## $^{14}C(^{14}C,\alpha\gamma)$ 2003Ho16

History

| Type | Author | Citation | Literature Cutoff Date |
|---|---|---|---|
| Full Evaluation | M. Shamsuzzoha Basunia, Anagha Chakraborty | NDS 186, 2 (2022) | 31-Mar-2022 |

$^{14}C(^{14}C,\alpha)$ E=22 MeV. Si detector telescope, Compton suppressed Clover Ge detector array. Measured $\alpha\gamma$, $\alpha\gamma\gamma(\theta)$.
Other: 2002Ta10: $^{14}C(^{14}C,\alpha)$ E=22 MeV.

### $^{24}$Ne Levels

| E(level)† | Jπ‡ | $T_{1/2}$# | E(level)† | Jπ‡ | $T_{1/2}$# | E(level)† | Jπ‡ | $T_{1/2}$# |
|---|---|---|---|---|---|---|---|---|
| 0.0 | $0^+$ | | 5652.9 | $4^+$ | <0.7 ps | 7388.2 | | <0.7 ps |
| 1980.6 | $2^+$ | <0.7 ps | 6025.9 | $(2^+)$ | <0.7 ps | 7639.5 | | <0.7 ps |
| 3870.9 | $2^+$ | <0.7 ps | 6361.2 | $4^+$ | <0.7 ps | 7739.5 | $(3^+,4^+)$ | <0.7 ps |
| 3962.2 | $4^+$ | <0.7 ps | 6745.6 | $(5^+)$ | <0.7 ps | 7923.7 | $(6^+)$ | <0.7 ps |
| 4764.7 | $0^+$ | <0.7 ps | 6858.1 | | <0.7 ps | 8039.4 | $(2^+,3^+)$ | <0.7 ps |
| 4885.7 | $3^+$ | <0.7 ps | 6982.1 | | <0.7 ps | 8393.5 | | <0.7 ps |
| 5575.9 | $2^+$ | <0.7 ps | 7248.1 | $(3^+,4^+)$ | <0.7 ps | | | |
| 5631.6 | $3^+$ | <0.7 ps | 7295.2 | | <0.7 ps | | | |

† From a least-squares fit to γ-ray energies, assuming ΔE=1 keV.
‡ Adopted by authors based on various references cited in this work.
# In the absence of reduced Doppler shift on any peaks, which implies mean-lifetime less than 1 ps, 2003Ho16 note.

### γ($^{24}$Ne)

| $E_i$(level) | $J_i^\pi$ | $E_\gamma$ | $I_\gamma$ | $E_f$ | $J_f^\pi$ | Mult. | δ | Comments |
|---|---|---|---|---|---|---|---|---|
| 1980.6 | $2^+$ | 1981† | 100 | 0.0 | $0^+$ | Q | | Mult.: From Iγ ratio R[Iγ(35°+145°)/Iγ(90°)]=1.30 *8* (2003Ho16). |
| 3870.9 | $2^+$ | 1890 | 92 | 1980.6 | $2^+$ | D+Q | −0.18 | Mult.,δ: From γ(θ) measurements at (35°+145°) and 90° (2003Ho16). |
| | | 3870 | 8 | 0.0 | $0^+$ | | | |
| 3962.2 | $4^+$ | 1981† | 100 | 1980.6 | $2^+$ | | | |
| 4764.7 | $0^+$ | 894‡# | <3‡ | 3870.9 | $2^+$ | | | |
| | | 2784 | 100 | 1980.6 | $2^+$ | | | |
| 4885.7 | $3^+$ | 1015‡# | <3‡ | 3870.9 | $2^+$ | | | |
| | | 2905 | 100 | 1980.6 | $2^+$ | | | |
| 5575.9 | $2^+$ | 1705‡# | <4‡ | 3870.9 | $2^+$ | | | |
| | | 3595 | 100 | 1980.6 | $2^+$ | | | |
| | | 5575‡# | <2‡ | 0.0 | $0^+$ | | | |
| 5631.6 | $3^+$ | 1669‡# | <3‡ | 3962.2 | $4^+$ | | | |
| | | 1760 | 51 | 3870.9 | $2^+$ | Q | | Mult.: From Iγ ratio R[Iγ(35°+145°)/Iγ(90°)]=1.21 *8* (2003Ho16). |
| | | 3652 | 49 | 1980.6 | $2^+$ | | | |
| 5652.9 | $4^+$ | 767 | 8 | 4885.7 | $3^+$ | | | |
| | | 1690 | 58 | 3962.2 | $4^+$ | | | |
| | | 1782‡# | <1‡ | 3870.9 | $2^+$ | | | |
| | | 3672 | 34 | 1980.6 | $2^+$ | | | |
| 6025.9 | $(2^+)$ | 394‡# | <2‡ | 5631.6 | $3^+$ | | | |
| | | 1140‡# | <5‡ | 4885.7 | $3^+$ | | | |
| | | 4045 | 100 | 1980.6 | $2^+$ | | | |
| 6361.2 | $4^+$ | 708 | 47 | 5652.9 | $4^+$ | | | |
| | | 730 | 30 | 5631.6 | $3^+$ | | | |

