## Coulomb excitation 1978Jo04,1974Ol02,1978Sp08

History

| Type | Author | Citation | Literature Cutoff Date |
|---|---|---|---|
| Full Evaluation | C. J. Chiara and F. G. Kondev | NDS 111,141 (2010) | 1-Oct-2009 |

1978Jo04: ($^4$He,$^4$He′), ($^{12}$C,$^{12}$C′), ($^{16}$O,$^{16}$O′); $PbCl_2$ target enriched to 99.7% in $^{204}$Pb, 50 $\mu$g/cm$^2$ for $^4$He beam, 10-20 $\mu$g/cm$^2$ for $^{12}$C and $^{16}$O beams; E($^4$He)=13.8-18.5 MeV, E($^{12}$C)=44-60 MeV, E($^{16}$O)=59-85 MeV; annular surface barrier detector for measuring scattered particles.

1974Ol02,1986Bi13: ($^{32}$S,$^{32}$S′$\gamma$); $^{204}$Pb target enriched to 90%, 1 mg/cm$^2$ thick; E($^{32}$S)=100-125 MeV; surface barrier detector and array of six NaI(Tl) detectors for particle-$\gamma$ coin; $\gamma(\theta)$ recoil in vacuum.

1978Sp08: ($^4$He,$^4$He′), ($^{12}$C,$^{12}$C′), ($^{16}$O,$^{16}$O′) below Coulomb barrier; annular surface barrier detector for measuring scattered particles.

### $^{204}$Pb Levels

| E(level)[†] | J$^\pi$[‡] | $T_{1/2}$ | Comments |
|---|---|---|---|
| 0 | 0$^+$ | | |
| 899.0 *3* | 2$^+$ | 2.88 ps *3* | E(level): From 1972Ha59.<br>$T_{1/2}$: From Adopted Levels.<br>B(E2)↑=0.166 *2* (1978Jo04), 0.166 *9* (1974Ol02). Others: 0.151 *15* (1972Ha59), 0.146 *15* (1971Gr31), ratio of B(E2)↑($^{204}$Pb)/B(E2)↑($^{206}$Pb) = 1.7 *2* (1962Na06), 1.7 (1965An13).<br>Q=+0.22 *8* [weighted average of +0.23 *9* (1978Jo04) and +0.19 *14* (1974Ol02)]. Analysis by 1978Jo04 accounts for influence of 3$^-$ (using the 3$^-$ to 2$^+$ B(E1) from $^{206}$Pb) and 4$^+$ levels.<br>$\mu$<0.02 (1974Ol02,1986Bi13). |
| 1274.15 *5* | 4$^+$ | | |
| 2620.60 *8* | 3$^-$ | | B(E3)↑=0.66 *4*<br>B(E3) from 1978Sp08. Analysis assumed Q=−0.42 as in $^{208}$Pb. |

† From Adopted Levels, except as noted.
‡ From Adopted Levels.

### $\gamma(^{204}Pb)$

| E$_\gamma$[†] | E$_i$(level) | J$_i^\pi$ | E$_f$ | J$_f^\pi$ | Mult. | $\alpha$[‡] |
|---|---|---|---|---|---|---|
| 899.0 *3* | 899.0 | 2$^+$ | 0 | 0$^+$ | [E2] | $8.21\times10^{-3}$ |

† From 1972Ha59.
‡ Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on $\gamma$-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

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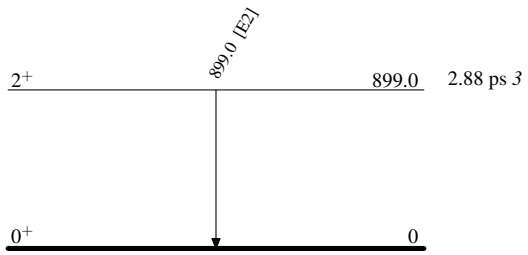
Level Scheme




$^{204}_{82}Pb_{122}$