^{31}Cl εp decay:XUNDL-6 2025Bu00

Parent: ^{31}Cl: E=0; $J^{\pi}=3/2^{+}$; $T_{1/2}$=190 ms *1*; Q(εp)=5877 *3*; %εp decay=2.08 *5*

^{31}Cl-J^{π}: From Adopted Levels of ^{31}Cl in ENSDF database.

^{31}Cl-$T_{1/2}$,Q(εp): from 2021Wa16.

^{31}Cl-%εp decay: %εp=2.08 *5* for ^{31}Cl decay, revised from %εp=2.4 *2* (2011SaZM).

Compiled (unevaluated) dataset from 2025Bu00: Phys Rev C xxx, xx43xx (2025).

Compiled by L. J. Sun (FRIB, MSU), February 5, 2025.

2025Bu00: ^{31}Cl ions were produced by fragmentation of a 150 MeV/nucleon ^{36}Ar beam on a 1645 mg/cm^2 Be production target, separated and purified by the A1900 fragment separator and the Radio Frequency Fragment Separator (RFFS), and transported into the Gaseous Detector with Germanium Tagging (GADGET) system consisting a custom-built gas-filled proportional counter called Proton Detector (PD) surrounded by the SeGA array of 16 HPGe crystals. Measured center-of-mass energies and relative intensities of β-delayed protons, and pγ-coincidences. Normalized I_p relative to the I_p of the 1026-keV (c.m.) proton of 2011SaZM. Deduced excitation energies and I_β of proton-emitting states in ^{31}S.

^{30}P Levels

E(level)[†]	J^{π}[†]
0	1^+
677.11 *10*	0^+
708.70 *7*	1^+
1454.28 *5*	2^+
1973.34 *8*	3^+

[†] From ^{30}P Adopted Levels in ENSDF database.

Delayed Protons (^{30}P)

E(p)[†]	E(^{30}P)	I(p)[@]	E(^{31}S)[#]	Comments
258 *4*	0	0.069 *5*	6388	E_p revised from E_p=273 keV *10* (2022Bu14). $I_{\beta p}=9.0(10)\times10^{-6}$ revised from $I_{\beta p}=8.3\times10^{-6}$ *+12−9* (2022Bu14).
805[‡] *2*	0	15.4 *+7−8*	6936	
833[‡] *3*	1454.28	0.10 *1*	8418	
870 *18*	708.70	<0.05	7703	
906[‡] *2*	0	6.6 *4*	7037	
958 *12*	708.70	<0.05	7797	
973 *2*	1454.28	0.33 *5*	8557	
1026.9[‡] *11*	0	100 *+9−8*	7157.5	
1065 *8*	708.70	0.20 *5*	7905	
1137 *4*	1973.34	0.38 *+10−9*	9238	
1217 *2*	677.11	0.26 *5*	8024	
1223 *5*	1973.34	0.31 *6*	9328	
1228 *2*	1454.28	1.4 *+3−2*	8813	
1317 *8*	1973.34	0.6 *3*	9421	
1379 *2*	1454.28	0.7 *2*	8964	
1572 *3*	0	10.8 *20*	7703	
1579[‡] *3*	708.70	1.0 *2*	8418	
1610[‡] *3*	677.11	2.2 *+5−4*	8418	
1651 *3*	1454.28	0.8 *2*	9238	
1715 *4*	708.70	0.8 *2*	8557	
1756 *3*	0	2.9 *+6−5*	7887	
1819 *6*	1454.28	0.25 *+7−6*	9404	
1862 *8*	677.11	<0.14	8669	
1869 *7*	708.70	0.22 *+6−5*	8709	
1887 *3*	0	6.9 *+13−11*	8017	

Continued on next page (footnotes at end of table)

^{31}Cl εp decay:XUNDL-6 2025Bu00 (continued)

Delayed Protons (continued)

