

$^{94}\text{Mo}(^{40}\text{Ca},3\text{p}\gamma)$ 1998Sm08,2003Li13

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Yu. Khazov, I. Mitropolsky, A. Rodionov		NDS 107, 2715 (2006)	17-Jul-2006

1998Sm08: $^{94}\text{Mo}(^{40}\text{Ca},3\text{p}\gamma)$ E=180 MeV. Measured $E\gamma$, $\gamma\gamma\gamma$, particle- γ coin. GAMMASPHERE array with 92 Compton-suppressed Ge detectors and MICROBALL array of particle detectors.

2003Li13: $^{116}\text{Sn}(^{19}\text{F},4\text{n}\gamma)$ E=95 MeV. Measured $E\gamma$, $\gamma\gamma$, lifetimes. A detector array of 11 BGO Compton-suppressed HPGe detectors, DSA analysis.

All data taken from 1998Sm08, unless otherwise stated.

 ^{131}Pr Levels

E(level) [†] #	J ^π	T _{1/2} [‡]	Comments
0	(3/2 ⁺)		E(level),J ^π : from Adopted Levels.
87.0 ^a 4	(5/2 ⁺)		
151.8 [@] 5	11/2 ⁻		
407.8 [@] 7	15/2 ⁻		
450.6	7/2 ⁺		Additional information 1.
873.8 [@] 8	19/2 ⁻		
977.6 ^{&} 4	9/2 ⁺		
1159.6 ^a 5	11/2 ⁺		
1356.6 ^{&} 5	13/2 ⁺		
1499.8 [@] 9	23/2 ⁻	1.20 ps 10	B(E2)(W.u)=124.8 22, Q _t =5.1 4 eb (2003Li13).
1570.6 ^a 6	15/2 ⁺		
1800.6 ^{&} 6	17/2 ⁺		
2049.7 ^a 6	19/2 ⁺		
2241.8 [@] 10	27/2 ⁻	0.60 ps 7	B(E2)(W.u)=107 13, Q _t =4.3 5 eb (2003Li13).
2315.4 ^{&} 7	21/2 ⁺		
2601.1 ^a 7	23/2 ⁺		
2902.2 ^{&} 7	25/2 ⁺		
3049.8 [@] 11	31/2 ⁻	0.62 ps 6	B(E2)(W.u)=67 6, Q _t =3.2 3 eb (2003Li13).
3225.2 ^a 7	27/2 ⁺		
3567.2 ^{&} 8	29/2 ⁺		
3882.8 [@] 11	35/2 ⁻	1.08 ps 19	B(E2)(W.u)=33 6, Q _t =2.2 4 eb (2003Li13).
3918.2 ^a 8	31/2 ⁺		
4306.2 ^{&} 9	33/2 ⁺		
4683.2 ^a 9	35/2 ⁺		
4754.8 [@] 12	39/2 ⁻	0.354 ps 28	B(E2)(W.u)=81 6, Q _t =3.3 3 eb (2003Li13).
5107.2 ^{&} 10	37/2 ⁺		
5504.2 ^a 10	39/2 ⁺		
5705.8 [@] 13	43/2 ⁻	<0.38 ps	T _{1/2} : effective lifetime; not corrected for side feeding. B(E2)(W.u)>48.5, Q _t >2.5 eb (2003Li13).
5962.2 ^{&} 10	41/2 ⁺		
6396.2 ^a 11	43/2 ⁺		
6749.8 [@] 13	47/2 ⁻		
6880.2 ^{&} 11	45/2 ⁺		
7345.2 ^a 11	47/2 ⁺		
7856.2 ^{&} 12	49/2 ⁺		
7870.8 [@] 14	51/2 ⁻		
8359.2 ^a 12	51/2 ⁺		

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$^{94}\text{Mo}(^{40}\text{Ca},3\text{p}\gamma)$ **1998Sm08,2003Li13** (continued) ^{131}Pr Levels (continued)

E(level) ^{†‡}	J ^π
8900.2 ^{&} 13	53/2 ⁺
9019.8 [@] 15	55/2 ⁻
9456.2 ^a 13	55/2 ⁺
10192.8 [@] 15	59/2 ⁻
10638.2 ^a 13	59/2 ⁺

[†] If $\Delta E\gamma$ not given, ± 0.40 keV assumed for least-squares fitting.

[‡] From **2003Li13**.

