(HI,xnγ) 1999Ru01

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Huo Junde	NDS 109, 787 (2008)	30-Apr-2007

1999Ru01: ^{28}Si(^{36}Ar,2αpγ) E=143 MeV. Measured Eγ, Iγ, γγ, particle-γ coin, γ(θ), and γγ(θ)(DCO) using GAMMASPHERE array with 82 Ge detectors, 4π CsI MICROBALL and fifteen liquid scintillators for neutrons see also 1998Ru02 and 1997Ru07.
1982SaZP: ^{54}Fe(^{6}Li,αnγ) E=16-32 MeV; ^{30}Si(^{28}Si,p2nγ) E=67-82 MeV; measured σ(Eγ), γ(θ), and γγ-coin.
All data are from 1999Ru01, except As noted.

^{55}Co Levels

E(level)	Jπ	E(level)	Jπ	E(level)	Jπ	E(level)	Jπ
0.0	7/2−	6641.5 *4*	19/2−	9698.7 *4*	25/2−	12613.5 *14*	
2973.46 *20*	11/2−	7529.4 *6*	19/2−	9782.3 *10*		12835.5 *8*	(27/2)
3736.53 *22*	13/2−	7833.2 *3*	21/2−	10113.1 *7*	(23/2)	13163.0 *12*	
3774.60 *22*	15/2−	7855.4? *21*		10545.6 *6*	(23/2)	13339.3 *6*	29/2
4513.77 *24*	17/2−	7920.7 *5*	19/2−	10580.0 *5*	25/2−	13516.7 *8*	(27/2−)
4686.3 *4*	15/2−	8090.0? *14*		10759.9 *10*		13685 *3*	
4920.8 *5*	(15/2−)	8158.7 *5*	21/2−	11470.1 *5*	25/2−	13818.6 *10*	
5431.7 *4*	17/2−	8348.9 *3*	23/2−	11908.2 *5*	25/2	14125 *3*	
6332.6 *5*	(17/2−)	8400.8 *8*		11962.9 *8*	(27/2)	14672.6 *6*	31/2
6464.8† *11*	(23/2−)	8687.1 *5*	(21/2)	12118.8 *8*		14730 *3*	
6596.5 *3*	19/2−	8689.7 *4*	23/2−	12363.2 *5*	27/2	14881.5 *9*	

† From 1982SaZP.

γ(^{55}Co)

DCO ratios (E2 gated) and A_2′s are for 30°−83° arrangement. See 1999Ru01 for additional DCO′s for 30°−53° and 53°−83° geometries.

Eγ	Iγ	Ei(level)	J^π_i	Ef	J^π_f	Mult.†	δ	I(γ+ce)	Comments
(37.9 *3*)		3774.60	15/2−	3736.53	13/2−			5.5 *5*	Eγ,I(γ+ce): from γγ data.
340.5 *2*	0.6 *1*	8689.7	23/2−	8348.9	23/2−	M1+E2			DCO=0.47 *16*.
455.0 *1*	0.5 *1*	12363.2	27/2	11908.2	25/2	D+Q			ΔJ=1 from DCO=0.56 *12*.
515.5 *2*	5.0 *2*	8348.9	23/2−	7833.2	21/2−	M1+E2			DCO=0.37 *5*.
739.0 *1*	73 *2*	4513.77	17/2−	3774.60	15/2−	M1+E2	−0.22 *4*		DCO=0.80 *5*.
745.2 *6*	0.7 *2*	5431.7	17/2−	4686.3	15/2−				
763.2 *1*	11 *1*	3736.53	13/2−	2973.46	11/2−	M1(+E2)	+0.01 *8*		DCO=0.60 *13*.
766.4 *3*	5.2 *2*	8687.1	(21/2)	7920.7	19/2−	D(+Q)	−0.1 *2*		DCO=0.75 *17*.
777.9 *2*	5.2 *2*	4513.77	17/2−	3736.53	13/2−	E2			DCO=1.11 *16*.
801.0 *1*	79 *2*	3774.60	15/2−	2973.46	11/2−	E2			DCO=0.97 *4*.
856.6 *2*	11 *1*	8689.7	23/2−	7833.2	21/2−	M1+E2	−0.25 *6*		DCO=0.89 *6*.
880 *1*	0.3 *1*	10580.0	25/2−	9698.7	25/2−				
893.2 *2*	2.3 *1*	12363.2	27/2	11470.1	25/2−	M1+E2	−0.24 *10*		DCO=0.85 *12*.
900.6 *8*	0.3 *1*	6332.6	(17/2−)	5431.7	17/2−				
917.8 *5*	1.0 *2*	5431.7	17/2−	4513.77	17/2−	(D)			ΔJ=(0) from DCO=0.85 *20*.
924.7 *3*	0.7 *2*	11470.1	25/2−	10545.6	(23/2)	D+Q			ΔJ=(1) from DCO=0.62 *19*.
949.6 *3*	1.7 *2*	4686.3	15/2−	3736.53	13/2−				DCO=0.68 *36*.
976.1 *2*	3.3 *1*	13339.3	29/2	12363.2	27/2	M1+E2	−0.2 *1*		DCO=1.00 *12*.
1008.7 *3*	3.5 *1*	9698.7	25/2−	8689.7	23/2−	M1+E2	−0.19 *8*		DCO=0.75 *9*.
1063 *1*	0.3 *1*	14881.5		13818.6					

