^{238}U(HI,xγ)   **2007Ve14**

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	T. D. Johnson, D. Symochko(a), M. Fadil(b), and J. K. Tuli	NDS 112, 1949 (2011)	1-Jun-2010

^{238}U(^{12}C,xγ) E=90 MeV beam from Legnaro XTU tandem accelerator. Measured Eγ, Iγ, $\gamma\gamma$ coin using Euroball III and IV arrays of 15 Cluster Ge detectors and 26 Clover Ge detectors.

2002Li21: ^{139}La(^{82}Se,xγ) E=420 MeV. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma\gamma(\theta)$(DCO), using GEMINI multidetector array consisting of 12 Compton-suppressed HPGe detectors.

^{142}Ce Levels

E(level)[†]	J$^{\pi}$[‡]	E(level)[†]	J$^{\pi}$[‡]	E(level)[†]	J$^{\pi}$[‡]	E(level)[†]	J$^{\pi}$[‡]
0.0[#]	0^+	2623.1[#] 20	8^+	3904.9[@] 21	(11^+)	5172.0[&] 23	(15^-)
641.0[#] 10	2^+	2856.1[@] 19	(8^+)	4047.0 22		5513.2[&] 23	(16^-)
1218.6[#] 15	4^+	2992.6 20	$9^{(-)}$	4355.3[@] 22	(12^+)	5875.8[&] 24	(17^-)
1741.7[#] 18	6^+	3379.1[@] 21	(9^+)	4603.8[&] 22	(13^-)	6526.7 25	
2209.1[@] 20	6^+	3534.9[@] 21	(10^+)	4715.9 23		6879 3	
2591.2 20	(7^-)	3831.2 21	$11^{(-)}$	4894.8[&] 22	(14^-)		

[†] From least-squares fit to Eγ's (by evaluators), assuming an uncertainty of 0.5 keV for each γ ray.

[‡] From Adopted Levels.

[#] Band(A): g.s. band.

[@] Band(B): Band based on 6^+ state. Possible configuration=$(\pi g^1_{7/2})(\pi d^1_{5/2})\otimes(\nu f^2_{7/2})$.

[&] Band(C): ΔJ=1 band based on (13^-). Possible configuration=$(\pi g^{-1}_{7/2})(\pi h^1_{11/2})\otimes(\nu f^2_{7/2})$ or $(\pi g^{-1}_{7/2})(\pi h^1_{11/2})\otimes(\nu f^1_{7/2})$ $(\nu h^1_{9/2})$.

$\gamma(^{142}$Ce)

E$_\gamma$	I$_\gamma$[‡]	E$_i$(level)	J$^{\pi}_i$	E$_f$	J$^{\pi}_f$	Mult.[†]	Comments
155.8		3534.9	(10^+)	3379.1	(9^+)		
178.9		4894.8	(14^-)	4715.9			
216		4047.0		3831.2	$11^{(-)}$		
248.4		4603.8	(13^-)	4355.3	(12^+)		
277.1		5172.0	(15^-)	4894.8	(14^-)		
290.9		4894.8	(14^-)	4603.8	(13^-)		
341		5513.2	(16^-)	5172.0	(15^-)		
362.5		5875.8	(17^-)	5513.2	(16^-)		
369.6	41 2	2992.6	$9^{(-)}$	2623.1	8^+	D	DCO=0.82 7.
370.0		3904.9	(11^+)	3534.9	(10^+)		
401.5		2992.6	$9^{(-)}$	2591.2	(7^-)		
450.3		4355.3	(12^+)	3904.9	(11^+)		
467.3		2209.1	6^+	1741.7	6^+		
522.9		3379.1	(9^+)	2856.1	(8^+)		
523.1	90 5	1741.7	6^+	1218.6	4^+	E2	DCO=1.18 6.
525.8		3904.9	(11^+)	3379.1	(9^+)		
557		4603.8	(13^-)	4047.0			
568.4		5172.0	(15^-)	4603.8	(13^-)		
577.6	100 5	1218.6	4^+	641.0	2^+	E2	DCO=1.03 6.
618.4		5513.2	(16^-)	4894.8	(14^-)		
641.0	108 6	641.0	2^+	0.0	0^+	E2	DCO=1.02 5.
647.0		2856.1	(8^+)	2209.1	6^+		
678.7		3534.9	(10^+)	2856.1	(8^+)		

Continued on next page (footnotes at end of table)

^{238}U(HI,xγ)   **2007Ve14 (continued)**

$\gamma(^{142}$Ce) (continued)

E_γ	I_γ[‡]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[†]	Comments
703.9		5875.8	(17^-)	5172.0	(15^-)		
772.4		4603.8	(13^-)	3831.2	$11^{(-)}$		
838.7	30 2	3831.2	$11^{(-)}$	2992.6	$9^{(-)}$	E2	DCO=1.00 9.
849.5		2591.2	(7^-)	1741.7	6^+		
881.4	50 3	2623.1	8^+	1741.7	6^+	E2	DCO=1.25 9.
884.6		4715.9		3831.2	$11^{(-)}$		
1002.7		6879		5875.8	(17^-)		
1013.5		6526.7		5513.2	(16^-)		
1114.4		2856.1	(8^+)	1741.7	6^+		

[†] From DCO ratios (2002Li21).
[‡] From 2002Li21.

