## $^{208}$Pb($^{3}$He,t),($^{3}$He,tp),($^{3}$He,tn)

| Type | Author | History Citation | Literature Cutoff Date |
|---|---|---|---|
| Full Evaluation | M. J. Martin | NDS 108,1583 (2007) | 1-Jun-2007 |

1981Ga08 E=81 MeV.
1991Br20 E=900, 2000 MeV.
1991Ja04 E=76, 200 MeV. FWHM=50 keV (At 200 MeV).
1994Bo22 E=61.2 MeV. FWHM=30 and 400 keV for 1 and 6 MeV neutrons, respectively.
1994Ak03 see 1995Ak02.
1994Ha40 see 1995Ak02.
1995Ak02 E=450 MeV. FWHM(t)≈300 keV, FWHM(t+p)≈400 keV. Data reported In 1994Ak01, 1994Ak03, and 1994Ha40 for the IAS and higher resonances are preliminary and are superseded by data In 1995Ak02 (priv. Comm. From M. N. Harakeh).
1998Ha43 data reported here are the same As given In 1995Ak02.
2000Ak01 E=450 MeV. FWHM(t+p)=580 keV. See also 1998Ha43.
2001Kr23 E=450 MeV. FWHM=300 keV.
2003Ze03 see 2004Ze02. These papers supersede the authors earlier work At E=177 MeV reported In 2001Ze02 and 2000Ze03.
2004Ze02 E=410 MeV. FWHM=200 keV.

1991Br20 study the broad features of the L=0, L=1, and L=2 strength distributions up to 70 MeV.

### $^{208}$Bi Levels

| E(level)† | Jπ‡ | L† | S# | Comments |
|---|---|---|---|---|
| 1803 *25* | 1+ | 0 | 2.7 *5* | σ(mb/sr)=0.302 *15*. |
| 2860 *50* | | >0 | | the energy is from 1994Ak03. The uncertainty and the assignment of L ≠ 0 are from a priv. Comm. from J. Jänecke. This peak probably corresponds to the adopted 2− level At 2893. |
| 3174 *25* | 1+ | 0 | 0.7 *4* | σ(mb/sr)=0.204 *14*. |
| 3863 *25* | 1+ | 0 | ≤3.5 | σ(mb/sr)=0.194 *13*. |
| 4043 *25* | 1+ | 0 | ≤3.5 | σ(mb/sr)=0.173 *13*. |
| 4621 *25* | 1+ | 0 | 1.8 *5* | σ(mb/sr)=0.350 *18*. |
| 5.9×10$^3$ *2* | 1+ | 0 | 3.2 *8* | E(level): 1991Ja04 report a broad peak At≈5600. |
| 8.0×10$^3$ *2* | 1+ | 0 | 7 *3* | |
| 9.8×10$^3$ *2* | 1+ | 0 | 12 *4* | |
| 15171 *18* | 0+ | 0 | | Γ=232 keV *6* (1994Ak03); Γp=141 keV *12* (1981Ga08)<br>Γn/Γ=0.37 *3* (1994Bo22)<br>configuration=isobaric analog of the $^{208}$Pb g.s..<br>E(level): from 1991Ja04.<br>Jπ: σ(θ)is isotropic for proton decay to states In $^{207}$Pb (1981Ga08).<br>Γp=51 keV *6*, 26 keV *6*, 61 keV *8*, and 3.3 keV *5* for proton decay to the $3p_{1/2}$, $2f_{5/2}$, $3p_{3/2}$, and $2f_{7/2}$ neutron hole states, respectively, In $^{207}$Pb. Other: 1995Ak02 report 52 keV *10*, 81 keV *16*, and 3.6 keV *17* for decay to the $3p_{1/2}$, $2f_{5/2}$ + $3p_{3/2}$, and $2f_{7/2}$ states. |
| 15.6×10$^3$ *2* | 1+ | 0 | | Γ=3720 keV *250* (1995Ak02); Γp=184 keV *49* (1995Ak02)<br>configuration=Gamow−Teller resonance.<br>E(level): from 1995Ak02.<br>Jπ: tp(θ) is consistent with J=1, not with J=0 (1981Ga08).<br>L: from 1991Br20.<br>Γp=58 keV *20*, 102 keV *31*, 8 keV *9*, and 16 keV *8* for proton decay to the $3p_{1/2}$, $2f_{7/2}$ + $3p_{3/2}$, $1i_{13/2}$, and $2f_{7/2}$ neutron hole states, respectively, In $^{207}$Pb (1995Ak02). Earlier values from 1981Ga08 are discrepant. 1995Ak02 attribute the discrepancy to the fact that At the low bombarding energy used In 1981Ga08 the GTR is weakly excited, and other processes contribute to the triton-proton coincidence yield. |
| 21.1×10$^3$ *8* | | | | Γ=8.4 MeV *17* (1995Ak02); Γp=1122 keV *324* (2000Ak01)<br>configuration=isovector spin-flip dipole resonance In analogy with data In (p,n).<br>E(level): from 1995Ak02. The value of 21.01 MeV *5* given In 1994Ha40 is a typo.<br>Γp/Γ=0.134 *39* (2000Ak01). This value supersedes that of 0.141 *42* In 1995Ak02 and 0.146 |

Continued on next page (footnotes at end of table)

## $^{208}$Pb($^{3}$He,t),($^{3}$He,tp),($^{3}$He,tn) (continued)

### $^{208}$Bi Levels (continued)

| E(level)[†] | J$^{\pi}$[‡] | L[†] | S[#] | Comments |
|---|---|---|---|---|
| | | | | *13* In 1994Ha40. |
| | | | | $\Gamma_p$=80 keV *24*, 176 keV *51*, 234 keV *68*, 286 keV *82*, 264 keV *76*, and 82 keV *23* for proton decay to the $3p_{1/2}$, $2f_{5/2}$, $3p_{3/2}$, $1i_{13/2}$, $2f_{7/2}$, and $1h_{9/2}$ neutron hole states, respectively, In $^{207}$Pb (2000Ak01). |

[†] From 1991Ja04 for levels up to 4621, except for the 2860 as noted. Data for the 5900 to 9800 levels are from 2001Kr23.

[‡] Except where noted otherwise, J$^{\pi}$ is based on L=0 and the assumption that possible 0$^{+}$ anti-analog states below the IAS state will not Be populated In ($^{3}$He,t) At the bombarding energies used by 1991Ja04 and 2001Kr23.

[#] Values are strengths In % relative to the strength of the main Gamow-Teller resonance At 15.6 MeV. The value for the 3863+4043 level is 3.0 *5*. Data are from 2001Kr23. Cross sections At 0° for E($^{3}$He)=200 MeV from 1991Ja04 are given In comments for comparison.