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(HI,xnγ) 1999Ru01 (continued)

γ(^{55}Co) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	δ	Comments
1146.1 *4*	1.2 *1*	4920.8	(15/2$^-$)	3774.60	15/2$^-$	(D)		ΔJ=(0) from DCO=1.15 *26*.
1160.2 *5*	0.4 *1*	8689.7	23/2$^-$	7529.4	19/2$^-$			
1191.6 *4*	0.8 *2*	7833.2	21/2$^-$	6641.5	19/2$^-$			A_2=1.11 *9*.
1208 *1*	0.3 *1*	6641.5	19/2$^-$	5431.7	17/2$^-$			A_2=0.90 *18*.
1236.1 *4*	1.8 *1*	7833.2	21/2$^-$	6596.5	19/2$^-$	(M1+E2)	−0.4 *2*	DCO=1.23 *19*.
1324 *1*	0.2 *1*	7920.7	19/2$^-$	6596.5	19/2$^-$			
1333.2 *3*	2.1 *2*	14672.6	31/2	13339.3	29/2	M1+E2	≈−0.3	δ: or ≈−3.0. DCO=1.00 *16*.
1349.9 *2*	17 *1*	9698.7	25/2$^-$	8348.9	23/2$^-$	M1+E2	−0.35 *7*	DCO=0.96 *6*.
1359 *1*	0.8 *2*	12118.8		10759.9				A_2=1.45 *11*.
1363 *1*	0.2 *1*	11908.2	25/2	10545.6	(23/2)			A_2=1.45 *11*.
1365 *1*	0.2 *1*	14881.5		13516.7	(27/2$^-$)			A_2=1.45 *11*.
1398 *1*	0.5 *2*	13516.7	(27/2$^-$)	12118.8		(M1+E2)		A_2=0.69 *10*.
1412 *1*	0.2 *1*	6332.6	(17/2$^-$)	4920.8	(15/2$^-$)			
1426.0 *5*	2.5 *1*	10113.1	(23/2)	8687.1	(21/2)	(M1+E2)		DCO=1.21 *17*.
1433 *1*	0.5 *1*	9782.3		8348.9	23/2$^-$			A_2=0.94 *13*.
1516.7 *6*	0.6 *1*	8158.7	21/2$^-$	6641.5	19/2$^-$			A_2=1.07 *12*.
1539.9 *6*	0.8 *1*	9698.7	25/2$^-$	8158.7	21/2$^-$			A_2=1.52 *17*.
1562.1 *6*	1.3 *1*	8158.7	21/2$^-$	6596.5	19/2$^-$			A_2=1.24 *18*.
1588 *1*	0.7 *1*	7920.7	19/2$^-$	6332.6	(17/2$^-$)			A_2=0.78 *8*.
1646 *1*	0.1 *1*	6332.6	(17/2$^-$)	4686.3	15/2$^-$			
1657.2 *4*	6.8 *2*	5431.7	17/2$^-$	3774.60	15/2$^-$	M1+E2	−0.31 *7*	DCO=0.89 *9*.
1675 *1*	0.1 *1*	6596.5	19/2$^-$	4920.8	(15/2$^-$)			
1707.2 *4*	16 *1*	8348.9	23/2$^-$	6641.5	19/2$^-$	E2		DCO=1.10 *6*.
1712 *1*	0.3 *1*	10113.1	(23/2)	8400.8				
1713 *1*	1.8 *3*	4686.3	15/2$^-$	2973.46	11/2$^-$			
1718 *1*	0.2 *1*	14881.5		13163.0				
