^{238}U(^{48}Ca,Fγ) 2009Ma40

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 111, 525 (2010)	19-Nov-2009

2009Ma40 (superseding 2009Ma26): ^{238}U(^{48}Ca,Fγ) E=330 MeV; measured Eγ, Iγ, $\gamma\gamma$ with GAMMASPHERE array composed of 101 Compton-suppressed Ge detectors performed at Argonne National Laboratory. ATLAS accelerator used to produce the beam in bursts of 0.3 ns time width and 412 ns repetition rate. Comparison with shell-model calculations.

^{97}Zr Levels

E(level)†	J$^\pi$‡	E(level)†	J$^\pi$‡	E(level)†	J$^\pi$‡	E(level)†	J$^\pi$‡
0.0	1/2$^+$	2264.06 *13*	(11/2$^-$)	3875.2 *3*		6596.7 *4*	(27/2$^+$)
1103.11 *8*	3/2$^+$	2625.23 *21*	(13/2$^-$)	4620.3 *3*	(23/2$^-$)	6763.5 *4*	(29/2$^-$)
1264.52 *11*	7/2$^+$	3082.00 *21*	(15/2$^-$)	4690.1 *5*		7128.3 *4*	(31/2$^+$)
1400.11 *8*	(5/2$^+$)	3145.97 *24*		5569.9 *4*	(25/2$^-$)	7295.7 *5*	(33/2)
1807.30 *11*	(7/2$^-$)	3780.2 *3*	(19/2$^-$)	5606.4 *4*	(27/2$^-$)		

† From least-squares fit to Eγ's.

‡ From 2009Ma40 (can Be different from those In Adopted Levels, Gammas dataset). No measurements leading to J$^\pi$ assignments were done by 2009Ma40. J$^\pi$'s up to (23/2$^-$), 4620 level are quoted As from 1973Bi04, 1986Lh01, and especially 1996Lh03. Above this level J$^\pi$'s for 5570 and 5606 were assigned based on the fact that they are directly fed by the β^- decay of the 142 ms isomeric state of ^{97}Y (see ^{97}Y β^- decay (142 ms) dataset) combined with nuclear structure arguments. Above these levels J$^\pi$'s were assigned based solely on nuclear structure arguments.

γ(^{97}Zr)

E$_\gamma$	I$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	E$_\gamma$	I$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$
161.4 *1*		1264.52	7/2$^+$	1103.11	3/2$^+$	814.9 *3*	5 *1*	4690.1		3875.2	
167.4 *1*	8 *2*	7295.7	(33/2)	7128.3	(31/2$^+$)	817.9 *2*	35 *2*	3082.00	(15/2$^-$)	2264.06	(11/2$^-$)
297.0 *1*	9 *2*	1400.11	(5/2$^+$)	1103.11	3/2$^+$	840.1 *1*	24 *2*	4620.3	(23/2$^-$)	3780.2	(19/2$^-$)
361.2 *2*	26 *2*	2625.23	(13/2$^-$)	2264.06	(11/2$^-$)	881.9 *2*	17 *3*	3145.97		2264.06	(11/2$^-$)
364.8 *4*	4 *1*	7128.3	(31/2$^+$)	6763.5	(29/2$^-$)	949.6 *2*	10 *1*	5569.9	(25/2$^-$)	4620.3	(23/2$^-$)
407.2 *1*	47 *4*	1807.30	(7/2$^-$)	1400.11	(5/2$^+$)	986.1 *2*	9 *1*	5606.4	(27/2$^-$)	4620.3	(23/2$^-$)
456.8 *1*	60 *2*	2264.06	(11/2$^-$)	1807.30	(7/2$^-$)	990.2 *2*	4 *1*	6596.7	(27/2$^+$)	5606.4	(27/2$^-$)
456.8 *2*	22 *2*	3082.00	(15/2$^-$)	2625.23	(13/2$^-$)	999.5 *1*	100 *4*	2264.06	(11/2$^-$)	1264.52	7/2$^+$
531.7 *2*	3 *1*	7128.3	(31/2$^+$)	6596.7	(27/2$^+$)	1026.8 *2*	6 *1*	6596.7	(27/2$^+$)	5569.9	(25/2$^-$)
542.8 *1*	13 *2*	1807.30	(7/2$^-$)	1264.52	7/2$^+$	1103.1 *1*		1103.11	3/2$^+$	0.0	1/2$^+$
698.2 *2*	44 *2*	3780.2	(19/2$^-$)	3082.00	(15/2$^-$)	1157.0 *2*	5 *1*	6763.5	(29/2$^-$)	5606.4	(27/2$^-$)
729.2 *2*	13 *2*	3875.2		3145.97		1400.1 *1*	38 *3*	1400.11	(5/2$^+$)	0.0	1/2$^+$

