Adopted Levels, Gammas

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	25-Mar-2022

Q(β^-)=−21550 *SY*; S(n)=19190 *SY*; S(p)=1040 *SY*; Q(α)=−5260 *SY* 2021Wa16

Estimated uncertainties (2021Wa16): 640 for Q(β^-), 570 for S(n), 430 for S(p), 410 for Q(α).

Q(ε)=13240 *400*, Q(εp)=12660 *400*, S(2n)=35830 *450*, S(2p)=690 *400* (syst, 2021Wa16).

2001Gi10: ^{56}Zn produced in Ni(^{58}Ni,X),E=74.5 MeV/nucleon, with 230.6 mg/cm^2 thick target. Fragments were identified by ΔE and TOF following SISSI and LISE3 fragment separators at GANIL. A total of 17 events were assigned to ^{56}Zn, implying production σ=0.5 nb *+20−2*.

2007Bl09: ^{56}Zn produced in Ni(^{70}Ge,X),E=71.6 MeV/nucleon, followed by separation of fragments using LISE3 separator at GANIL. About 20 events, assigned to ^{56}Zn are displayed in fragment identification plot in Fig. 1 or 2007Bl09.

2007Do17: Ni(^{58}Ni,X),E=74.5 MeV/nucleon at GANIL. Fragment identification by energy loss, residual energy and time-of- flight measurements using two micro-channel plate (MCP) detectors and Si detectors. Double-sided silicon-strip detectors (DSSSD) and a thick Si(Li) detector were used to detect implanted events, charged particles and β particles. The γ rays were detected by four Ge detectors. Coincidences measured between charged particles and γ rays. $T_{1/2}$ measured by time correlation of implantation events due to ^{56}Zn and subsequent emission of protons and γ rays. Total proton branching ratio arises from time spectrum of events with energy >900 keV in the charged-particle spectrum. Possible small contributions from delayed-α and delayed-2p decays are ignored.

2016Or03, 2014Or04 (also conference papers from the same experimental group: 2017RuZX, 2016Ru04, 2016OrZY, 2015Or02, 2014Ru08, 2014Or03, 2014OrZZ, 2012OrZY): ^{56}Zn produced in fragmentation of 74.5 MeV/nucleon ^{58}Ni beam on a 200 μm thick natural Ni target at LISE3-GANIL facility. Fragments were selected by LISE3 separator and implanted into a double-sided silicon strip detector (DSSSD), surrounded by four EXOGAM Ge clovers for γ ray detection. Implantations were identified by energy loss ΔE and time-of-flight (TOF) information. Measured E_p, I_p, half-life of ^{56}Zn decay, and delayed proton decay branches.

2021Ku30: ^{56}Zn produced in ^{9}Be(^{78}Kr,X),E=345 MeV/nucleon. Measured production σ using BigRIPS separator at the RIBF-RIKEN facility.

Theoretical structure and decay calculations: 20 primary references extracted from the NSR database (www.nndc.bnl.gov/nsr/) are listed in this dataset under 'document' records.

Additional information 1.

^{56}Zn Levels

Cross Reference (XREF) Flags

A ^{9}Be(^{57}Zn,nγ)

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	XREF	Comments
0[#]	0$^+$	32.4 ms *11*	A	%ε+%β^+=100; %εp=88.0 *26* T_z=−2. %εp is weighted average of 88.5 *26* (2016Or03,2014Or04) and 86.0 *49* (2007Do17). $T_{1/2}$: weighted average of 32.9 ms *8* (2016Or03,2014Or04, from time correlations between ^{56}Zn implants and protons and least-squares fit; authors also report 32.8 ms *8* in 2016Or03 with maximum likelihood minimization fit; $T_{1/2}$=27 ms *8* from 1834.5γ decay curve (2014Or04), and 31.2 ms *11* (2016Or03) using Batemann equations for fitting of the correlation-time spectrum containing all the follow-up decays; value of 32.9 ms *8* is adopted in 2016Or03); and 30.0 ms *17* (2007Do17, from (implants)(proton) correlated events).
830[#] *5*	(2$^+$)		A	
2102[#] *14*	(4$^+$)		A	
3482[#] *21*	(6$^+$)		A	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{56}Zn Levels (continued)

† From Eγ values.
‡ As given in 2021Fe11, from comparison with experimental level structure of mirror nucleus ^{56}Fe, and with shell-model calculations using KB3GR interaction. Also, systematics of even-even nuclei.
# Band(A): g.s. band.

γ(^{56}Zn)

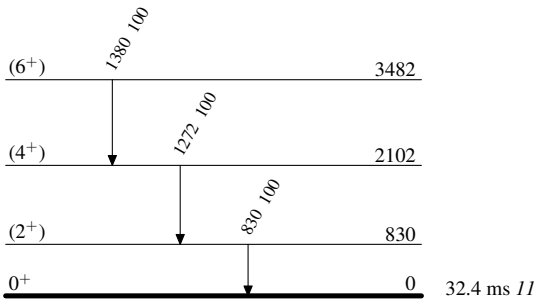
E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π
830	(2^+)	830 *5*	100	0	0^+
2102	(4^+)	1272 *13*	100	830	(2^+)
3482	(6^+)	1380 *16*	100	2102	(4^+)

† From ^{9}Be(^{57}Zn,nγ) (2021Fe11).

Adopted Levels, Gammas

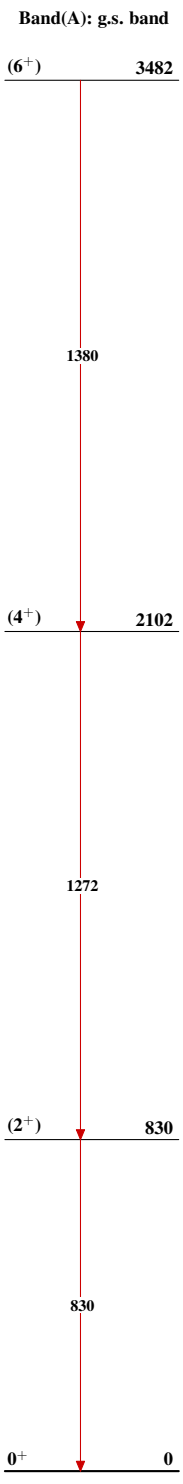
Level Scheme

Intensities: Relative photon branching from each level



$^{56}_{30}Zn_{26}$

Adopted Levels, Gammas



$^{56}_{30}Zn_{26}$