

Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	A. Hashizume	NDS 112,1647 (2011)	1-Oct-2009

$Q(\beta^-) = -9.0 \times 10^3$ syst; $S(n) = 1.23 \times 10^4$ syst; $S(p) = 1.01 \times 10^3$ syst; $Q(\alpha) = 1.7 \times 10^3$ syst [2012Wa38](#)

Note: Current evaluation has used the following Q record -9010 syst 12240 syst 900 syst 1850 syst [2003Au03](#).

$\Delta(Q(\beta^-)) = 450$, $\Delta(S(n)) = 277$, $\Delta(S(p)) = 198$ $\Delta(Q(\alpha)) = 280$ ([2003Au03](#)).

 ^{127}Pr Levels

Band assignments are taken from [1998Sm08](#). The systematics on dynamic moment of inertia versus rotational frequency obtained from the experiment was compared with Total Routhian Surface calculations by [1998Sm08](#) for ^{127}Pr , ^{129}Pr and ^{131}Pr . For the $\pi h_{1/2}$ band, the tendency of increase of moment of inertia with decreasing neutron number is well reproduced by the calculation.

Cross Reference (XREF) Flags

A $^{96}\text{Ru}(^{35}\text{Cl}, 2p2n\gamma)$
B $^{94}\text{Mo}(^{40}\text{Ca}, \alpha p2n\gamma)$

E(level) [†]	J ^π #	T _{1/2} [‡]	XREF	Comments
0.0		4.2 s 3	AB	$\% \epsilon + \% \beta^+ = 100$ T _{1/2} : Others: 7.7 s 6 (1994Se13), (1995Os03); 1993GeZZ is an earlier report of data of 1995Gi12 .
0+x [@]	11/2 ⁻		AB	Additional information 1 .
0+y ^{&}	(9/2 ⁺)		B	Additional information 2 . 1998Sm08 tentatively propose that the level decays to the (7/2 ⁺) state by the 252 keV γ .
189.1+y ^a 4	(11/2 ⁺)		B	
236.0+x [@] 5	(15/2 ⁻)		AB	
403.9+y ^{&} 4	(13/2 ⁺)		B	
625.0+x [@] 7	(19/2 ⁻)		AB	
643.4+y ^a 5	(15/2 ⁺)		B	
904.2+y ^{&} 6	(17/2 ⁺)		B	
1149.0+x [@] 9	(23/2 ⁻)		AB	
1184.3+y ^a 6	(19/2 ⁺)		B	
1482.2+y ^{&} 6	(21/2 ⁺)		B	
1787.0+x [@] 10	(27/2 ⁻)		AB	
1797.2+y ^a 7	(23/2 ⁺)		B	
2128.2+y ^{&} 7	(25/2 ⁺)		B	
2473.2+y ^a 8	(27/2 ⁺)		B	
2518.0+x [@] 12	(31/2 ⁻)		AB	
2837.2+y ^{&} 8	(29/2 ⁺)		B	
3217.2+y ^a 8	(31/2 ⁺)		B	
3327.0+x [@] 13	(35/2 ⁻)		AB	
3611.2+y ^{&} 9	(33/2 ⁺)		B	
4029+y ^a ?	(35/2 ⁺)		B	
4211.0+x [@] 14	(39/2 ⁻)		B	
4453+y ^{&} ?	(37/2 ⁺)		B	
4904+y ^a ?	(39/2 ⁺)		B	

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Adopted Levels, Gammas (continued) ^{127}Pr Levels (continued)

<u>E(level)[†]</u>	<u>J^π[#]</u>	<u>XREF</u>
5172.0+x [@]	15 (43/2 ⁻)	B
6203.0+x [@]	15 (47/2 ⁻)	B
7291.0+x [@]	16 (51/2 ⁻)	B
8429.0+x [@]	17 (55/2 ⁻)	B

[†] From least-squares fit to E_γ 's, assuming $\Delta(E_\gamma)=0.5$ keV when not stated (evaluator).

[‡] From 1995Gi12.

[#] From stretched Q(E2) and level energy systematics in ^{127}Pr , ^{129}Pr and ^{131}Pr .

