^{53}Cr(n,n′γ) 1987DiZY,1978AhZX

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Huo Junde	NDS 110,2689 (2009)	31-Mar-2007

1987DiZY: neutron energies between threshold and 10 MeV, measured σ(Eγ,E), see also 1989La10.
1978AhZX: fast reactor neutrons, measured: γ.
Others: 1962Va24, 1971CoZN.

^{53}Cr Levels

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
0.0	3/2⁻	2453.2 *6*	(7/2,9/2)⁻	3137.3 *7*		3615.1 *7*	1/2⁻
564.37 *10*	1/2⁻	2656.0 *4*	5/2⁻,7/2⁻	3172 *3*		3695.5 *19*	
1006.49 *10*	5/2⁻	2669.7 *7*	1/2⁻	3178.8 *6*	(3/2)⁻	3706.7 *15*	9/2⁺
1289.72 *15*	7/2⁻	2705.8 *11*	11/2⁻	3243.6 *11*	13/2	3985.5 *10*	3/2⁺,5/2⁺
1536.66 *17*	7/2⁻	2707.4 *4*	3/2⁻	3263.9 *7*	(5/2)⁺	4136	
1974.07 *25*	5/2⁻	2771.2 *11*	5/2⁻,7/2⁻	3345	5/2⁻,7/2⁻	4192.5 *10*	
2172.3 *4*	11/2⁻	2826.6 *15*	11/2⁻	3381.7 *11*		4233.6 *10*	
2233.2 *11*	9/2⁻	2994 *10*	(5/2⁻,7/2⁻)	3434.8 *15*	5/2⁻,7/2⁻	4361.8 *20*	
2322.1 *6*	3/2⁻	3084.3 *11*	15/2⁻	3592.6 *15*	13/2⁻	4695.3 *15*	

† From a least-squares fit to the γ-ray data.
‡ Adopted values.

γ(^{53}Cr)

Eγ and Iγ are from 1987DiZY, except as noted.
Unplaced γ′s are from 1987DiZY. The authors stated that these γ rays may not be due to ^{53}Cr(n,n′γ) reaction.

Eγ	Iγ‡	E_i(level)	J_i^π	E_f	J_f^π
246.9† *2*	30† *5*	1536.66	7/2⁻	1289.72	7/2⁻
280.7	15	2453.2	(7/2,9/2)⁻	2172.3	11/2⁻
283.2† *4*	10† *2*	1289.72	7/2⁻	1006.49	5/2⁻
335[a]		2994	(5/2⁻,7/2⁻)	2656.0	5/2⁻,7/2⁻
(442.4)	<1&	1006.49	5/2⁻	564.37	1/2⁻
530.2† *2*	70† *7*	1536.66	7/2⁻	1006.49	5/2⁻
533.5		2705.8	11/2⁻	2172.3	11/2⁻
564.34† *10*	100† *7*	564.37	1/2⁻	0.0	3/2⁻
593.4		2826.6	11/2⁻	2233.2	9/2⁻
684.5† *6*	17† *6*	1974.07	5/2⁻	1289.72	7/2⁻
696.5		2233.2	9/2⁻	1536.66	7/2⁻
733.5 *4*	#	2707.4	3/2⁻	1974.07	5/2⁻
766.0 *5*	100	3592.6	13/2⁻	2826.6	11/2⁻
882.5† *4*	100† *20*	2172.3	11/2⁻	1289.72	7/2⁻
912		3084.3	15/2⁻	2172.3	11/2⁻
[x]964.0 *6*					
1006.49† *10*	100† *5*	1006.49	5/2⁻	0.0	3/2⁻
1071.3		3243.6	13/2	2172.3	11/2⁻
[x]1111.0 *7*					
[x]1132.1 *8*					
[x]1142.7 *9*					

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^{53}Cr(n,n′γ) 1987DiZY,1978AhZX (continued)

γ(^{53}Cr) (continued)