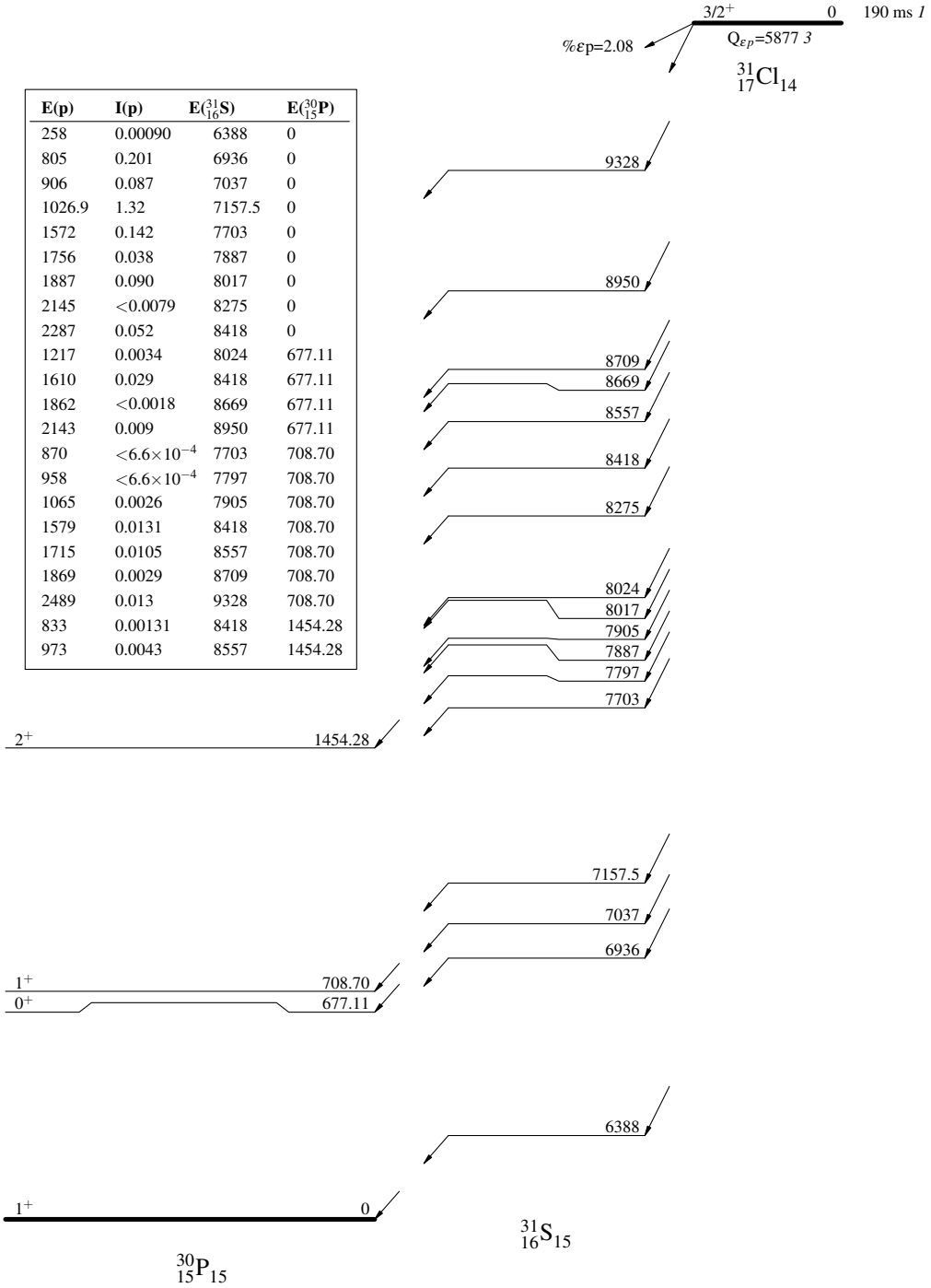
E(p)†	E(^{30}P)	I(p)@	E(^{31}S)#
2143 *5*	677.11	0.7 *6*	8950
2145 *4*	0	<0.6	8275
2287‡ *3*	0	4.0 *+8−6*	8418
2489 *8*	708.70	1.0 *3*	9328

† Center-of-mass energy.
‡ Used for proton energy calibration.
# From E(c.m.)+S(p)(^{31}S)+E(level)(^{30}P), where S(p)=6130.65 *24* (2021Wa16). Weighted average is taken where there are more than one proton decay branches from a level in ^{31}S.
@ For absolute intensity per 100 decays, multiply by 0.0131 *2*.