1752.4 *3*	13 *1*	8348.9	23/2$^-$	6596.5	19/2$^-$	E2		DCO=1.04 *6*.
1782.9 *3*	2.0 *1*	12363.2	27/2	10580.0	25/2$^-$	D(+Q)	−0.1 *2*	DCO=0.67 *11*.
1804 *1*	1.0 *2*	8400.8		6596.5	19/2$^-$			
1818 *1*	1.0 *2*	12363.2	27/2	10545.6	(23/2)			DCO=0.98 *14*.
1819 *1*	1.2 *2*	6332.6	(17/2$^-$)	4513.77	17/2$^-$	(D)		ΔJ=(0) from DCO=0.98 *14*.
1837 *1*	0.3 *1*	14672.6	31/2	12835.5	(27/2)			
1856 *1*	0.7 *1*	13818.6		11962.9	(27/2)			
1859 *1*	0.8 *2*	10545.6	(23/2)	8687.1	(21/2)			A_2=1.30 *10*.
1865.8 *8*	2.0 *1*	9698.7	25/2$^-$	7833.2	21/2$^-$	E2		DCO=1.00 *14*.
1889.5 *6*	3.0 *2*	10580.0	25/2$^-$	8689.7	23/2$^-$	M1+E2	−0.6 *2*	DCO=1.11 *11*.
1951		6464.8	(23/2$^-$)	4513.77	17/2$^-$	(E2)		from 1982SaZP.
2082.7 *3*	25 *1*	6596.5	19/2$^-$	4513.77	17/2$^-$	M1+E2	−0.5 *2*	DCO=1.22 *10*.
2091 *2*	0.8 *2*	8687.1	(21/2)	6596.5	19/2$^-$			DCO=0.93 *18*.
2095 *1*	5.2 *4*	8689.7	23/2$^-$	6596.5	19/2$^-$			DCO=0.93 *18*.
2127.6 *3*	20 *1*	6641.5	19/2$^-$	4513.77	17/2$^-$	M1+E2	−0.6 *+1−2*	DCO=1.21 *8*.
2231 *1*	2.9 *3*	10580.0	25/2$^-$	8348.9	23/2$^-$	M1+E2	−1.2 *+7−10*	DCO=1.26 *16*.
2255 *2*	1.0 *1*	12835.5	(27/2)	10580.0	25/2$^-$			A_2=1.5 *5*.
2264 *1*	2.0 *2*	11962.9	(27/2)	9698.7	25/2$^-$			DCO=1.20 *20*.
2268 *2*	0.7 *2*	14881.5		12613.5				DCO=1.20 *20*.
2402 *1*	1.6 *1*	7833.2	21/2$^-$	5431.7	17/2$^-$			A_2=1.24 *6*.
2411 *2*	0.5 *1*	10759.9		8348.9	23/2$^-$			
2420 *1*	2.0 *2*	12118.8		9698.7	25/2$^-$			
2626 *1*	1.1 *1*	10545.6	(23/2)	7920.7	19/2$^-$			A_2=1.38 *18*.
2658[‡] *2*	0.3 *1*	8090.0?		5431.7	17/2$^-$			
2714 *2*	1.0 *2*	10545.6	(23/2)	7833.2	21/2$^-$			A_2=1.25 *20*.
2722 *1*	0.7 *2*	12835.5	(27/2)	10113.1	(23/2)			A_2=1.4 *3*.
2728 *1*	1.9 *3*	8158.7	21/2$^-$	5431.7	17/2$^-$			A_2=1.42 *28*.
2781 *2*	1.5 *5*	11470.1	25/2$^-$	8689.7	23/2$^-$			DCO=1.26 *22*.
2783 *2*	2.4 *3*	11470.1	25/2$^-$	8687.1	(21/2)			DCO=1.26 *22*.