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

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

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

 $\gamma(^{127}\text{Pr})$

<u>E_i(level)</u>	<u>J_i^π</u>	<u>E_γ[†]</u>	<u>E_f</u>	<u>J_f^π</u>	<u>Mult.[‡]</u>
189.1+y	(11/2 ⁺)	189	0+y	(9/2 ⁺)	Q
236.0+x	(15/2 ⁻)	236	0+x	11/2 ⁻	
403.9+y	(13/2 ⁺)	215	189.1+y	(11/2 ⁺)	Q
		404	0+y	(9/2 ⁺)	
625.0+x	(19/2 ⁻)	389	236.0+x	(15/2 ⁻)	Q
643.4+y	(15/2 ⁺)	240	403.9+y	(13/2 ⁺)	
		454	189.1+y	(11/2 ⁺)	Q
904.2+y	(17/2 ⁺)	261	643.4+y	(15/2 ⁺)	
		500	403.9+y	(13/2 ⁺)	Q
1149.0+x	(23/2 ⁻)	524	625.0+x	(19/2 ⁻)	
1184.3+y	(19/2 ⁺)	280	904.2+y	(17/2 ⁺)	Q
		541	643.4+y	(15/2 ⁺)	
1482.2+y	(21/2 ⁺)	298	1184.3+y	(19/2 ⁺)	Q
		578	904.2+y	(17/2 ⁺)	
1787.0+x	(27/2 ⁻)	638	1149.0+x	(23/2 ⁻)	Q
1797.2+y	(23/2 ⁺)	315	1482.2+y	(21/2 ⁺)	
		613	1184.3+y	(19/2 ⁺)	Q
2128.2+y	(25/2 ⁺)	331	1797.2+y	(23/2 ⁺)	
		646	1482.2+y	(21/2 ⁺)	Q
2473.2+y	(27/2 ⁺)	345	2128.2+y	(25/2 ⁺)	
		676	1797.2+y	(23/2 ⁺)	Q
2518.0+x	(31/2 ⁻)	731	1787.0+x	(27/2 ⁻)	
2837.2+y	(29/2 ⁺)	364	2473.2+y	(27/2 ⁺)	Q
		709	2128.2+y	(25/2 ⁺)	
3217.2+y	(31/2 ⁺)	380	2837.2+y	(29/2 ⁺)	Q
		744	2473.2+y	(27/2 ⁺)	
3327.0+x	(35/2 ⁻)	809	2518.0+x	(31/2 ⁻)	Q
3611.2+y	(33/2 ⁺)	774	2837.2+y	(29/2 ⁺)	
4029+y?	(35/2 ⁺)	812 [#]	3217.2+y	(31/2 ⁺)	Q
4211.0+x	(39/2 ⁻)	884	3327.0+x	(35/2 ⁻)	
4453+y?	(37/2 ⁺)	842 [#]	3611.2+y	(33/2 ⁺)	Q
4904+y?	(39/2 ⁺)	875 [#]	4029+y?	(35/2 ⁺)	
5172.0+x	(43/2 ⁻)	961	4211.0+x	(39/2 ⁻)	Q
6203.0+x	(47/2 ⁻)	1031	5172.0+x	(43/2 ⁻)	
7291.0+x	(51/2 ⁻)	1088	6203.0+x	(47/2 ⁻)	Q
8429.0+x	(55/2 ⁻)	1138	7291.0+x	(51/2 ⁻)	

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Adopted Levels, Gammas (continued)

 $\gamma(^{127}\text{Pr})$ (continued)

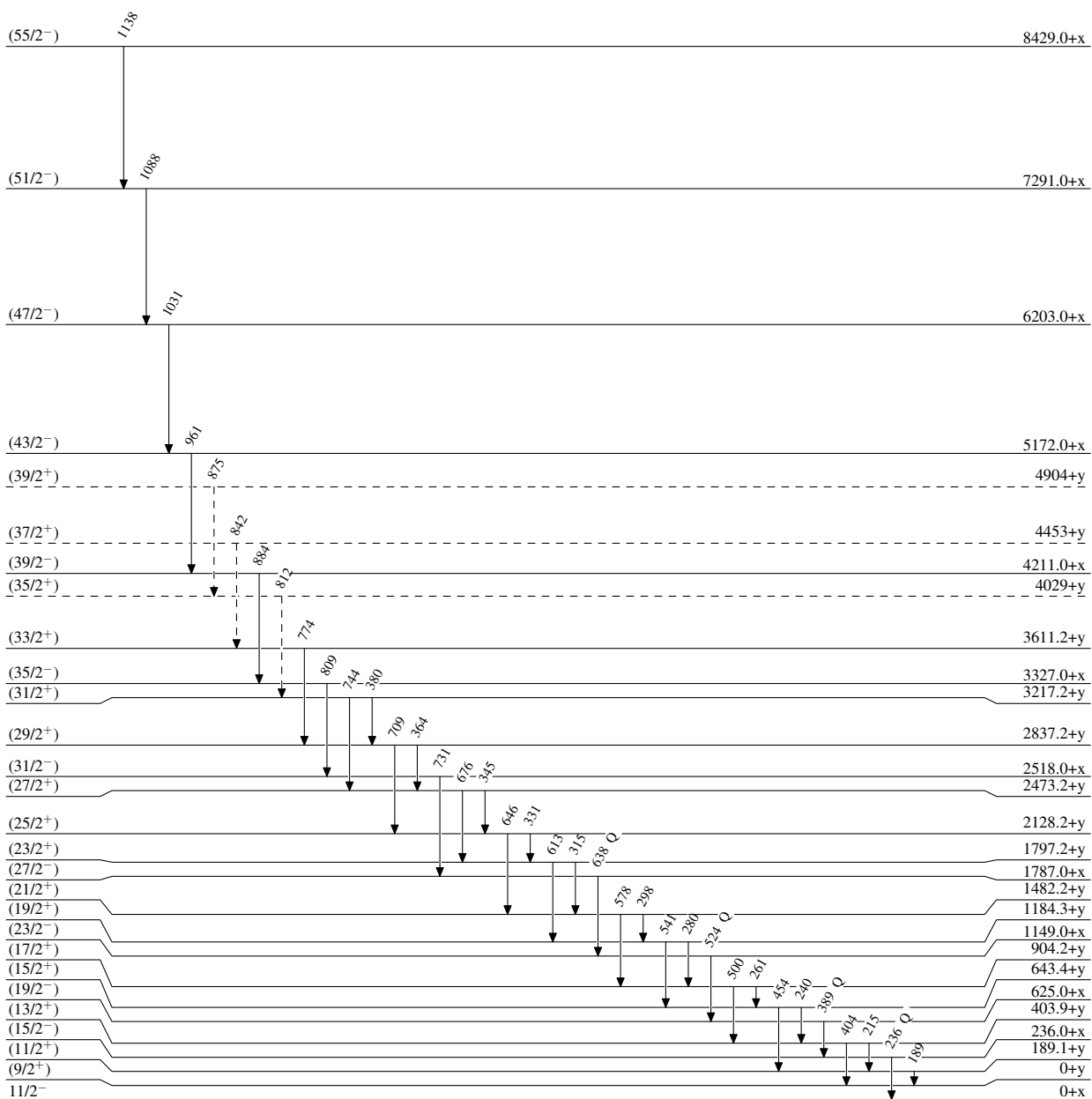
† From $^{94}\text{Mo}(^{40}\text{Ca},\alpha\text{p}2\text{n}\gamma)$.