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Level Scheme

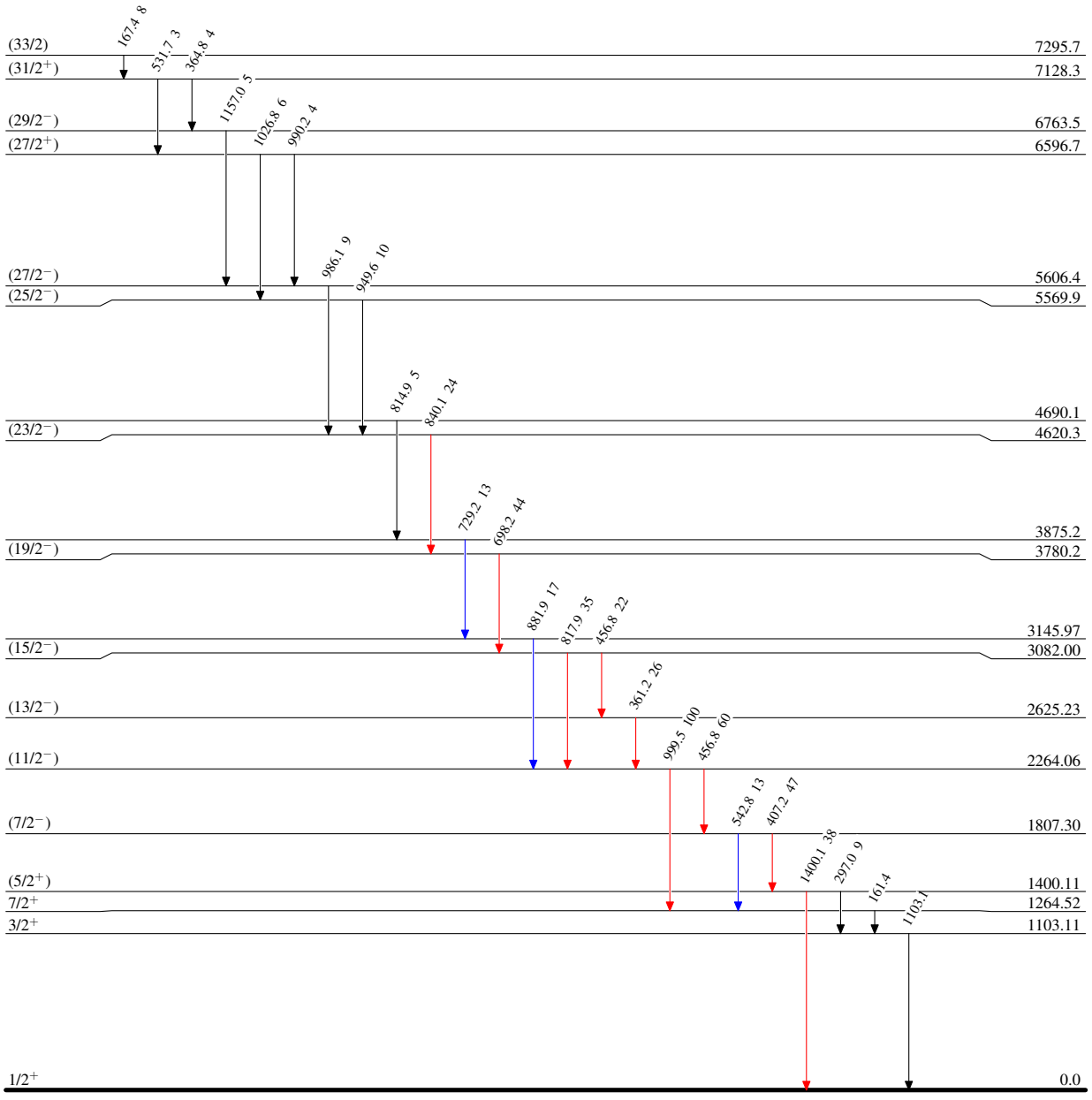
Intensities: Relative I_γ

Legend

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

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

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



$^{97}_{40}Zr_{57}$