Continued on next page (footnotes at end of table)

## $^{14}C(^{14}C,\alpha\gamma)$ 2003Ho16 (continued)

### $\gamma(^{24}Ne)$ (continued)

| $E_i$(level) | $J_i^\pi$ | $E_\gamma$ | $I_\gamma$ | $E_f$ | $J_f^\pi$ | $E_i$(level) | $J_i^\pi$ | $E_\gamma$ | $I_\gamma$ | $E_f$ | $J_f^\pi$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6361.2 | $4^+$ | 1476 | <14 | 4885.7 | $3^+$ | 7248.1 | $(3^+,4^+)$ | 3286 | | 3962.2 | $4^+$ |
| | | 2398 | 23 | 3962.2 | $4^+$ | 7295.2 | | 5314 | | 1980.6 | $2^+$ |
| | | 2490‡# | <4‡ | 3870.9 | $2^+$ | 7388.2 | | 5407 | | 1980.6 | $2^+$ |
| | | 4380‡# | <4‡ | 1980.6 | $2^+$ | 7639.5 | | 3677 | | 3962.2 | $4^+$ |
| 6745.6 | $(5^+)$ | 384‡# | <5‡ | 6361.2 | $4^+$ | 7739.5 | $(3^+,4^+)$ | 3777 | | 3962.2 | $4^+$ |
| | | 1092 | 35 | 5652.9 | $4^+$ | 7923.7 | $(6^+)$ | 1178 | 100 | 6745.6 | $(5^+)$ |
| | | 1860‡# | <5‡ | 4885.7 | $3^+$ | | | 2271‡# | <3‡ | 5652.9 | $4^+$ |
| | | 2784 | 65 | 3962.2 | $4^+$ | | | 3961‡# | <18‡ | 3962.2 | $4^+$ |
| 6858.1 | | 4877 | | 1980.6 | $2^+$ | 8039.4 | $(2^+,3^+)$ | 6058 | | 1980.6 | $2^+$ |
| 6982.1 | | 5001 | | 1980.6 | $2^+$ | 8393.5 | | 6412 | | 1980.6 | $2^+$ |
| 7248.1 | $(3^+,4^+)$ | 2362 | | 4885.7 | $3^+$ | | | | | | |

† The two components of 1981 doublet differ by less than 1 keV.
‡ From level-energy difference; not listed in figure 8 of 2003Ho16. Branching ratio from Table I of 2003Ho16. Not adopted.
# Placement of transition in the level scheme is uncertain.

