

**(HI,xn $\gamma$ ) 1998Se05,1997Mo09**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 111, 1471 (2010)	1-May-2009

Includes  $^{64}\text{Ni}(^{56}\text{Fe},\alpha 3n\gamma)$  E=236 MeV and  $^{90}\text{Zr}(^{31}\text{P},\alpha pn\gamma)$  E=150 MeV.

1998Se05: E( $^{63}\text{Cu}$ )= 245 MeV,  $^{64}\text{Ni}(^{56}\text{Fe},\alpha 3n\gamma)$  E= 236 MeV. Measured E $\gamma$ , I $\gamma$ ,  $\gamma\gamma$ ,  $\gamma\gamma(\theta)$ (DCO) using GAMMASPHERE array with six rings of 61 'HPGe' detectors (escape-suppressed).

Data (1998Se05) have been verified using  $^{90}\text{Zr}(^{31}\text{P},\alpha pn)$  E=150 MeV with 'eurogam ii' spectrometer.

1997Mo09:  $^{88}\text{Sr}(^{28}\text{Si},3n)$  E=120 MeV, Measured:  $\gamma$ ,  $\gamma\gamma$ ,  $\gamma(\theta)$ , DCO, seven Ge-Li with BGO anti Compton.

The data given below are from 1998Se05. 1997Mo09 give Band(A) up to 27/2<sup>-</sup>.

$^{113}\text{Te}$  Levels

E(level) <sup>†</sup>	J $\pi$ <sup>‡</sup>	E(level) <sup>†</sup>	J $\pi$ <sup>‡</sup>	E(level) <sup>†</sup>	E(level) <sup>†</sup>
0.0		3573.5+x 11	(29/2 <sup>+</sup> )	4906.3+x 12	6204.4+x & 11
0+x #	(11/2 <sup>-</sup> )	3806.0+x & 10	(29/2)	5018.8+x @ 12	6523.2+x 13
587.2+x # 5	(15/2 <sup>-</sup> )	3917.5+x @ 10		5071.2+x # 12	6621.8+x & 13
1311.4+x # 7	(19/2 <sup>-</sup> )	3927.3+x 11		5163.1+x & 11	6786.8+x 14
1994.4+x # 9	(23/2 <sup>-</sup> )	3975.1+x 11		5188.7+x 11	6908.4+x @ 14
2506.0+x 10		4034.6+x # 11	(31/2 <sup>-</sup> )	5196.2+x 13	7153.0+x # 14
2786.6+x 10		4184.7+x 11		5389.9+x 11	7212.3+x 14
2798.3+x @ 10	(25/2)	4264.7+x 12		5551.2+x 12	7360.6+x 13
2891.2+x 10		4273.4+x @ 11		5553.6+x 13	7689.7+x & 14
3001.3+x # 10	(27/2 <sup>-</sup> )	4377.9+x 11		5819.9+x @ 13	8061.5+x & 14
3244.4+x 11		4558.2+x 11		6149.9+x # 13	8764.3+x 14
3430.7+x 11		4616.5+x & 11		6155.9+x 13	

<sup>†</sup> From least-squares fit to  $\gamma$  energies.

<sup>‡</sup> From gammas, DCO ratios, decay patterns and systematics.

# Band(A): Ground-state band.

@ Band(B):  $\gamma$  cascade, starting At 25/2.

& Band(C):  $\gamma$  cascade, starting At 29/2.

