^{57}Zn εp decay:47 ms 2007Bl09,2002Jo09

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Huo Junde, Huo Su, Yang Dong	NDS 112, 1513 (2011)	29-Oct-2009

Parent: ^{57}Zn: E=0.0; $J^\pi=7/2^-$; $T_{1/2}$=43 ms *3*; Q(εp)=13815 *SY*; %εp decay=78 *17*

^{57}Zn-Q(εp): 13815 *103* (syst,2003Au03).

^{57}Zn-J^π: from 2003Au02, estimated from systematic trends in neighboring nuclides.

^{57}Zn-$T_{1/2}$: from weighted average value of 48 ms *3* (2007Bl09), 37 ms *5* (2002Lo13), and 40 ms *10* (1976Vi02).

^{57}Zn-%εp decay: %εp=78 *17* (2007Bl09).

2007Bl09: ^{57}Zn nuclei produced in a fragmentation of $^{70}Ge^{+28}$ beam at an energy of 71.6 MeV using LISE3 facility at GANIL. A nickel target was used. Measured delayed proton events by implanting nuclei in a double-sided silicon strip detector (DSSSD), and isotopic $T_{1/2}$.

2002Jo09: ^{57}Zn nuclei produced in the reaction ^{28}Si(^{32}S,3n). The beam energy was 150 MeV. Measured decay events by implanting nuclei in a carbon foil.

1976Vi02: ^{57}Zn nuclei produced in the reaction ^{40}Ca(^{20}Ne,3n). The beam energy was 70 MeV. Measured decay events by ΔE-E telescope, implanting nuclei in a carbon foil.

^{56}Ni Levels

E(level)	J^π
0	0^+
2700	2^+

Delayed Protons (^{56}Ni)

E(p)[†]	E(^{56}Ni)	I(p)[‡@]	E(^{57}Cu)	Comments
1168 *15*	2700	16 *4*	4563	
1685 *17*	0	4 *2*	2395	
1836 *15*	0	36 *6*	2525	
1900[#] *10*	2700	100 *10*	5314	E(p): 1900 *60* (2007Bl09), 1950 *50* (1976Vi02). I(p): 24% *5* (2007Bl09), 100% (1976Vi02).
2540[#] *20*	0	66 *8*	3236	E(p): 2560 *50* (2007Bl09), 2580 *50* (1976Vi02). I(p): 13% *2* (2007Bl09), 50% (1976Vi02).
3090[#] *20*	0	25 *5*	3786	E(p): 3130 *60* (2007Bl09). I(p): 6% *2* (2007Bl09).
3514 *24*	0	11 *3*	4208	
3684[&] *25*	0	6 *2*	4378	
3871[&] *26*	0	3 *2*	4563	
4474[&] *30*	0	7 *3*	5168	
4610[#] *20*	0	81 *9*	5314	E(p): 4590 *50* (2007Bl09), 4650 *50* (1976Vi02). I(p): 19% *2* (2007Bl09), 67% (1976Vi02).

[†] From 2002Jo09, unless otherwise stated, in the center-of-mass system.

[‡] From 2002Jo09. Absolute values for four branches are measured by 2007Bl09, these are listed under comments.

[#] Weighted average value (c.m. system) from 2007Bl09.

[@] For absolute intensity per 100 decays, multiply by 0.24 *5*.

[&] Placement of transition in the level scheme is uncertain.

