## $^{51}$V(n,n′γ) 1980Ka40,1982Ab06,1970PoZZ

History

| Type | Author | Citation | Literature Cutoff Date |
|---|---|---|---|
| Full Evaluation | Wang Jimin and Huang Xiaolong | NDS 144, 1 (2017) | 1-Mar-2016 |

Others: 1989Ge09, 1968Ba03.
Measured Eγ, Iγ, and σ(E; E′,θ).
1980Ka40: E=neutron energy of fast neutron reactor.
1982Ab06: E=1.3-3.9 MeV.
1970PoZZ: E=0.3-4 MeV.
1968Ba03: E=1.0-3.1 MeV.

### $^{51}$V Levels

| E(level)[†] | Jπ[‡] | $T_{1/2}$[@] | Comments |
|---|---|---|---|
| 0 | 7/2⁻ | | |
| 320.18 *6* | 5/2⁻ | | |
| 928.74 *7* | 3/2⁻ | | |
| 1608.91 *10* | 11/2⁻ | 0.49 ps *+42−14* | |
| 1813.12 *8* | 9/2⁻ | 0.62 ps *+55−21* | $T_{1/2}$: other: 0.28 ps (1989Ge09). |
| 2410.73 *10* | 3/2⁻ | 13.9 fs *21* | $T_{1/2}$: other: <132 fs (1989Ge09). |
| 2547.8 *10* | | | |
| 2677.58 *13* | (3/2)⁺[#] | 0.62 ps *+62−28* | Jπ: other: J=(1/2⁺,3/2⁺) (1982Ab06,1980Ka40,1970PoZZ). |
| 2699.62 *14* | (15/2⁻) | | |
| 3083.55 *12* | (5/2⁻) | 10.4 fs *+35−21* | $T_{1/2}$: other: 6 fs *5* (1989Ge09). |
| 3213[a] *4* | (3/2⁻) | 26 fs *+14−10* | E(level): authors′ value of 3126 (1980Ka40) in column 1 of their table is a misprint. The Eγ value give E(level)=3213.<br>Jπ: from 1970PoZZ. |
| 3264.25 *18* | (5/2)⁻[#] | 53 fs *+12−7* | $T_{1/2}$: other: 40 fs *12* (1989Ge09). |
| 3280.09 *25* | (5/2)[#] | 159 fs *+77−55* | Jπ: J=(3/2,5/2) (1982Ab06). |
| 3377.42 *20* | (5/2⁻) | 56 fs *7* | |
| 3386.05 *22* | 13/2⁻[#] | 29[&] fs *21* | |
| 3395.57 *18* | (13/2⁻)[#] | <104[&] fs | Jπ: other: J=(11/2,13/2) (1982Ab06). |
| 3444.01 *22* | | 7 fs | |
| 3454.17 *20* | 9/2⁻[#] | 10 fs *3* | |
| 3517.0 *3* | 9/2⁻ | 17 fs *3* | |
| 3555.5 *10* | | | |
| 3562.6 *10* | | | |
| 3576.75 *17* | (3/2⁻,5/2,7/2⁻)[#] | | |
| 3614.55 *14* | (9/2,11/2)⁻[#] | 187 fs *35* | $T_{1/2}$: other: 60 fs *19* (1989Ge09). |
| 3624.1 *5* | | | Jπ: J=(3/2⁻) (1980Ka40). |
| 3632.11 *20* | −[#] | 13 fs *3* | $T_{1/2}$: from 13 fs *3* (1980Ka40) and 14 fs *4* (1989Ge09) (taking midpoint of overlap region). |
| 3663.1[a] *20* | 1/2⁻,3/2⁻[#] | | |
| 3678.5 *5* | (3/2)⁻[#] | 34 fs *4* | |
| 3723.1[a] *20* | | | |
| 3779.5 *4* | (5/2,7/2)⁺[#] | 26 fs *5* | |
| 3796.6 *3* | (3/2,5/2,7/2)⁻[#] | 24 fs *6* | |
| 3803.8 *4* | | | |
| 3874.04 *24* | 15/2⁻[#] | | |
| 3903.0 *5* | (9/2,11/2)⁺[#] | 37 fs *19* | |
| 3919.71 *23* | 9/2⁻[#] | 14 fs *4* | |
| 3944.22 *20* | | 90 fs *14* | |

