

Adopted Levels, Gammas

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	J. Kelley, C. G. Sheu		ENSDF	01-May-2017

$Q(\beta^-)=1.181\times 10^4$ 4; $S(n)=4.18\times 10^3$ 3; $S(p)=2.609\times 10^4$ 21; $Q(\alpha)=-1.746\times 10^4$ 14 2017Wa10

Theoretical analysis:

See discussion on N-N interactions and pairing effects in (1997Po14, 2000De24, 2002Gr14, 2007Ma53, 2008Ha17, 2012Ha21, 2012Id04, 2012Yu04, 2013Sh17, 2016La17, 2017Me03).

See discussion on the nuclear radius of ^{18}C in (1971St40, 1992La13, 1993Po11, 1996Sh13, 1996Su24, 2001Go24, 2002Me12, 2004Ya05, 2008Ca29, 2009Ch45, 2009Pa46, 2010Ca15, 2011Al11, 2011Fo18, 2016Fo24).

Other general shell-model, potential-model and cluster-model analyses of ground-state energies, excited state energies, moments, deformation lengths, etc. can be found in (1964In03, 1971Fi11, 1987B118, 1993Pa14, 1995Ho13, 1996Gr21, 1996Ka14, 1996Re19, 1997Ba54, 1997Ho04, 1998Sh16, 1999Ha61, 1999Sh16, 2001Ka66, 2002Ka73, 2003Sa50, 2003Su09, 2003Th06, 2004Th11, 2005Ga31, 2005Ka54, 2006Ko02, 2006Le33, 2006Sa29, 2006Ta28, 2009Pu01, 2010Co05, 2011Co18, 2013Lu02, 2014Eb02, 2014Ja14, 2014Ro22, 2014Sa13, 2015Ka02, 2015Sh21).

2010Ya03: The authors utilized a $^{16}\text{C}+n+n$ 3-body model to analyze levels that could participate in the $^{17}\text{C}(n,\gamma)^{18}\text{C}$ reaction under the conditions of a core-collapse supernovae, where ^{18}C is suggested as a semi-waiting point for r -process nucleosynthesis. See additional references in the text.

2011Ba01: The authors analyze the probability for population of ^{18}C states in β -delayed proton emission events from ^{19}C where the halo neutron is converted to a proton and then emitted.

Other Experimental Work:

2017He04: $E(^{18}\text{C})=425$ MeV/nucleon, Pb target, Coulomb dissociation, σ 's to $^{17}\text{C}^*(0,0.22,0.33$ MeV).

1995Ba28: $E(^{18}\text{C})\approx 86.2$ MeV/nucleon, Be target, $\text{FWHM}(^{17}\text{C}$ parallel momentum dist) $_{\text{lab}}=110$ MeV/c 12, $\sigma_{1n}=34.8$ mb 21. See also 1997Or03.

2000Sa47: $E(^{18}\text{C})=47$ MeV/nucleon, carbon target, $\text{FWHM}(^{17}\text{C}$ parallel momentum dist) $_{\text{lab}}=126$ MeV/c 5, $\sigma_{1n}=115$ mb 18. The authors suggest $J^\pi=0^+$.

2001Oz03: $E(^{18}\text{C})=955$ MeV/nucleon, carbon target, $\sigma_{\text{interaction}}=1104$ mb 15, analyzed relation of σ_i to effective matter radius: $R_{\text{rms}}\approx 2.82$ fm 4.

See also results on ^{18}C fragment momentum distributions from the breakup of heavier projectiles in (2011Oz01, 2012Ko38, 2015Mo17).

 ^{18}C LevelsCross Reference (XREF) Flags

A	$^1\text{H}(^{19}\text{C}, ^{18}\text{C}\gamma)$	E	$^9\text{Be}(^{48}\text{Ca}, ^{18}\text{C})$	I	$^{48}\text{Ca}(^{18}\text{O}, ^{18}\text{C})$
B	$^9\text{Be}(^{18}\text{C}, ^{18}\text{C}'\gamma)$	F	$^{18}\text{O}(\pi^-, \pi^+)$	J	$^{232}\text{Th}(^{18}\text{O}, ^{18}\text{C})$
C	$^9\text{Be}(^{19}\text{N}, ^{18}\text{C}\gamma)$	G	$\text{C}(^{36}\text{S}, \text{X}\gamma)$	K	$^{232}\text{Th}(^{22}\text{Ne}, ^{18}\text{C})$
D	$^9\text{Be}(^{40}\text{Ar}, ^{18}\text{C})$	H	^{19}B β^- -n decay	L	$\text{U}(\text{P}, ^{18}\text{C}), (\text{N}, ^{18}\text{C})$

$E(\text{level})^\dagger$	J^π	$T_{1/2}$	XREF	Comments
0.0	0^+	92 ms 2	ABCDEFGHIJKL	$\% \beta^- = 100$; $\% \beta^- n = 31.5$ 15 (1995ReZZ) T=3 $T_{1/2}$: from 1995Sc03. Others: 66 ms +25-15 (1988Mu08), 78 ms +20-15 (1989Le16), 95 ms 10 (1991Pr03), 92 ms 5 (2008ReZZ, see also 1991Re02, 2005ReZZ). See also 2012Ch48.
1588 8	2^+	15.5 ps 25	ABC FG I	T=3 $T_{1/2}$: from 2012Vo05. Others: 13.1 ps 31 (2009On02).
2515 10	(2^+)	<3.2 ps	ABC G	T=3 $T_{1/2}$: from 2012Vo05.
3972 20	$(2,3)^+$		AB G	T=3

† From analysis of γ -rays in (2008St18, 2009Ko02, 2012Vo05).

Adopted Levels, Gammas (continued) $\gamma(^{18}\text{C})$

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ	E_f	J_f^π	Mult.	Comments
1588	2^+	1588 8	100	0.0	0^+	E2	B(E2)=0.000364 +15-14(stat) +40-47(syst).
2515	(2^+)	927 7	86 12	1588	2^+		
		2515 30	14 12	0.0	0^+		
3972	$(2,3)^+$	2384 17	100	1588	2^+		

† From analysis of γ -rays in (2008St18, 2009Ko02, 2012Vo05).

Adopted Levels, GammasLevel Scheme

Intensities: % photon branching from each level