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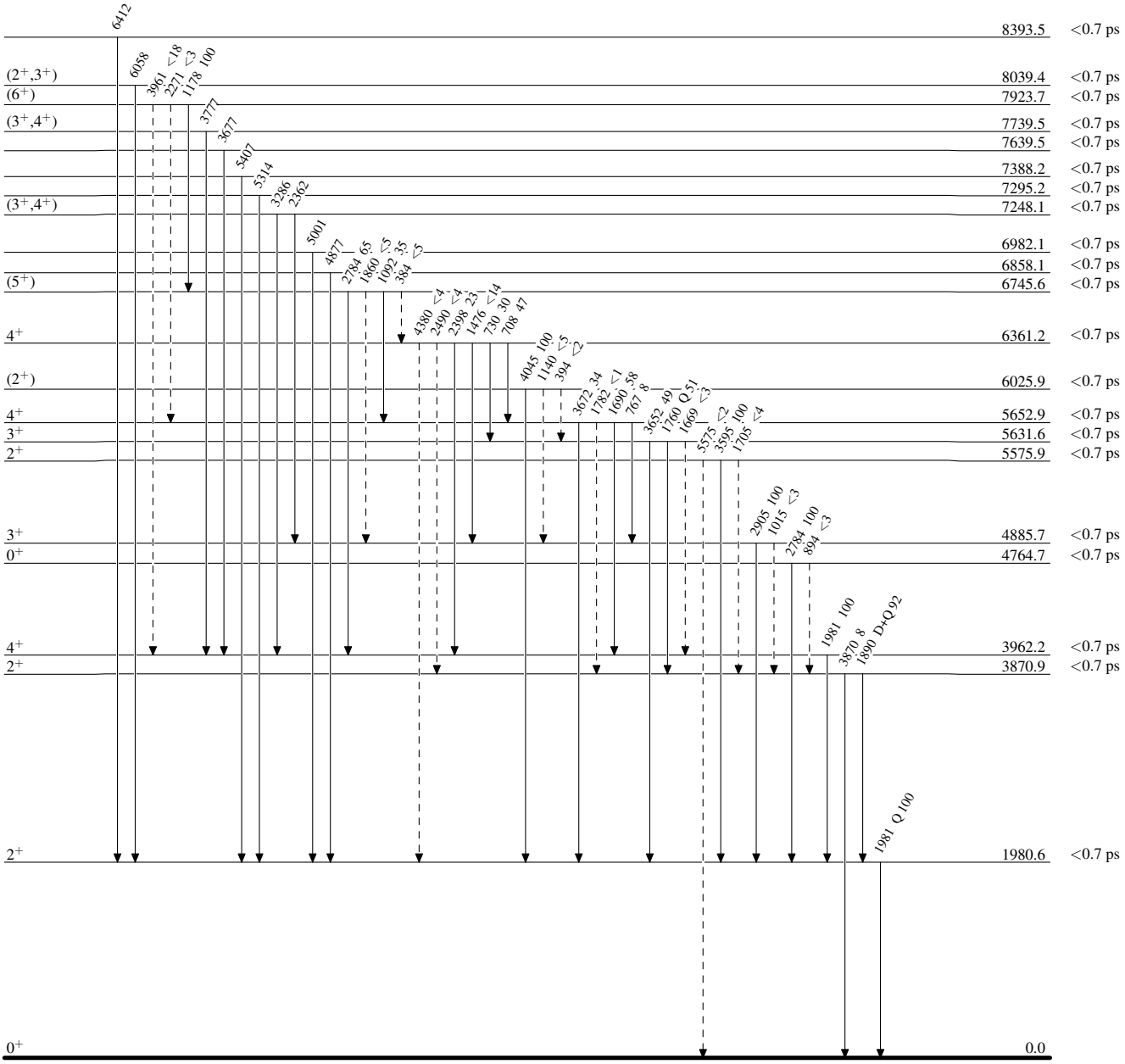
Legend

### Level Scheme

Intensities: % photon branching from each level

– – – – – – ► $\gamma$ Decay (Uncertain)




$^{24}_{10}Ne_{14}$