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## $^{51}$V(n,n′γ) 1980Ka40,1982Ab06,1970PoZZ (continued)

### $^{51}$V Levels (continued)

| E(level)[†] | Jπ[‡] | $T_{1/2}$[@] |
|---|---|---|
| 4001.2 *10* | (7/2⁻,9/2⁻)[#] | 0.17 ps *+11−6* |
| 4025.18 *22* | [#] | <17 fs |
| 4052.6 *5* | (⁻)[#] | 66 fs *21* |
| 4124.18 *22* | (7/2,9/2,11/2)⁻[#] | 8 fs *3* |

[†] Level scheme from 1980Ka40, except as noted; E(level) from level scheme and Eγ′s, using least-squares fit to data.
[‡] Based on σ(Eγ,θ) and Iγ measurements, and compound-nucleus calculation; from 1982Ab06 and 1970PoZZ, except as noted.
[#] From Adopted Levels.
[@] From DSA measurements (1980Ka40), except as noted.
[&] From DSA measurements (1989Ge09).
[a] From 1970PoZZ.

### γ($^{51}$V)

| $E_i$(level) | $J_i^\pi$ | $E_\gamma$[†] | $I_\gamma$[‡] | $E_f$ | $J_f^\pi$ |
|---|---|---|---|---|---|
| 320.18 | 5/2⁻ | 320.12 *7* | 100 | 0 | 7/2⁻ |
| 928.74 | 3/2⁻ | 608.6 *1* | 16.0[#] *5* | 320.18 | 5/2⁻ |
| | | 928.6 *1* | 84.0[#] *5* | 0 | 7/2⁻ |
| 1608.91 | 11/2⁻ | 1608.9 *1* | 100 | 0 | 7/2⁻ |
| 1813.12 | 9/2⁻ | 1492.9 *1* | 22[#] *1* | 320.18 | 5/2⁻ |
| | | 1813.2 *1* | 78[#] *1* | 0 | 7/2⁻ |
| 2410.73 | 3/2⁻ | 1482.6 *3* | 13 | 928.74 | 3/2⁻ |
| | | 2090.4 *1* | 64 | 320.18 | 5/2⁻ |
| | | 2411.1 *2* | 23 | 0 | 7/2⁻ |
| 2547.8 | | 1619 *1* | 100 | 928.74 | 3/2⁻ |
| 2677.58 | (3/2)⁺ | 1748.8 *1* | 100 | 928.74 | 3/2⁻ |
| 2699.62 | (15/2⁻) | 1090.7 *1* | 100 | 1608.91 | 11/2⁻ |
| 3083.55 | (5/2⁻) | 2155.0 *2* | 47[@] *9* | 928.74 | 3/2⁻ |
| | | 2763.3 *2* | 36[@] *12* | 320.18 | 5/2⁻ |
| | | 3083.2 *2* | 17[@] *5* | 0 | 7/2⁻ |
| 3213 | (3/2⁻) | 805 | 50 | 2410.73 | 3/2⁻ |
| | | 2287.0 *5* | 100 | 928.74 | 3/2⁻ |
| | | 2895 | 50 | 320.18 | 5/2⁻ |
| 3264.25 | (5/2)⁻ | 2334.9 *2* | 46 | 928.74 | 3/2⁻ |
| | | 2945.2 *3* | 54 | 320.18 | 5/2⁻ |
| 3280.09 | (5/2) | 2352.2 *4* | 25 | 928.74 | 3/2⁻ |
| | | 2959.3 *3* | 75 | 320.18 | 5/2⁻ |
| 3377.42 | (5/2⁻) | 3377.3 *2* | 100 | 0 | 7/2⁻ |
| 3386.05 | 13/2⁻ | 1777.1 *2* | 100 | 1608.91 | 11/2⁻ |
| 3395.57 | (13/2⁻) | 1582.3 *2* | 62 | 1813.12 | 9/2⁻ |
| | | 1786.9 *3* | 23 | 1608.91 | 11/2⁻ |
| | | 3396.1 *4* | 15 | 0 | 7/2⁻ |
| 3444.01 | | 2515.2 *2* | 100 | 928.74 | 3/2⁻ |
| 3454.17 | 9/2⁻ | 3133.8 *2* | 62 | 320.18 | 5/2⁻ |
| | | 3454.6 *5* | 38 | 0 | 7/2⁻ |
| 3517.0 | 9/2⁻ | 3197.0 *5* | 20 | 320.18 | 5/2⁻ |
| | | 3516.7 *3* | 80 | 0 | 7/2⁻ |
| 3555.5 | | 3555.4 *10* | 100 | 0 | 7/2⁻ |

