Adopted Levels

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. H. Kelley, G. C. Sheu	ENSDF	29-July-2015

Q(β^-)=−17.39×10^3 *15*; S(n)=17.35×10^3 *15*; S(p)=−1.25×10^3 *11*; Q(α)=−9.34 *12* 2012Wa38

All experimental evidence is consistent with the scenario that all levels of ^{18}Na proton decay 100% to levels in ^{17}Ne.

Existing evidence suggests a ground state near E_{res}(cm)=1.25 MeV ($\Gamma\approx$0.54 MeV) inspite of evidence for a resonance that decays with E_{cm}(p+^{17}Ne)=0.41 MeV *16* ($\Gamma\approx$340 keV). The later strength is likely a higher energy state that decays to a ^{17}Ne excited state, hence the resonant decay energy does not trivially reflect the excitation energy or missing mass. Wang and Audi et al. take ΔM=25040 keV *110* [E_{cm}(p+^{17}Ne)=1.25 MeV *11*] as the ground state energy; we accept the ^{18}Na ground state at S_p=1.25 MeV *11* (2012Wa38).

Theoretical works:

Using analysis of the mirror ^{18}N system, frameworks are developed describing the low-lying levels of ^{18}Na in terms of ^{19}Na plus a neutron hole (2005Fo13) or ^{17}Ne plus a proton (2006Fo08). Estimates on the mass excess and level spacings are discussed. In (2012Fo10) the approach was updated using newly available data.

See other analyses in (1928Gu10, 1984An18, 1987Po01, 2004Ge02, 2008Qi04).

^{18}Na Levels

Cross Reference (XREF) Flags

A ^{1}H(^{17}Ne,P)
B ^{9}Be(^{20}Mg,P17NE)

E(level)	J^π	$T_{1/2}$	XREF	Comments
0	(1)$^-$	<0.2 MeV	B	%p≈100. Excitation energies are reported with respect to E_{res}(p+^{17}Ne)=1.25 MeV *11*, the accepted value in (2012Wa38). $T_{1/2}$: <0.2 MeV (2012Mu05); also see Γ=0.48 MeV *14* (2004Ze05).
0.30×10^3 *11*	2$^-$	5 keV *3*	AB	%p≈100. E(level): from E_{res}(p+^{17}Ne)=1552 keV *5*.
0.59×10^3 *12*	0$^-$	300 keV *100*	A	%p≈100. E(level): from E_{res}(p+^{17}Ne)=1842 keV *40*.
0.78×10^3 *11*	1$^-$	900 keV *100*	A	%p≈100. E(level): from E_{res}(p+^{17}Ne)=2030 keV *20*.
0.83×10^3 *11*	3$^-$	42 keV *10*	A	%p≈100. E(level): from E_{res}(p+^{17}Ne)=2084 keV *5*.