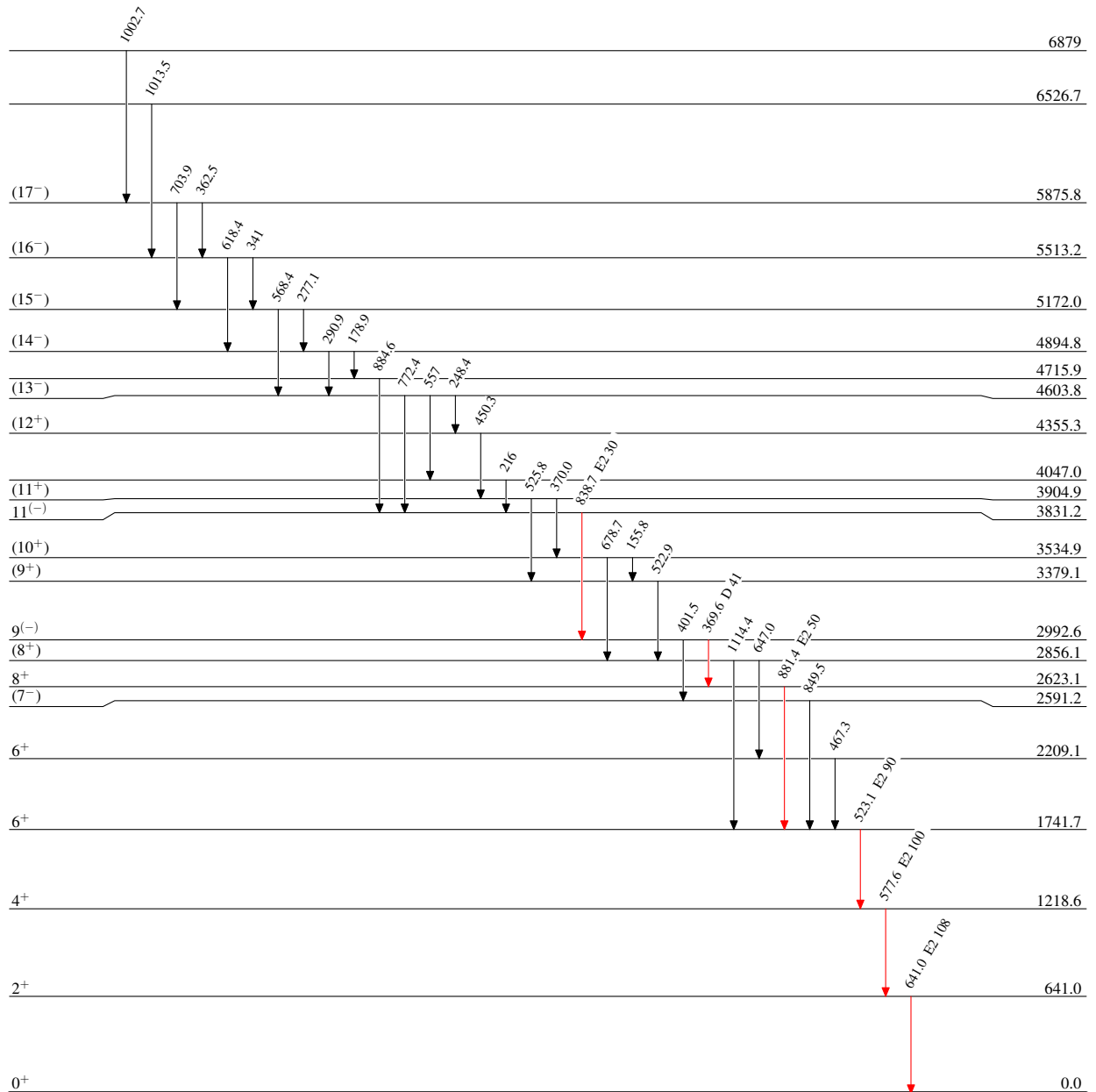## ^{238}U(HI,xγ)   2007Ve14

Level Scheme

Intensities: Type not specified

Legend

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

$^{142}_{58}\text{Ce}_{84}$

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Band(C): ΔJ=1 band based on (13⁻)

(17⁻)   5875.8

362

(16⁻)   704   5513.2

341

(15⁻)   618   5172.0

277

(14⁻)   568   4894.8

291

(13⁻)   4603.8

Band(B): Band based on 6⁺ state

(12⁺)   4355.3

450

(11⁺)   3904.9

370   526

(10⁺)   3534.9

(9⁺)   156   3379.1

679   523

(8⁺)   2856.1

647

6⁺   2209.1

Band(A): g.s. band

8⁺   2623.1

881

6⁺   1741.7

523

4⁺   1218.6

578

2⁺   641.0

641

0⁺   0.0

$^{142}_{58}Ce_{84}$