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## $^{51}$V(n,n′γ) 1980Ka40,1982Ab06,1970PoZZ (continued)

### γ($^{51}$V) (continued)

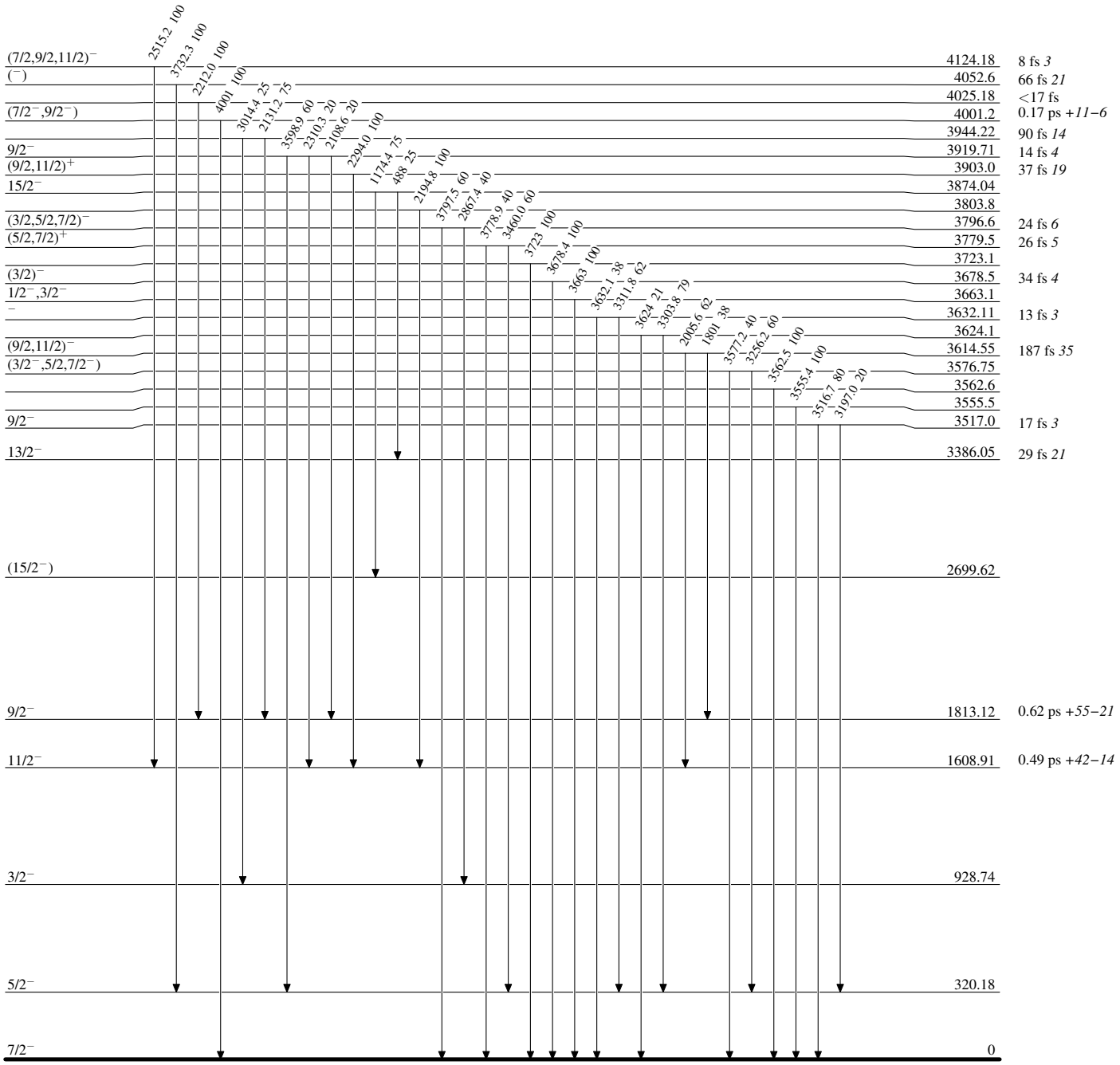
| $E_i$(level) | $J_i^\pi$ | $E_\gamma$[†] | $I_\gamma$[‡] | $E_f$ | $J_f^\pi$ |
|---|---|---|---|---|---|
| 3562.6 | | 3562.5 *10* | 100 | 0 | 7/2$^-$ |
| 3576.75 | (3/2$^-$,5/2,7/2$^-$) | 3256.2 *3* | 60 | 320.18 | 5/2$^-$ |
| | | 3577.2 *3* | 40 | 0 | 7/2$^-$ |
| 3614.55 | (9/2,11/2)$^-$ | 1801 | 38 | 1813.12 | 9/2$^-$ |
| | | 2005.6 *1* | 62 | 1608.91 | 11/2$^-$ |
| 3624.1 | | 3303.8 *5* | 79[@] *6* | 320.18 | 5/2$^-$ |
| | | 3624 | 21[@] *6* | 0 | 7/2$^-$ |
| 3632.11 | $^-$ | 3311.8 *2* | 62 | 320.18 | 5/2$^-$ |
| | | 3632.1 *5* | 38 | 0 | 7/2$^-$ |
| 3663.1 | 1/2$^-$,3/2$^-$ | 3663 *2* | 100[@] | 0 | 7/2$^-$ |
| 3678.5 | (3/2)$^-$ | 3678.4 *5* | 100 | 0 | 7/2$^-$ |
| 3723.1 | | 3723 *2* | 100[@] | 0 | 7/2$^-$ |
| 3779.5 | (5/2,7/2)$^+$ | 3460.0 *5* | 60 | 320.18 | 5/2$^-$ |
| | | 3778.9 *4* | 40 | 0 | 7/2$^-$ |
| 3796.6 | (3/2,5/2,7/2)$^-$ | 2867.4 *3* | 40 | 928.74 | 3/2$^-$ |