^{31}Cl εp decay:XUNDL-6 2025Bu00

Decay Scheme

I(p) Intensities: I(p) per 100 parent decays

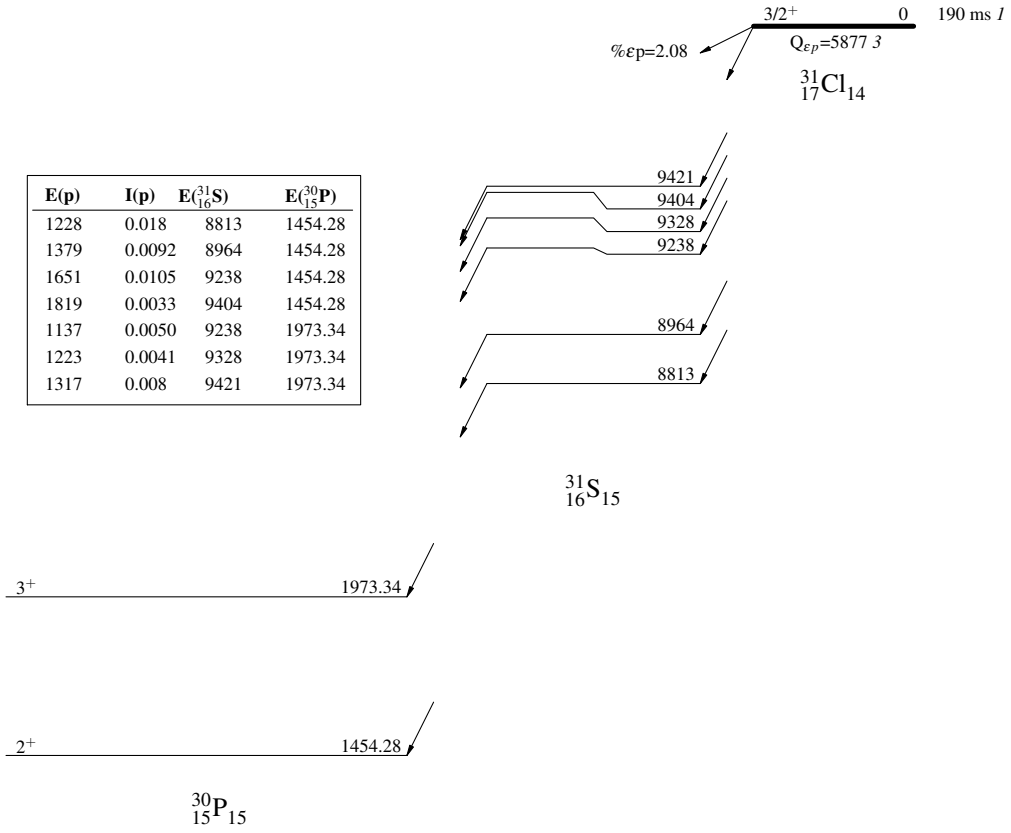


E(p)	I(p)	E($^{31}_{16}$S)	E($^{30}_{15}$P)
258	0.00090	6388	0
805	0.201	6936	0
906	0.087	7037	0
1026.9	1.32	7157.5	0
1572	0.142	7703	0
1756	0.038	7887	0
1887	0.090	8017	0
2145	<0.0079	8275	0
2287	0.052	8418	0
1217	0.0034	8024	677.11
1610	0.029	8418	677.11
1862	<0.0018	8669	677.11
2143	0.009	8950	677.11
870	$<6.6\times10^{-4}$	7703	708.70
958	$<6.6\times10^{-4}$	7797	708.70
1065	0.0026	7905	708.70
1579	0.0131	8418	708.70
1715	0.0105	8557	708.70
1869	0.0029	8709	708.70
2489	0.013	9328	708.70
833	0.00131	8418	1454.28
973	0.0043	8557	1454.28

^{31}Cl εp decay:XUNDL-6 2025Bu00

Decay Scheme (continued)

I(p) Intensities: I(p) per 100 parent decays



E(p)	I(p)	E($^{31}_{16}$S)	E($^{30}_{15}$P)
1228	0.018	8813	1454.28
1379	0.0092	8964	1454.28
1651	0.0105	9238	1454.28
1819	0.0033	9404	1454.28
1137	0.0050	9238	1973.34
1223	0.0041	9328	1973.34
1317	0.008	9421	1973.34