E_γ	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π
1163.6	40	2453.2	$(7/2,9/2)^-$	1289.72	$7/2^-$
1289.7† *2*	90† *5*	1289.72	$7/2^-$	0.0	$3/2^-$
1366.4 *5*	28	2656.0	$5/2^-,7/2^-$	1289.72	$7/2^-$
1371[a]		3345	$5/2^-,7/2^-$	1974.07	$5/2^-$
1446.8	45	2453.2	$(7/2,9/2)^-$	1006.49	$5/2^-$
1481.5		2771.2	$5/2^-,7/2^-$	1289.72	$7/2^-$
1526[a]		4233.6		2707.4	$3/2^-$
1571[a]		4233.6		2656.0	$5/2^-,7/2^-$
1611	100	4695.3		3084.3	$15/2^-$
1649.4 *5*	72	2656.0	$5/2^-,7/2^-$	1006.49	$5/2^-$
(1701.7)		2707.4	$3/2^-$	1006.49	$5/2^-$
1704[a]	58	2994	$(5/2^-,7/2^-)$	1289.72	$7/2^-$
1727	24	3263.9	$(5/2)^+$	1536.66	$7/2^-$
1845	100	3381.7		1536.66	$7/2^-$
1847.5 *6*		3137.3		1289.72	$7/2^-$
1974.1† *3*	83† *11*	1974.07	$5/2^-$	0.0	$3/2^-$
(1987 *10*)	42	2994	$(5/2^-,7/2^-)$	1006.49	$5/2^-$
2105.5	40	2669.7	$1/2^-$	564.37	$1/2^-$
2142.4 *5*		2707.4	$3/2^-$	564.37	$1/2^-$
2145.0 *15*	100	3434.8	$5/2^-,7/2^-$	1289.72	$7/2^-$
(2172)		3178.8	$(3/2)^-$	1006.49	$5/2^-$
2258[a]	10	3263.9	$(5/2)^+$	1006.49	$5/2^-$
[x]2294.6 *10*					
2322.0† *6*	1.1† *2*	2322.1	$3/2^-$	0.0	$3/2^-$
[x]2394.5 *20*					
[x]2411.4 *13*					
2416.9 *15*	100	3706.7	$9/2^+$	1289.72	$7/2^-$
[x]2419.6 *15*					
[x]2422.9 *11*					
[x]2472.2 *13*					
(2614)		3178.8	$(3/2)^-$	564.37	$1/2^-$
(2669.5 *8*)	60	2669.7	$1/2^-$	0.0	$3/2^-$
2707.7	@	2707.4	$3/2^-$	0.0	$3/2^-$
2943[a]		4233.6		1289.72	$7/2^-$
[x]3044.0 *20*					
3072 *2*	100	4361.8		1289.72	$7/2^-$
[x]3115.1 *11*					
(3172 *3*)		3172		0.0	$3/2^-$
3179.3		3178.8	$(3/2)^-$	0.0	$3/2^-$
3186[a]		4192.5		1006.49	$5/2^-$
[x]3211.3 *11*					
3227 *1*	100	4233.6		1006.49	$5/2^-$
3263.9 *9*	66	3263.9	$(5/2)^+$	0.0	$3/2^-$
3345[a]		3345	$5/2^-,7/2^-$	0.0	$3/2^-$
(3421)		3985.5	$3/2^+,5/2^+$	564.37	$1/2^-$
[x]3588 *3*					
[x]3595 *3*					
3615.0 *7*	100	3615.1	$1/2^-$	0.0	$3/2^-$
3628		4192.5		564.37	$1/2^-$
3695.4 *19*	100	3695.5		0.0	$3/2^-$
4136[a]	100	4136		0.0	$3/2^-$

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^{53}Cr(n,n′γ) 1987DiZY,1978AhZX (continued)

γ(^{53}Cr) (continued)

† From 1978AhZX.
‡ Branching ratio for each level.
# σ(734)/σ(2143)=0.77 *6*.
@ σ(2707)/σ(2143)≈0.18 *9*.
& 1987DiZY estimated an upper limit of a 1% branching ratio.
[a] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