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(HI,xnγ) 1999Ru01 (continued)

γ(^{55}Co) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	δ	Comments
2822 *1*	8.5 *3*	6596.5	19/2$^-$	3774.60	15/2$^-$	E2		DCO=0.99 *10*.
2843 *2*	0.6 *1*	7529.4	19/2$^-$	4686.3	15/2$^-$			
2868 *1*	3.6 *2*	6641.5	19/2$^-$	3774.60	15/2$^-$	E2		DCO=1.18 *25*.
2915 *3*	0.4 *1*	12613.5		9698.7	25/2$^-$			
2919 *2*	0.5 *1*	14881.5		11962.9	(27/2)			
2927 *2*	1.0 *2*	10759.9		7833.2	21/2$^-$			
2936 *3*	0.5 *1*	13516.7	(27/2$^-$)	10580.0	25/2$^-$			
2973.4 *2*	100 *3*	2973.46	11/2$^-$	0.0	7/2$^-$	E2		DCO=1.03 *5*.
3015 *1*	0.8 *1*	7529.4	19/2$^-$	4513.77	17/2$^-$			A_2=1.43 *20*.
3138 *2*	0.8 *1*	12835.5	(27/2)	9698.7	25/2$^-$	D+Q		ΔJ=(1) from A_2=0.49 *8*.
3169[‡] *2*	0.2 *1*	7855.4?		4686.3	15/2$^-$			
3169[‡] *2*	0.4 *2*	8090.0?		4920.8	(15/2$^-$)			
3187 *2*	0.6 *1*	9782.3		6596.5	19/2$^-$			A_2=1.56 *25*.
3222 *2*	0.3 *1*	11908.2	25/2	8687.1	(21/2)			A_2=1.10 *16*.
3274 *2*	1.8 *1*	11962.9	(27/2)	8689.7	23/2$^-$			A_2=1.45 *10*.
3319.3 *3*	20 *1*	7833.2	21/2$^-$	4513.77	17/2$^-$	E2		DCO=1.06 *7*.
3407.9 *7*	6.5 *3*	7920.7	19/2$^-$	4513.77	17/2$^-$	M1+E2	+0.12 *7*	DCO=0.47 *6*.
3560 *2*	0.2 *1*	11908.2	25/2	8348.9	23/2$^-$			
3577[‡] *3*	0.3 *2*	8090.0?		4513.77	17/2$^-$			
3615 *2*	0.9 *2*	11962.9	(27/2)	8348.9	23/2$^-$			A_2=0.97 *11*.
3640 *2*	0.6 *2*	11470.1	25/2$^-$	7833.2	21/2$^-$			DCO=1.23 *30*.
3645 *2*	1.6 *2*	8158.7	21/2$^-$	4513.77	17/2$^-$			DCO=1.23 *30*.
3818 *1*	1.7 *1*	13516.7	(27/2$^-$)	9698.7	25/2$^-$	(M1+E2)		DCO=0.65 *17*.
3887 *2*	0.8 *1*	8400.8		4513.77	17/2$^-$			
3925 *3*	0.6 *1*	12613.5		8689.7	23/2$^-$			
4013 *3*	0.4 *1*	12363.2	27/2	8348.9	23/2$^-$			
4075 *3*	0.3 *1*	11908.2	25/2	7833.2	21/2$^-$			
4119 *2*	1.2 *1*	13818.6		9698.7	25/2$^-$			
4263 *3*	0.6 *2*	12613.5		8348.9	23/2$^-$			
4426 *3*	1.0 *2*	14125		9698.7	25/2$^-$			
4812 *2*	0.7 *2*	13163.0		8348.9	23/2$^-$			
5031 *3*	0.1 *1*	14730		9698.7	25/2$^-$			
5336 *3*	0.2 *1*	13685		8348.9	23/2$^-$			

[†] From γ(θ).