‡ From DCO ratios in $^{96}\text{Ru}(^{35}\text{Cl},2\text{p}2\text{n}\gamma)$.

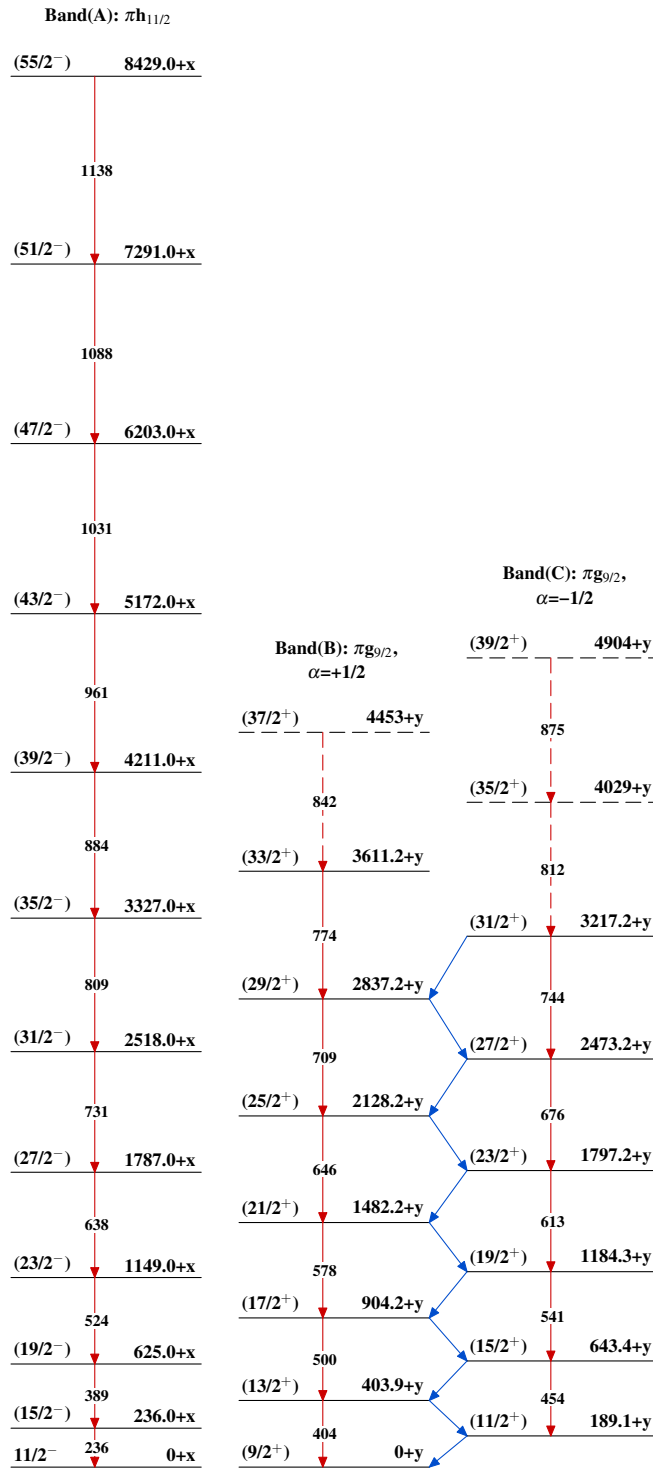
Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Legend

Level Scheme-----► γ Decay (Uncertain)

0.0 4.2 s 3

Adopted Levels, Gammas $^{127}_{59}\text{Pr}_{68}$