From-least squares fit to $E\gamma$'s (by evaluators).

@ Band(A): $\pi h_{11/2}$.

& Band(B): $\pi g_{9/2}$, $\alpha = +1/2$.

^a Band(C): $\pi g_{9/2}$, $\alpha = -1/2$.

 $\gamma(^{131}\text{Pr})$

E_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.	Comments
64.8 ³	151.8	11/2 ⁻	87.0	(5/2 ⁺)	E3	E_γ , Mult.: from $^{131}\text{Nd}(\varepsilon)$ and $^{131}\text{Pr}(\text{IT})$ decays (1996Ge12).
87	87.0	(5/2 ⁺)	0	(3/2 ⁺)	M1	E_γ , Mult.: from $^{131}\text{Nd}(\varepsilon)$ and $^{131}\text{Pr}(\text{IT})$ decays (1996Ge12).
182	1159.6	11/2 ⁺	977.6	9/2 ⁺		
197	1356.6	13/2 ⁺	1159.6	11/2 ⁺		
214	1570.6	15/2 ⁺	1356.6	13/2 ⁺		
230	1800.6	17/2 ⁺	1570.6	15/2 ⁺		
249	2049.7	19/2 ⁺	1800.6	17/2 ⁺		
256	407.8	15/2 ⁻	151.8	11/2 ⁻		
266	2315.4	21/2 ⁺	2049.7	19/2 ⁺		
286	2601.1	23/2 ⁺	2315.4	21/2 ⁺		
301	2902.2	25/2 ⁺	2601.1	23/2 ⁺		
323	3225.2	27/2 ⁺	2902.2	25/2 ⁺		
342	3567.2	29/2 ⁺	3225.2	27/2 ⁺		
351	3918.2	31/2 ⁺	3567.2	29/2 ⁺		
379	1356.6	13/2 ⁺	977.6	9/2 ⁺		
411	1570.6	15/2 ⁺	1159.6	11/2 ⁺		
444	1800.6	17/2 ⁺	1356.6	13/2 ⁺		
466	873.8	19/2 ⁻	407.8	15/2 ⁻		
479	2049.7	19/2 ⁺	1570.6	15/2 ⁺		
515	2315.4	21/2 ⁺	1800.6	17/2 ⁺		
527	977.6	9/2 ⁺	450.6	7/2 ⁺		
551	2601.1	23/2 ⁺	2049.7	19/2 ⁺		
587	2902.2	25/2 ⁺	2315.4	21/2 ⁺		
624	3225.2	27/2 ⁺	2601.1	23/2 ⁺		
626	1499.8	23/2 ⁻	873.8	19/2 ⁻		
665	3567.2	29/2 ⁺	2902.2	25/2 ⁺		
693	3918.2	31/2 ⁺	3225.2	27/2 ⁺		
739	4306.2	33/2 ⁺	3567.2	29/2 ⁺		
742	2241.8	27/2 ⁻	1499.8	23/2 ⁻		
765	4683.2	35/2 ⁺	3918.2	31/2 ⁺		
801	5107.2	37/2 ⁺	4306.2	33/2 ⁺		
808	3049.8	31/2 ⁻	2241.8	27/2 ⁻		E_γ : 807 (2003Li13).
821	5504.2	39/2 ⁺	4683.2	35/2 ⁺		
833	3882.8	35/2 ⁻	3049.8	31/2 ⁻		E_γ : 832 (2003Li13).

