Adopted Levels

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. S. Basunia, A. Chakraborty	NDS 197,1 (2024)	31-May-2024

S(n)=23970 *syst*; S(p)=−760 *syst*; Q(α)=−8030 *syst* 2021Wa16
ΔS(n)=470, ΔS(p)=130, ΔQ(α)=630 (syst,2021Wa16).
S(2p)=−3420 *80*, Q(εp)=17880 *180* (syst,2021Wa16).
^{30}Ar identified as an unbound nucleus by 2015Mu13 in one-neutron knockout reaction.
Theoretical nuclear structure calculations: 2014Le03, 2005Pa26, 2004Ge02.
Theory about 2p decay mode: 2004Pf02, 2003Gr04, 2003Gr24.

^{30}Ar Levels

Cross Reference (XREF) Flags

A ^{31}K p decay
B ^{9}Be(^{31}Ar,^{30}Ar)

E(level)†	Jπ	$T_{1/2}$	XREF	Comments
0	0^+	<10 ps	AB	%2p=100 (2015Mu13) Decays to ^{28}S ground state. From analysis of proton distribution spectrum following 2p decays of ^{30}Ar, 2015Mu13 conclude that the process is a combination of the two decay processes: "true" or simultaneous 2p emission, and sequential 1p emissions. E(level): the ground state is deduced at E(2p)=2.25 MeV *+15−10* (2015Mu13) implying S(2p)(^{30}Ar)=−2.25 MeV *+15−10*. $T_{1/2}$: measured by 2015Mu13 from analysis of ^{28}S+p+p events. Another estimate from consideration of different decay mechanisms (sequential as well as simultaneous or "true" 2p decay) gives $T_{1/2}$=0.1-1 fs (2015Mu13).
0.53×10^3 *22*	(2^+)		B	%p=100 Jπ: from analogy with mirror states in ^{30}Mg at 1483.14 keV (2018Xu04). This state decays by two branches of sequential 1p emissions via the lowest states in ^{29}Cl, finally to the ground state and first excited 2^+ state in ^{28}S (2015Mu13, 2018Xu04).
≈1.5×10^3	(0^+)		B	%p=100 Jπ: from analogy with mirror states in ^{30}Mg at 1788.21 keV (2018Xu04). This state decays by two branches of sequential 1p emissions via the lowest states in ^{29}Cl, finally to the ground state and first excited 2^+ state in ^{28}S, as shown in Fig. 10 of 2018Xu04.
1.78×10^3 *17*			B	%p=100 This state decays by two branches of sequential 1p emissions via the lowest states in ^{29}Cl, finally to the ground state in ^{28}S, as shown in Fig. 10 of 2018Xu04.
3.13×10^3 *12*			B	%p=100 This state decays by two branches of sequential 1p emissions via the lowest states in ^{29}Cl, finally to the ground state in ^{28}S, as shown in Fig. 10 of 2018Xu04.
5.3×10^3 *1*			B	%p=100 This state decays by two branches of sequential 1p emissions via the lowest states in ^{29}Cl, finally to the ground state in ^{28}S, as shown in Fig. 10 of 2018Xu04.
6.8×10^3 *19*			B	%p=100 This state decays by one branch of sequential 1p emission via the lowest states in ^{29}Cl, finally to the ground state in ^{28}S, as shown in Fig. 10 of 2018Xu04.
10.1×10^3 *11*			B	%p=100 This state decays by two branches of sequential 1p emissions via the lowest states in ^{29}Cl, finally to the ground state in ^{28}S, as shown in Fig. 10 of 2018Xu04.

† From (^{31}Ar,^{30}Ar).