## Adopted Levels

History

| Type | Author | Citation | Literature Cutoff Date |
|---|---|---|---|
| Full Evaluation | J. H. Kelley, J. E. Purcell and C. G. Sheu | NP A968,71 (2017) | 1-Jan-2017 |

S(p)=−320 *50*; Q($\alpha$)=−5570 *30* 2017Wa10

Uncertainties in the ground state energy and width have dominated theoretical studies on $^{12}$O (1988Co15, 1997Kr10, 1999Ba03, 1999Sh43, 2001Le22, 2002Gr03, 2003Fo14, 2010Fo08, 2013Fo10, 2014RoZZ). The analog states in $^{12}$Be are utilized to gain insight into the expected $^{12}$O struture (1999Sh43, 2006Fo11, 2011Fo04). The expected width (≈100 keV) is significantly smaller than experimentally reported widths. The $^{2}$He decay is energetically possible and has been discussed in (2001Ba31, 2001Gr29, 2002Gr03, 2002Gr25, 2003Ba99, 2003Fo14, 2006Ca05, 2009Le22). See also (2005Ji04, 2006Sa29, 2009Ba41, 2011Sh26, 2016Pa05).

### $^{12}$O Levels

Cross Reference (XREF) Flags

- A $^{1}$H($^{14}$O,t)
- B $^{9}$Be($^{13}$O,$^{12}$O)
- C $^{12}$C($\pi^+$,$\pi^-$)
- D $^{16}$O($\alpha$,$^{8}$He)

| E(level) | J$^\pi$ | T$_{1/2}$ | E$_{res}$($^{10}$C+2p)(keV) | XREF | Comments |
|---|---|---|---|---|---|
| 0.0 | 0$^+$ | <72 keV | 1638 *24* | ABCD | %2p=100<br>T=2<br>T$_{1/2}$: From (2012Ja11). |
| 1.62×10$^3$?† *11* | 0$^+$ | 1.2 MeV *7* | 3.26×10$^3$ *11* | A C | %2p=100<br>T=2<br>E(level): From E=1.62 MeV *3*(stat) *10*(syst) (2016Su05).<br>T$_{1/2}$: From Γ=1.2 MeV *1*(stat) +*3*−*7*(syst) (2016Su05). |
| 1968 *52* | (2$^+$) | 0.48 MeV *11* | 3606 *60* | BC | %2p=100<br>T=2<br>E(level),Γ: From (2012Ja11). |
| 4.2×10$^3$ | 1$^-$ | 2.2 MeV | ≈5800 | A | %2p=100<br>T=2<br>E(level),Γ: From (2016Su05). |
| 7.0×10$^3$ | | 2.2 MeV | ≈8600 | A | %2p=100<br>E(level),Γ: From (2016Su05). |

† It is unclear whether the groups observed at E$_x$=1.62 MeV and E$_x$=1.97 MeV represent unique states.