$\gamma(^{113}\text{Te})$

E $\gamma$	I $\gamma$ <sup>†</sup>	E <sub>i</sub> (level)	J $\pi$ <sub>i</sub>	E <sub>f</sub>	J $\pi$ <sub>f</sub>	Mult. <sup>‡</sup>	Comments
226.7 5	3.0 2	5389.9+x		5163.1+x			
238.6 5	0.9 1	4616.5+x		4377.9+x			
355.6 5	5.6 3	4273.4+x		3917.5+x			
371.8 5	2.4 2	8061.5+x		7689.7+x			
417.4 5	7.5 3	6621.8+x		6204.4+x			
429.4 5	4.1 3	3430.7+x		3001.3+x (27/2 <sup>-</sup> )			
446.2 5	4.4 4	3244.4+x		2798.3+x (25/2)			
467.7 5	2.8 2	4273.4+x		3806.0+x (29/2)			
482.4 5	2.2 3	5553.6+x		5071.2+x			
511.6 5	6.5 5	2506.0+x		1994.4+x (23/2 <sup>-</sup> )			
523.2 5	4.0 3	4558.2+x		4034.6+x (31/2 <sup>-</sup> )			
546.8 5	14.1 5	5163.1+x		4616.5+x			
572.0 5	0.9 2	4377.9+x		3806.0+x (29/2)			
572.6 5	15.6 6	3573.5+x (29/2 <sup>+</sup> )		3001.3+x (27/2 <sup>-</sup> )	(E1)	DCO= 0.47 6.	
587.2 5	100 3	587.2+x (15/2 <sup>-</sup> )		0+x (11/2 <sup>-</sup> )	(E2)	DCO=1.00 used as reference.	

Continued on next page (footnotes at end of table)

**(HI,xn $\gamma$ ) 1998Se05,1997Mo09 (continued)** $\gamma(^{113}\text{Te})$  (continued)

$E_\gamma$	$I_\gamma^\dagger$	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult. $^\ddagger$	Comments
604.3 5	5.7 3	5163.1+x		4558.2+x			
683.0 5	85 3	1994.4+x	(23/2 <sup>-</sup> )	1311.4+x	(19/2 <sup>-</sup> )	(E2)	
699.0 5	8.9 4	4616.5+x		3917.5+x			
724.2 5	100 3	1311.4+x	(19/2 <sup>-</sup> )	587.2+x	(15/2 <sup>-</sup> )	(E2)	DCO= 0.86 5.
745.4 5	9.7 4	5018.8+x		4273.4+x			
792.2 5	4.8 7	2786.6+x		1994.4+x	(23/2 <sup>-</sup> )		
801.1 5	5.3 4	5819.9+x		5018.8+x			
803.6 5	14.5 11	2798.3+x	(25/2)	1994.4+x	(23/2 <sup>-</sup> )	D	DCO= 0.68 22 for 803.6+804.9.
804.9 5	8.5 5	3806.0+x	(29/2)	3001.3+x	(27/2 <sup>-</sup> )	D	DCO= 0.68 22 for 803.6+804.9.
810.6 5	8.6 4	4616.5+x		3806.0+x	(29/2)		
814.9 5	4.6 3	6204.4+x		5389.9+x			
832.1 5	5.5 4	5389.9+x		4558.2+x			
834.0 5	2.0 3	4264.7+x		3430.7+x			
896.8 5	5.9 6	2891.2+x		1994.4+x	(23/2 <sup>-</sup> )		
926.1 5	6.9 5	3927.3+x		3001.3+x	(27/2 <sup>-</sup> )		
931.2 5	4.1 4	4906.3+x		3975.1+x			
931.5 5	2.1 3	5196.2+x		4264.7+x			
966.9 5	1.7 2	6786.8+x		5819.9+x			
972.0 5	0.7 2	6523.2+x		5551.2+x			
973.8 5	6.8 5	3975.1+x		3001.3+x	(27/2 <sup>-</sup> )		
984.8 5	9.5 4	4558.2+x		3573.5+x	(29/2 <sup>+</sup> )		
993.0 5	2.0 2	5551.2+x		4558.2+x			
1003.1 5	1.6 3	7153.0+x		6149.9+x			
1003.7 5	1.1 3	5188.7+x		4184.7+x			
1007.2 5	50.0 16	3001.3+x	(27/2 <sup>-</sup> )	1994.4+x	(23/2 <sup>-</sup> )	(E2)	DCO= 0.87 6.
1029.2 5	2.6 2	4273.4+x		3244.4+x			
1033.0 5	9.7 5	4034.6+x	(31/2 <sup>-</sup> )	3001.3+x	(27/2 <sup>-</sup> )	(E2)	DCO= 0.90 35.
1036.6 5	4.0 3	5071.2+x		4034.6+x	(31/2 <sup>-</sup> )		
1041.0 5	11.2 5	6204.4+x		5163.1+x			
1043.9 5	5.9 3	4616.5+x		3573.5+x	(29/2 <sup>+</sup> )		
1056.4 5	1.7 2	7212.3+x		6155.9+x			
1067.8 5	6.5 3	7689.7+x		6621.8+x			
1074.6 5	2.3 2	8764.3+x		7689.7+x			
1078.7 5	1.7 2	6149.9+x		5071.2+x			
1084.7 5	1.6 3	6155.9+x		5071.2+x			
1088.5 5	3.0 2	6908.4+x		5819.9+x			
1118.8 5	11.0 5	3917.5+x		2798.3+x	(25/2)		
1154.3 5	2.4 3	5188.7+x		4034.6+x	(31/2 <sup>-</sup> )		
1156.2 5	2.1 3	7360.6+x		6204.4+x			
1183.0 5	4.3 4	4184.7+x		3001.3+x	(27/2 <sup>-</sup> )		
1261.6 5	2.8 3	5188.7+x		3927.3+x			