^{53}Cr(n,n′γ) 1987DiZY,1978AhZX

Level Scheme

Intensities: Relative I_γ

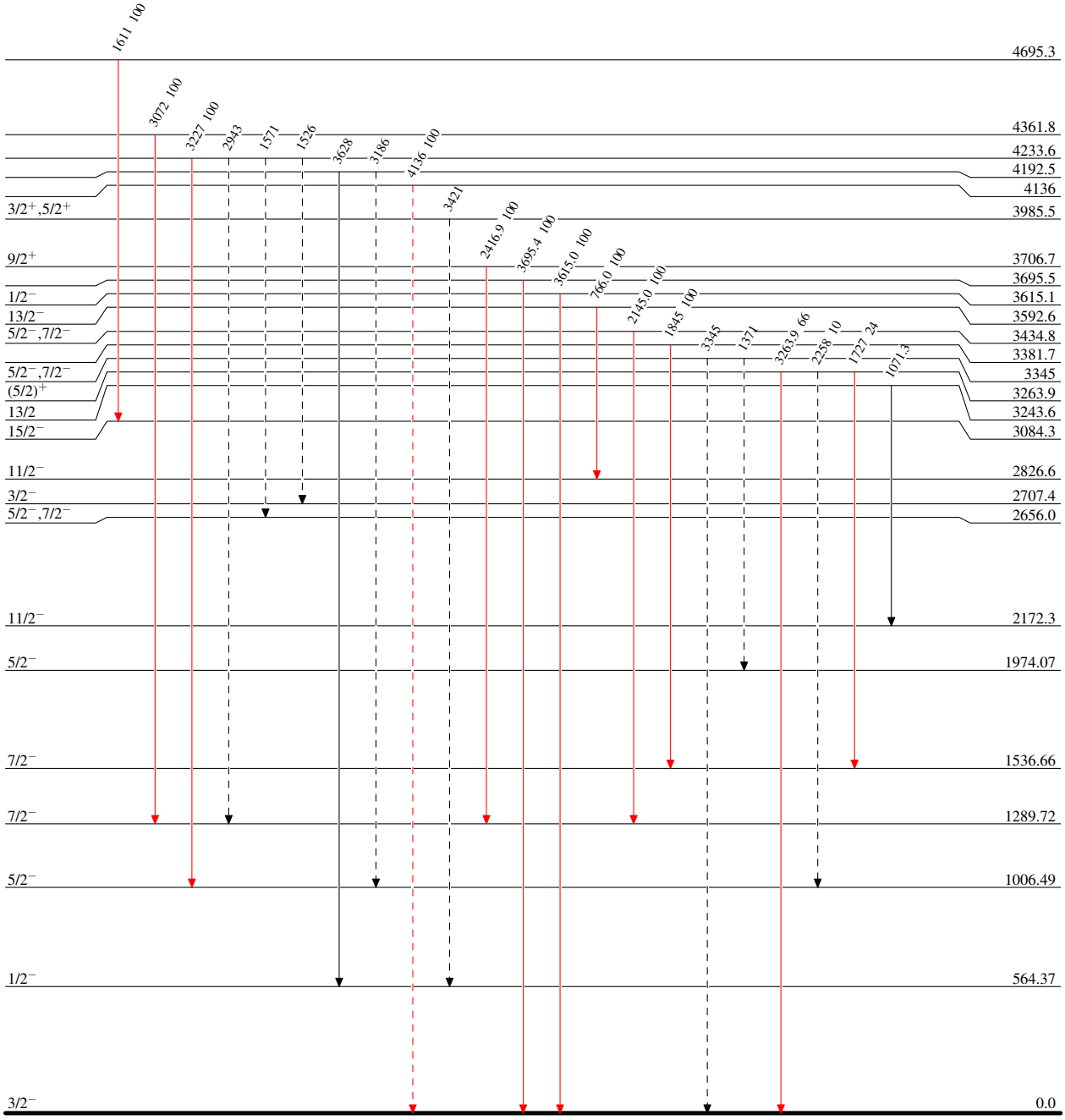
Legend

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

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

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

γ Decay (Uncertain)