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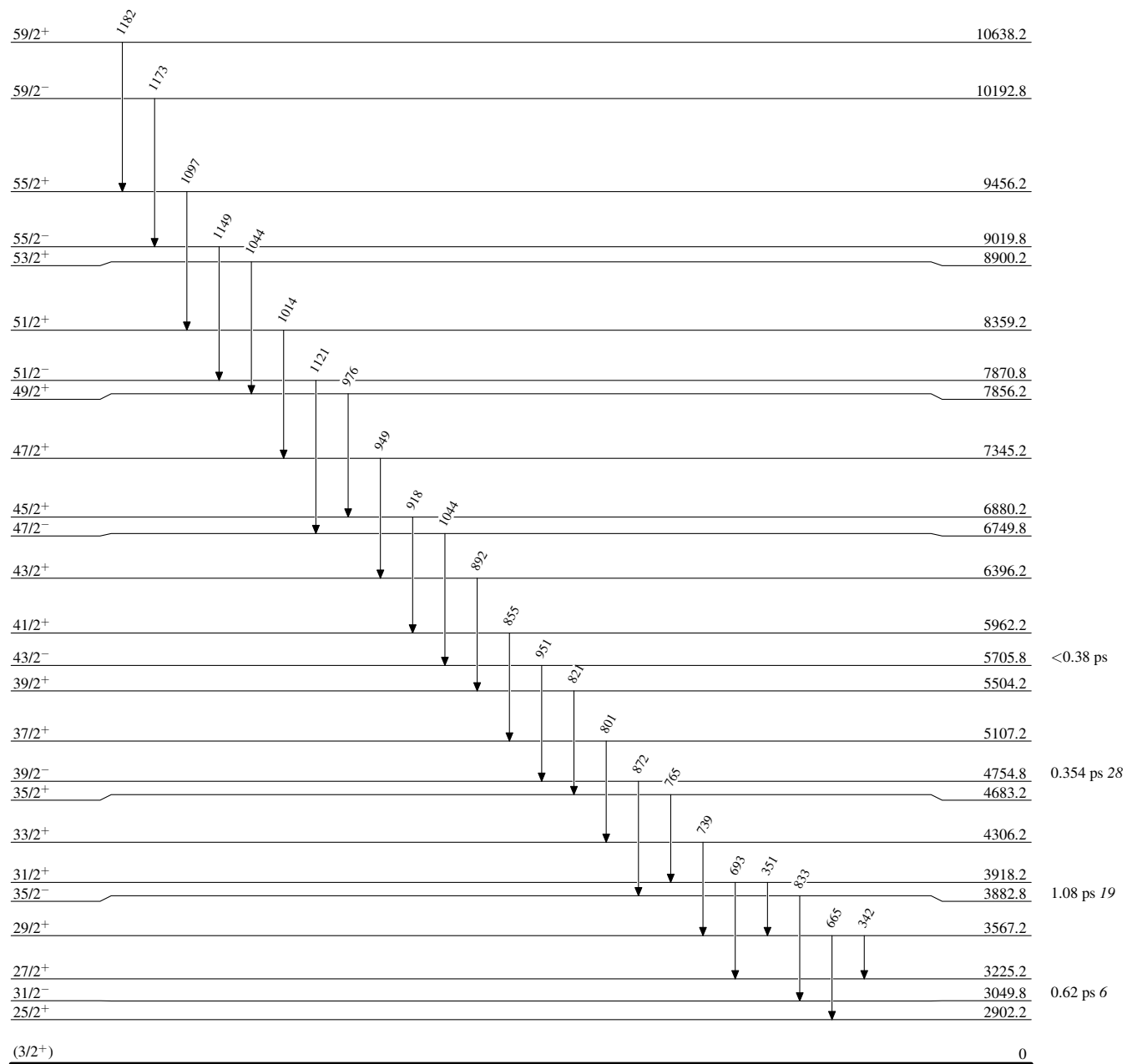
$^{94}\text{Mo}(^{40}\text{Ca},3\text{p}\gamma)$ **1998Sm08,2003Li13** (continued) $\gamma(^{131}\text{Pr})$ (continued)

E_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	E_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π
855	5962.2	41/2 ⁺	5107.2	37/2 ⁺	1044 [†]	6749.8	47/2 ⁻	5705.8	43/2 ⁻
872	4754.8	39/2 ⁻	3882.8	35/2 ⁻	1044 [†]	8900.2	53/2 ⁺	7856.2	49/2 ⁺
892	6396.2	43/2 ⁺	5504.2	39/2 ⁺	1097	9456.2	55/2 ⁺	8359.2	51/2 ⁺
918	6880.2	45/2 ⁺	5962.2	41/2 ⁺	1121	7870.8	51/2 ⁻	6749.8	47/2 ⁻
949	7345.2	47/2 ⁺	6396.2	43/2 ⁺	1149	9019.8	55/2 ⁻	7870.8	51/2 ⁻
951	5705.8	43/2 ⁻	4754.8	39/2 ⁻	1173	10192.8	59/2 ⁻	9019.8	55/2 ⁻
976	7856.2	49/2 ⁺	6880.2	45/2 ⁺	1182	10638.2	59/2 ⁺	9456.2	55/2 ⁺
1014	8359.2	51/2 ⁺	7345.2	47/2 ⁺					

[†] Multiply placed.