$^\dagger$  Normalized to 100% for the 587 and 724  $\gamma$  from 1998Se05.

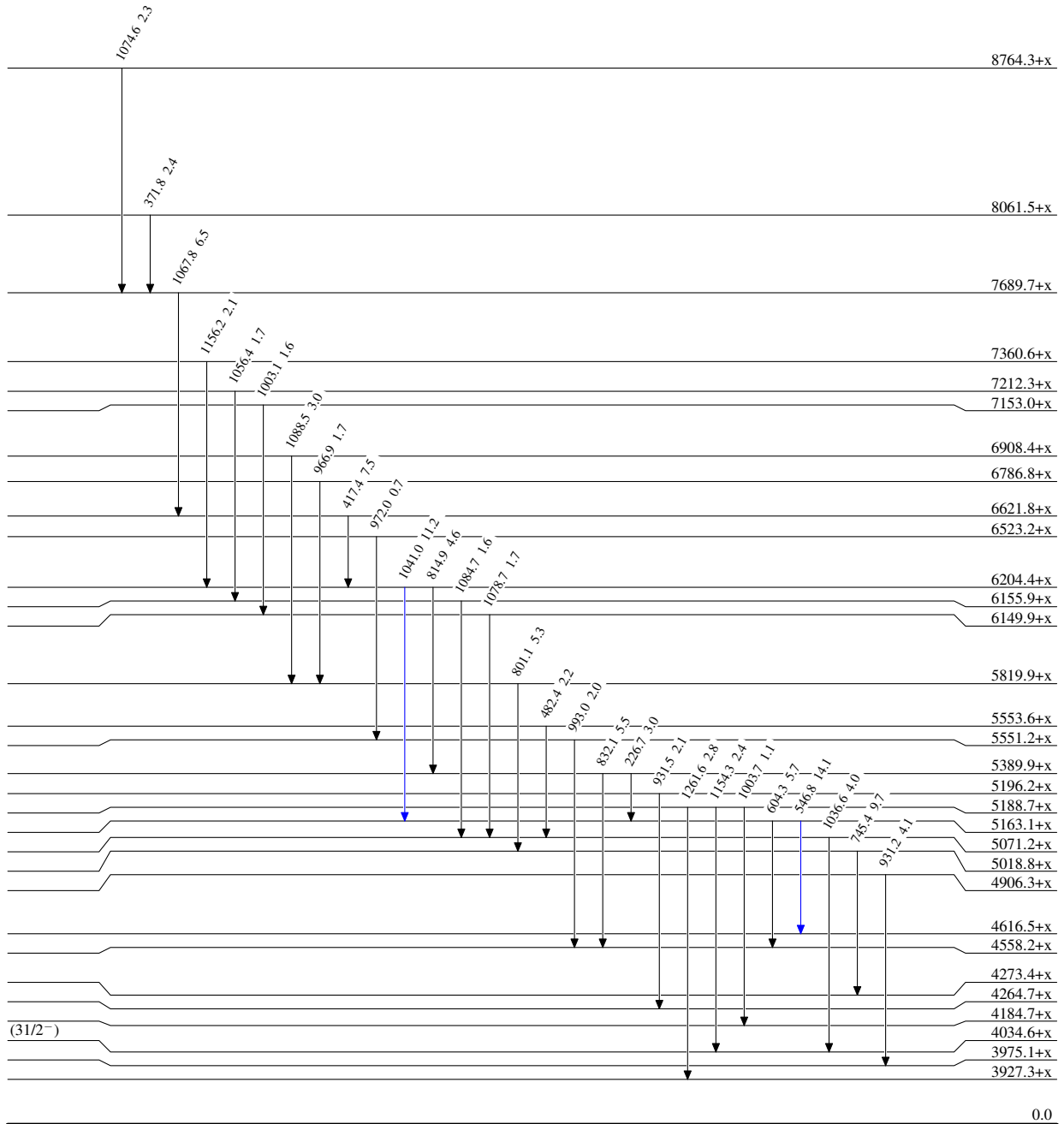
$^\ddagger$  From DCO ratios.