[‡] Placement of transition in the level scheme is uncertain.

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Level Scheme

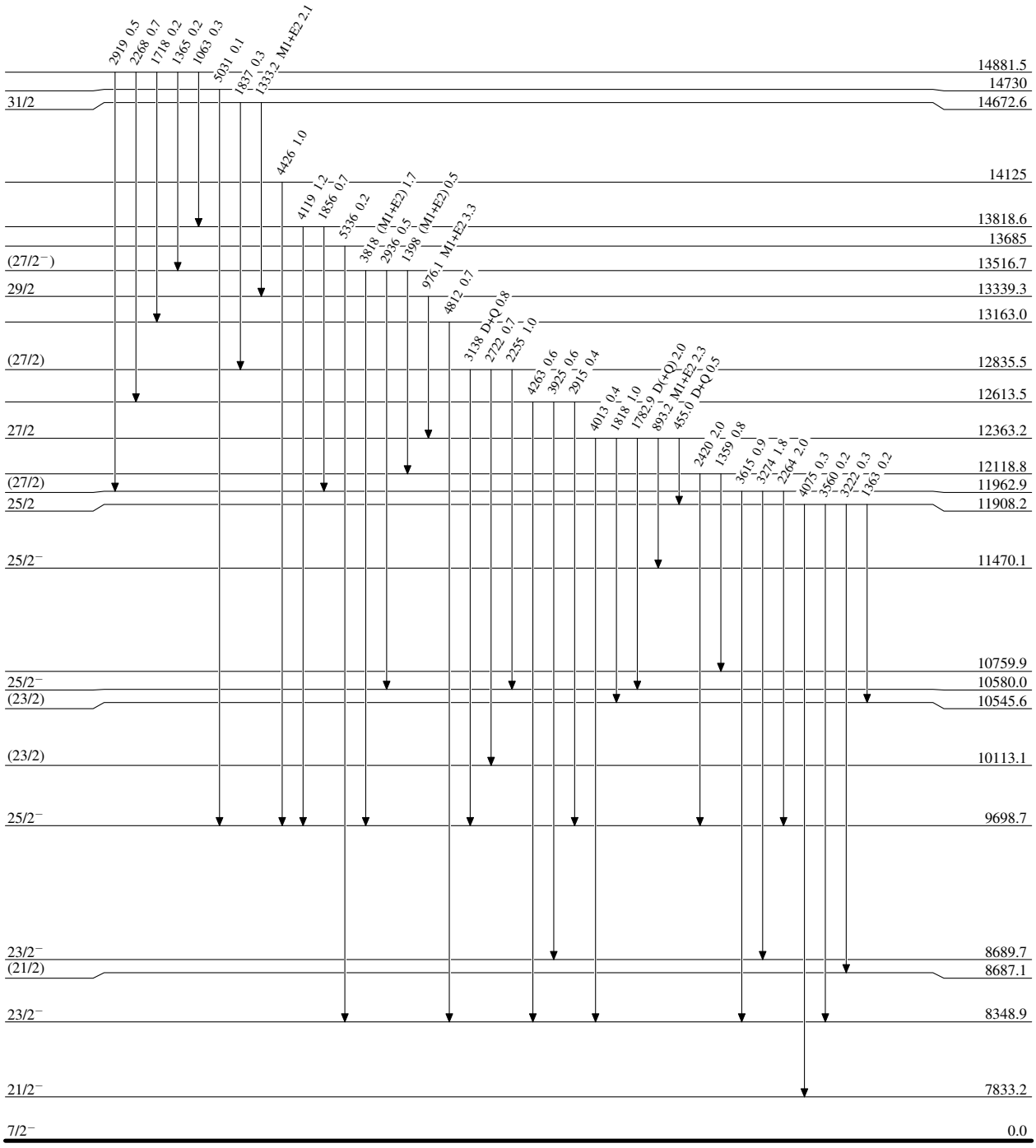
Intensities: Relative I_γ

Legend

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