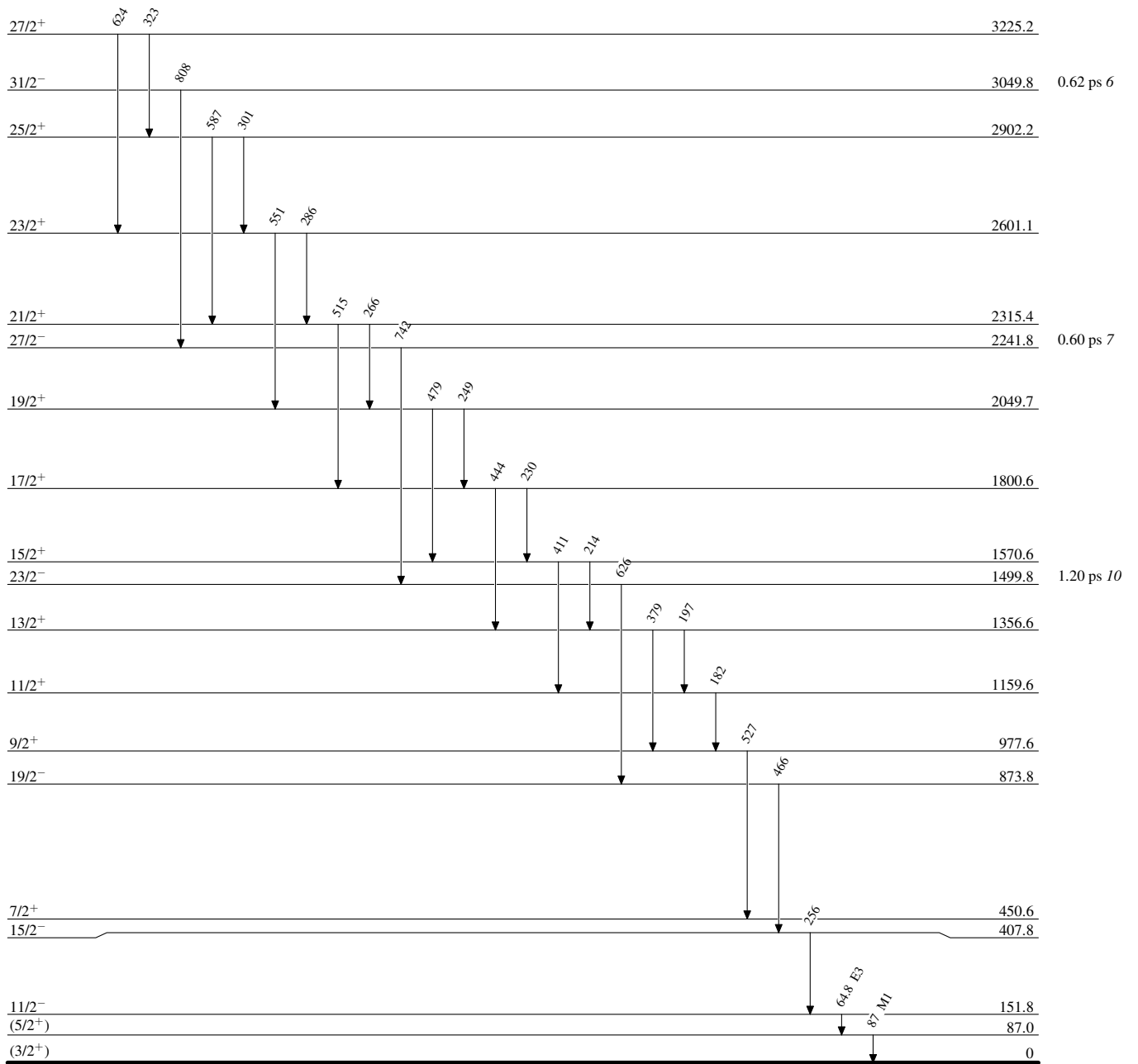
$^{94}\text{Mo}(^{40}\text{Ca},3p\gamma)$ 1998Sm08,2003Li13

Level Scheme

 $^{131}_{59}\text{Pr}_{72}$

$^{94}\text{Mo}(^{40}\text{Ca},3p\gamma)$ 1998Sm08,2003Li13

Level Scheme (continued)

 $^{131}_{59}\text{Pr}_{72}$

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