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**Level Scheme**  
 Intensities: Relative  $I_\gamma$

Legend

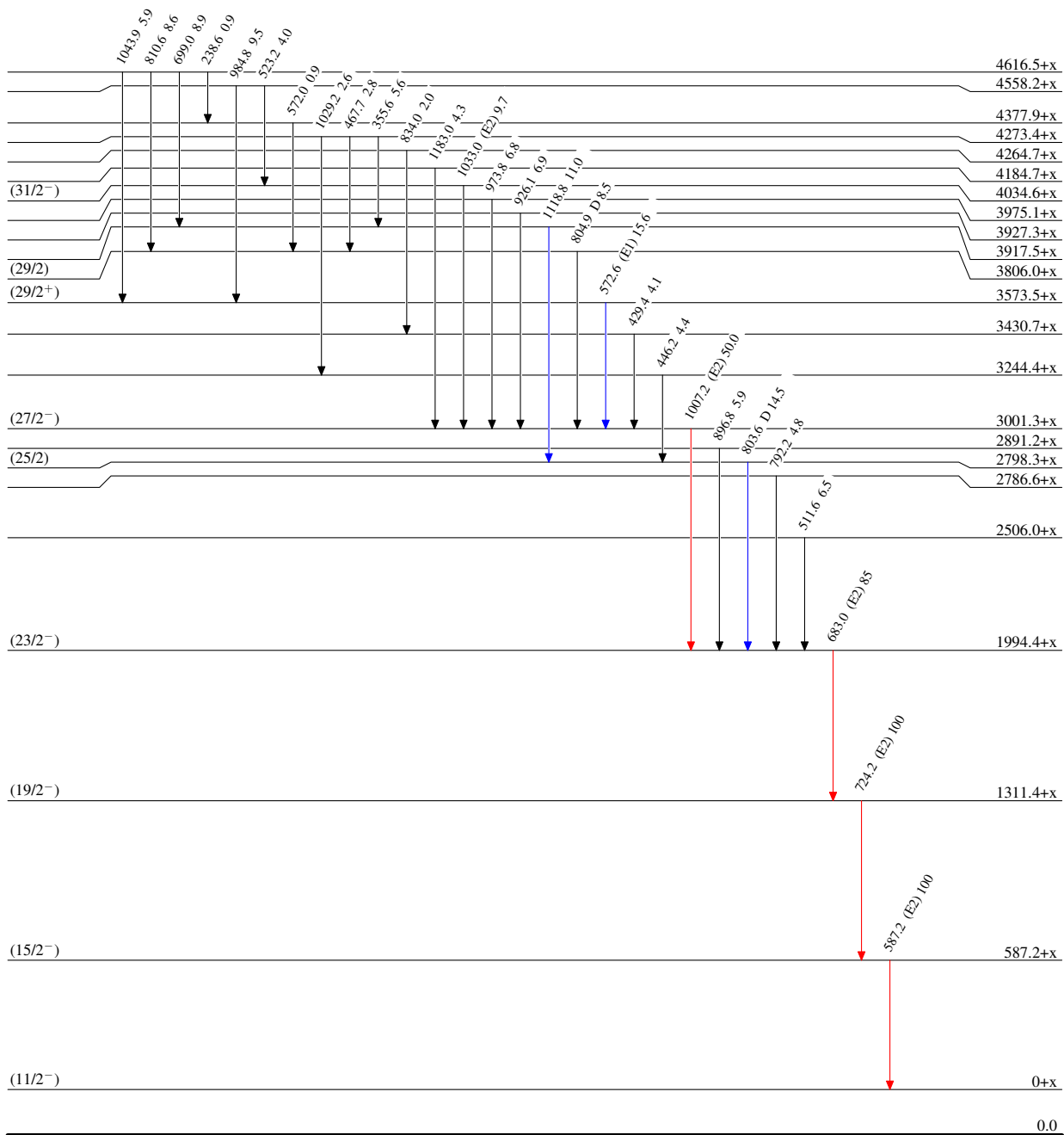
- $I_\gamma < 2\% \times I_\gamma^{\max}$
- $I_\gamma < 10\% \times I_\gamma^{\max}$
- $I_\gamma > 10\% \times I_\gamma^{\max}$

