Adopted Levels

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. S. Narijauskas, J. H. Kelley, C. G. Sheu	ENSDF	20-July-2017

S(p)=−1.9×10^3 *2*; Q(α)=−11.6×10^3 *20* 2017Ho10

The mass excess of ^{10}N is 38.1 MeV *2* (2017Ho10); see also ΔM=38.8 MeV *4* (2017Wa10).

The ^{10}N nucleus is particle unstable to proton decay. Early theoretical studies, often guided by comparisons with ^{10}Li, were focused on predictions of its ground state binding energy (1974Ir04, 1982Ng01, 1984An18, 1997Ba54, 1997Po12, 2000Po32, 2009Ba41). In (1997Ao05, 2001Ao04) a detailed comparison of measured ^{10}Li and predicted ^{10}N properties is given that suggests the low-lying ground state may be determined by an *s*-wave resonance in the ^{9}C+p system.

On the other hand, discussion in 2004Ti06 suggested the $E_{rel}(^{9}C+p)$=2.6 MeV observed in the $^{10}B(^{14}N,^{14}B)^{10}N$ reaction was explained by large L=2 two-nucleon transfer amplitudes calculated for $^{10}\beta^{+}2p\rightarrow^{12}$Ng.s. and ^{12}Ng.s.$\rightarrow^{10}N(1^{+})$, and that the observed state was the analog of the 0.24 MeV $J^{\pi}=1^{+}$ state of ^{10}Li. The same view point is expressed in 2013Sh19. However, so far there is no experimental evidence in support of $J^{\pi}=1^{+}$ for any ^{10}N states.

The near-threshold s-wave state in ^{9}Li+n (see ^{10}Li) implies a broad s-wave ground state about 1.8 MeV above the ^{9}C+p threshold in ^{10}N; see calculations and discussion in (2004Ti06, 2013Fo22, 2013Sh19).

^{10}N Levels

Cross Reference (XREF) Flags

A $^{1}H(^{9}C,P)$
B $^{10}B(^{14}N,^{14}B)$

E(level)†	J^{π}	$T_{1/2}$‡	$E_{rel.}(^{9}C+p)$ (MeV)	XREF	Comments
0	(1$^-$)	2.5 MeV *+20−15*	1.9 *2*	A	%p=100 T=2
0.9×10^3 *3*	(2$^-$)	2.0 MeV *+7−5*	2.8 *2*	AB	%p=100 T=2

† $E_{g.s.}$ from $E_{res}(^{9}C+p)$=1.9 MeV *2*. See alternate analysis described in $^{1}H(^{9}C,p)$.

‡ $\Gamma_p\approx\Gamma$.