

⁹⁶Ru(⁵⁸Ni,p2n γ) 2007LiZR,1998Yu05

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 110, 1 (2009)	20-Nov-2008

2007LiZR: E(⁵⁸Ni)=265 MeV. Measured E γ , I γ , $\gamma\gamma$, γp coin Recoil-decay tagging technique. The 612.3 and 1474.9 levels and associated transitions proposed by **1998Yu05** were confirmed and the level scheme has been further expanded.

1998Yu05: E(⁵⁸Ni)=266 MeV. Measured E γ , I γ , $\gamma\gamma$, γp coin using an array of six clover Ge detectors and recoil-mass separator. Recoil-decay tagging technique.

¹⁵¹Lu Levels

A high-spin isomer e.g. (27/2⁻), $\pi h^3_{11/2}$ isomer in ¹⁴⁷Ho is expected in ¹⁵¹Lu also. From recoil-decay tagging method, **1998Yu05** establish an upper limit of 7 ms for such an isomer from observation of delayed γ -ray spectrum preceding proton emission from ¹⁵¹Lu. It is possible that 2454.6-keV level is such an isomer.

E(level) [†]	J π [‡]	Comments
0.0@	11/2 ⁻ #	
612.3@ 7	(15/2 ⁻)	
1474.9@ 10	(19/2 ⁻)	
2426.9@ 13	(23/2 ⁻)	
2454.6 16	(25/2,27/2 ⁻)	E(level); possibly an isomer with $\pi h^3_{11/2}$ configuration based on systematics of neighboring nuclides (2007LiZR).
2856.6@ 14	(27/2 ⁻)	
3070.0 14	(27/2 ⁻)	
3392.9 15	(31/2 ⁻)	
3696.1@ 15	(31/2 ⁻)	
3998.4@ 16	(35/2 ⁻)	

[†] The cascade 612.3-862.6 is built either on 11/2⁻ ($\pi h_{11/2}$) g.s. or on 3/2⁺ (mainly $\pi d_{3/2}$) isomer at 77 keV. The former possibility is preferred by **1998Yu05** based on systematics of N=80 isotones.

[‡] From systematics of N=80 isotones, unless otherwise stated.

From 'Adopted Levels'.

@ Band(A): γ cascade based on g.s.

$\gamma(^{151}\text{Lu})$

E γ [†]	I γ [#]	E _i (level)	J π _i	E _f	J π _f
302.3@ [‡] 7	53@ 6	3696.1	(31/2 ⁻)	3392.9	(31/2 ⁻)
302.3@ [‡] 7	53@ 6	3998.4	(35/2 ⁻)	3696.1	(31/2 ⁻)
322.0 [‡] 7	41 6	3392.9	(31/2 ⁻)	3070.0	(27/2 ⁻)
402.0 [‡] 7	24 4	2856.6	(27/2 ⁻)	2454.6	(25/2,27/2 ⁻)
430.6 [‡] 7	26 4	2856.6	(27/2 ⁻)	2426.9	(23/2 ⁻)
612.3 7	100 12	612.3	(15/2 ⁻)	0.0	11/2 ⁻
642.2 [‡] 7	31 6	3070.0	(27/2 ⁻)	2426.9	(23/2 ⁻)
^x 686.1 7	39 6				
840.4 [‡] 7	31 6	3696.1	(31/2 ⁻)	2856.6	(27/2 ⁻)
862.6 7	92 16	1474.9	(19/2 ⁻)	612.3	(15/2 ⁻)
952.0 [‡] 7	65 14	2426.9	(23/2 ⁻)	1474.9	(19/2 ⁻)

Continued on next page (footnotes at end of table)

$^{96}\text{Ru}(^{58}\text{Ni},\text{p}2\text{n}\gamma)$ 2007LiZR,1998Yu05 (continued) $\gamma(^{151}\text{Lu})$ (continued)

† From 1998Yu05 unless otherwise stated. Uncertainty is stated by 1998Yu05 as 0.5 to 1.0 keV. The evaluator assigns 0.7 keV for each γ ray. All γ rays listed here were observed in coincidence with 1233 keV proton peak from ^{151}Lu proton decay (2007LiZR,1998Yu05).

‡ Placement from 2007LiZR based on their $\gamma\gamma$ coin data.

From 1998Yu05.

@ Multiply placed with undivided intensity.

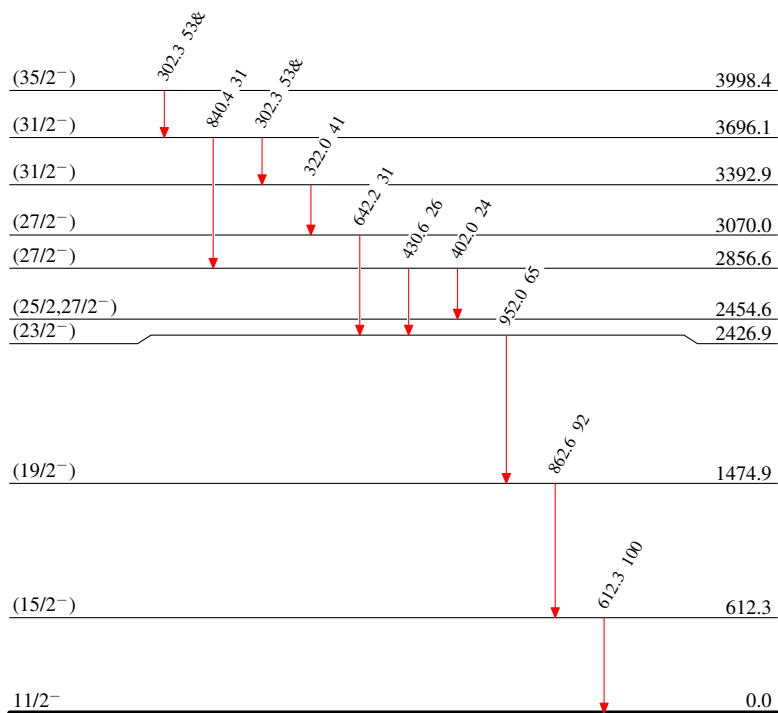
x γ ray not placed in level scheme.

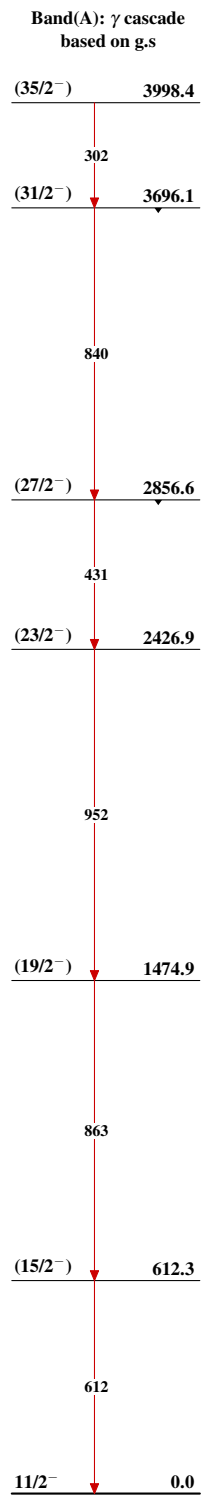
 $^{96}\text{Ru}(^{58}\text{Ni},\text{p}2\text{n}\gamma)$ 2007LiZR,1998Yu05Level Scheme

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

Legend

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

 $^{151}_{71}\text{Lu}_{80}$

$^{96}\text{Ru}({}^{58}\text{Ni,p}2n\gamma)$ 2007LiZR,1998Yu05 $^{151}_{71}\text{Lu}_{80}$