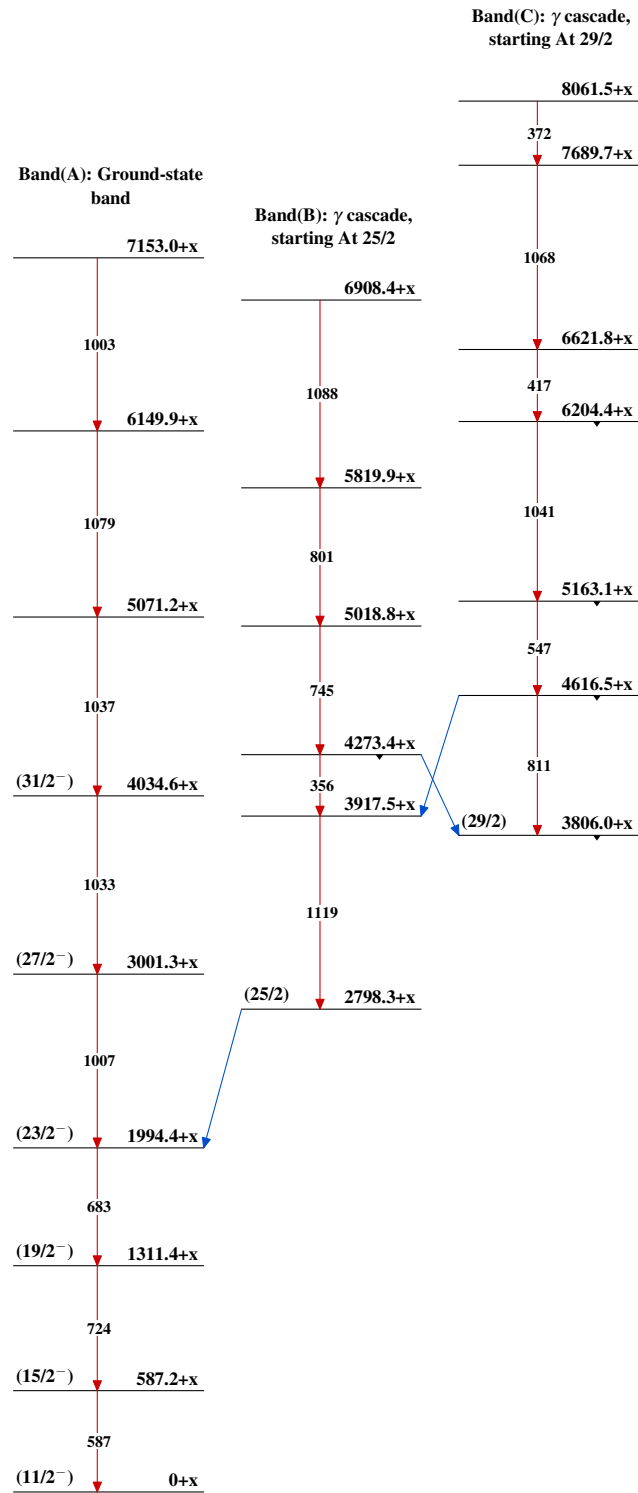


**(HL,xn $\gamma$ ) 1998Se05,1997Mo09****Level Scheme (continued)**Intensities: Relative  $I_{\gamma}$ 

## 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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