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

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



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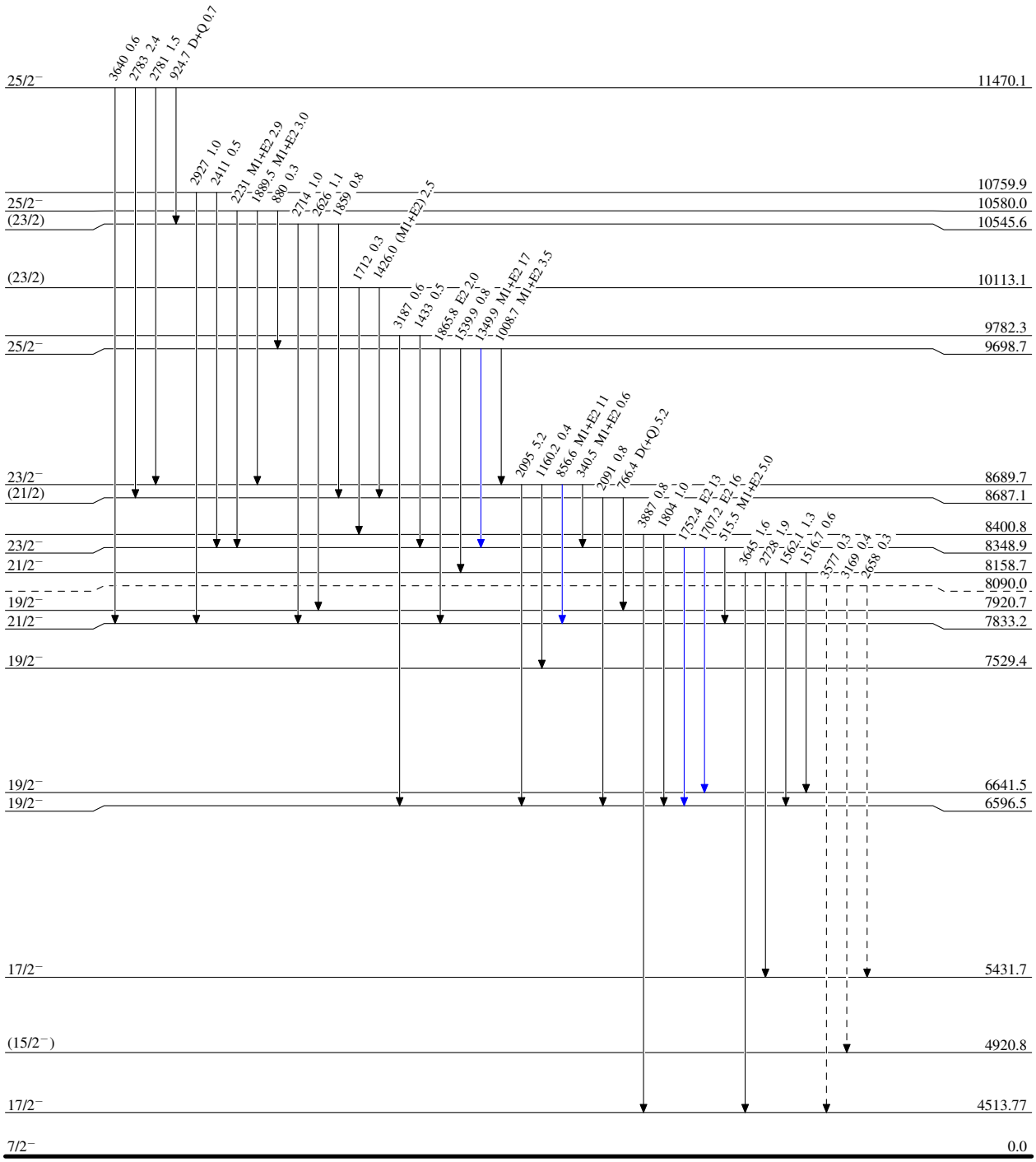
Level Scheme (continued)

