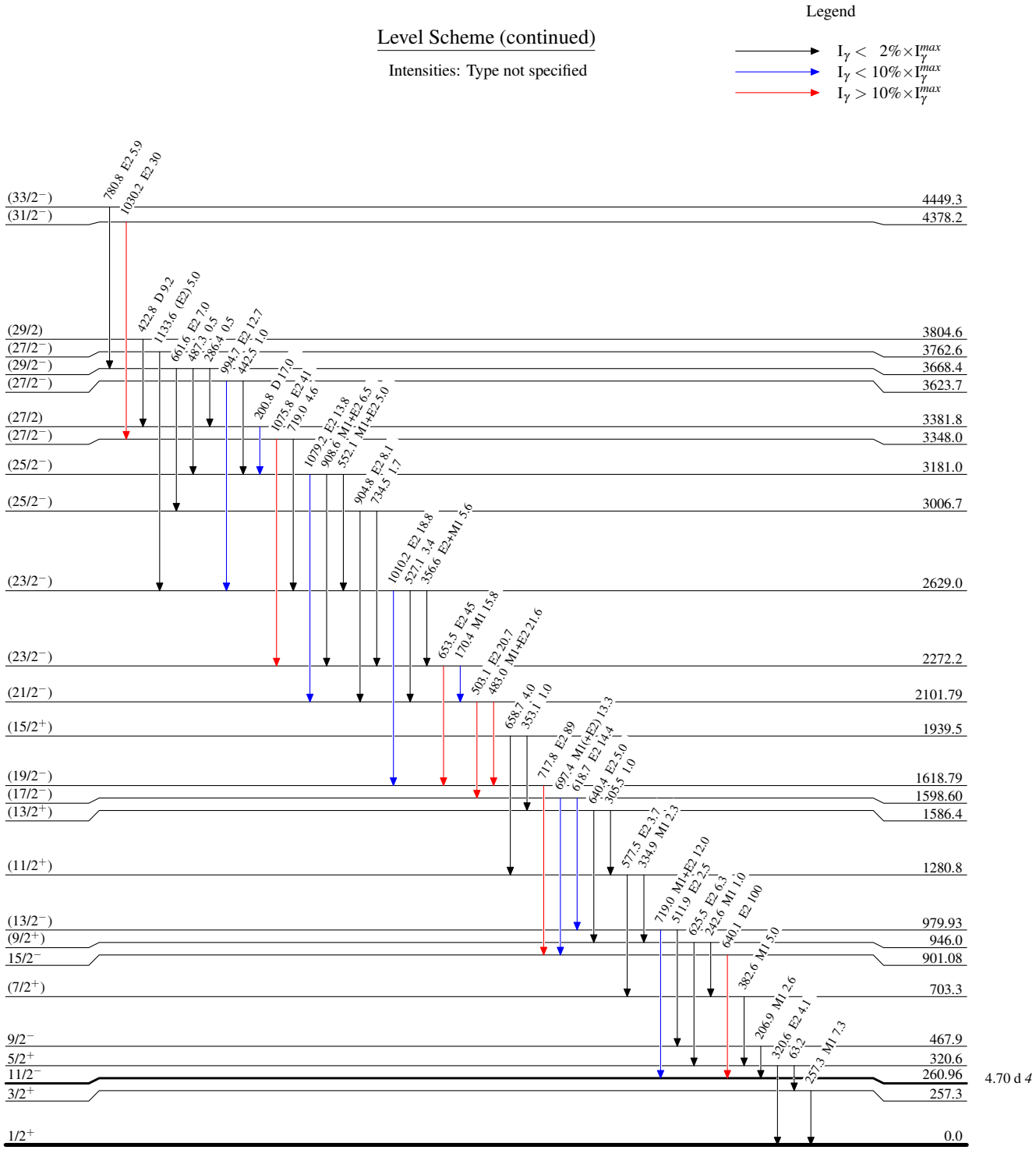


$^{119}_{52}Te_{67}$

(HI,xnγ) 1995Si29,1995Pa28

Level Scheme (continued)

Intensities: Type not specified



$^{119}_{52}Te_{67}$