$^{53}_{24}Cr_{29}$

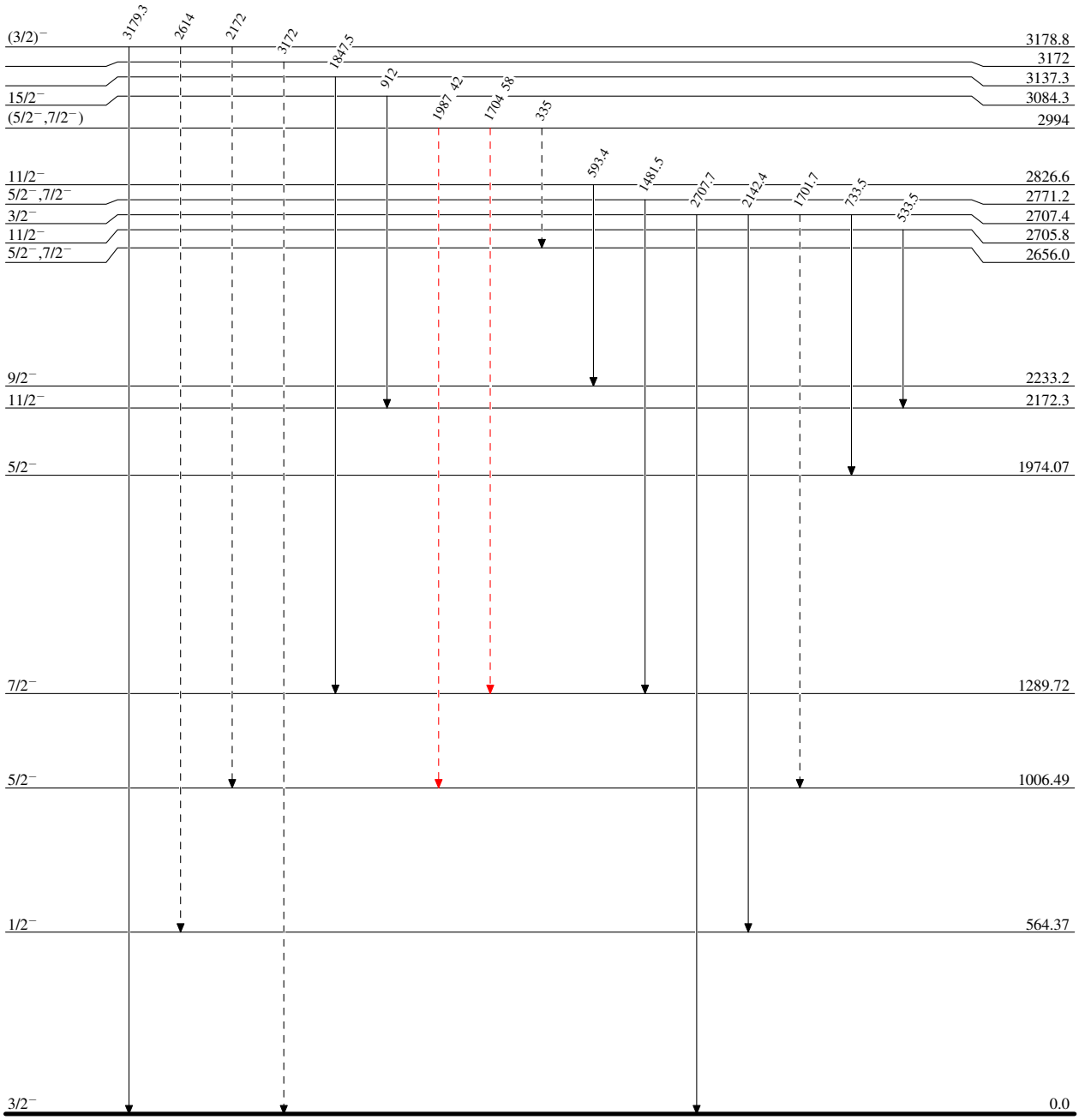
^{53}Cr(n,n′γ) 1987DiZY,1978AhZX

Level Scheme (continued)

Intensities: Relative I_γ

Legend

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)



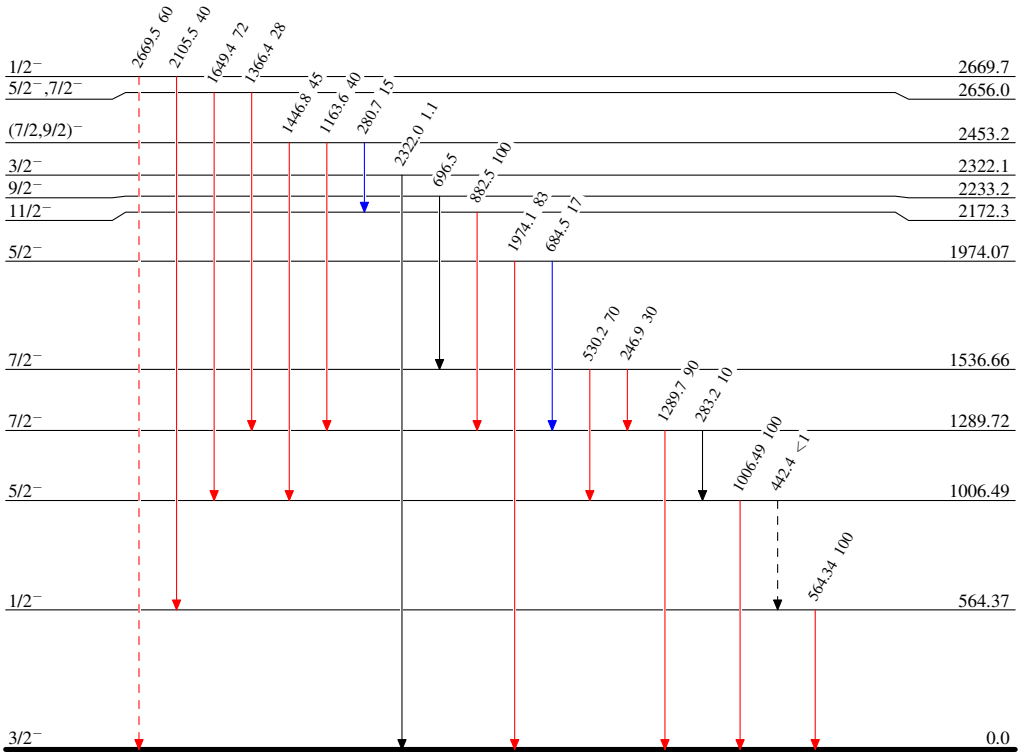
$^{53}_{24}Cr_{29}$

^{53}Cr(n,n′γ) 1987DiZY,1978AhZX

Level Scheme (continued)

Intensities: Relative I_γ

Legend
- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)



$^{53}_{24}Cr_{29}$