Intensities: Relative I_γ

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



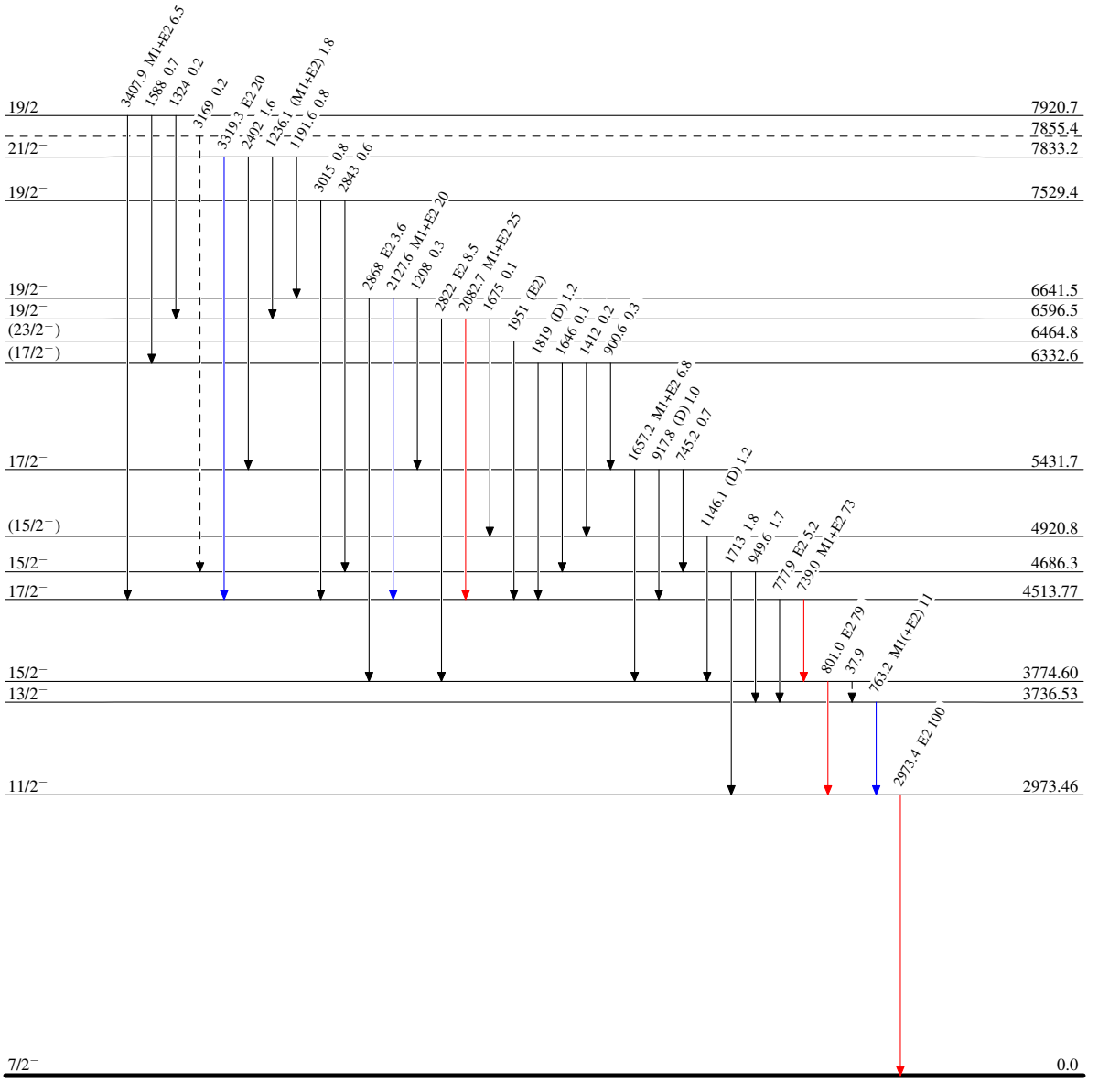
$^{55}_{27}Co_{28}$

(HI,xnγ) 1999Ru01

Level Scheme (continued)

Intensities: Relative I_γ

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



$^{55}_{27}Co_{28}$