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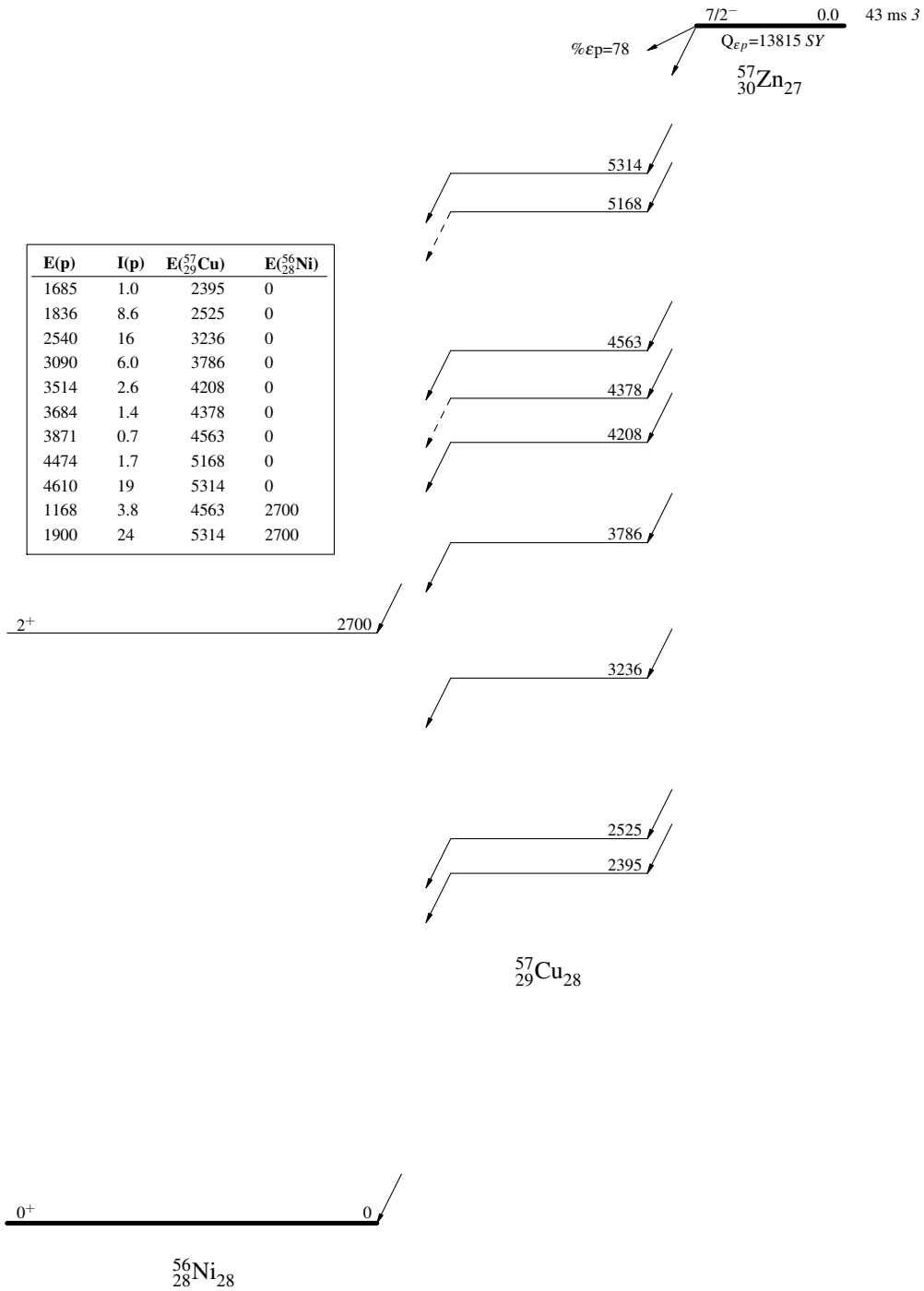
Decay Scheme

I(p) Intensities: Relative I(p)



E(p)	I(p)	E($^{57}_{29}$Cu)	E($^{56}_{28}$Ni)
1685	1.0	2395	0
1836	8.6	2525	0
2540	16	3236	0
3090	6.0	3786	0
3514	2.6	4208	0
3684	1.4	4378	0
3871	0.7	4563	0
4474	1.7	5168	0
4610	19	5314	0
1168	3.8	4563	2700
1900	24	5314	2700

$^{57}_{30}Zn_{27}$

$^{57}_{29}Cu_{28}$

$^{56}_{28}Ni_{28}$