| | | 3797.5 *5* | 60 | 0 | 7/2$^-$ |
| 3803.8 | | 2194.8 *3* | 100 | 1608.91 | 11/2$^-$ |
| 3874.04 | 15/2$^-$ | 488 | 25 | 3386.05 | 13/2$^-$ |
| | | 1174.4 *2* | 75 | 2699.62 | (15/2$^-$) |
| 3903.0 | (9/2,11/2)$^+$ | 2294.0 *5* | 100 | 1608.91 | 11/2$^-$ |
| 3919.71 | 9/2$^-$ | 2108.6 *5* | 20 | 1813.12 | 9/2$^-$ |
| | | 2310.3 *4* | 20 | 1608.91 | 11/2$^-$ |
| | | 3598.9 *3* | 60 | 320.18 | 5/2$^-$ |
| 3944.22 | | 2131.2 *2* | 75 | 1813.12 | 9/2$^-$ |
| | | 3014.4 *5* | 25 | 928.74 | 3/2$^-$ |
| 4001.2 | (7/2$^-$,9/2$^-$) | 4001 *1* | 100 | 0 | 7/2$^-$ |
| 4025.18 | | 2212.0 *2* | 100 | 1813.12 | 9/2$^-$ |
| 4052.6 | ($^-$) | 3732.3 *5* | 100 | 320.18 | 5/2$^-$ |
| 4124.18 | (7/2,9/2,11/2)$^-$ | 2515.2 *2* | 100 | 1608.91 | 11/2$^-$ |

[†] From 1980Ka40, except as noted.
[‡] % photon branching from each level; values are relative Iγ of 1980Ka40, except as noted.
[#] From 1968Ba03.
[@] From 1970PoZZ.

## $^{51}$V(n,n′γ) 1980Ka40,1982Ab06,1970PoZZ

### Level Scheme

Intensities: % photon branching from each level

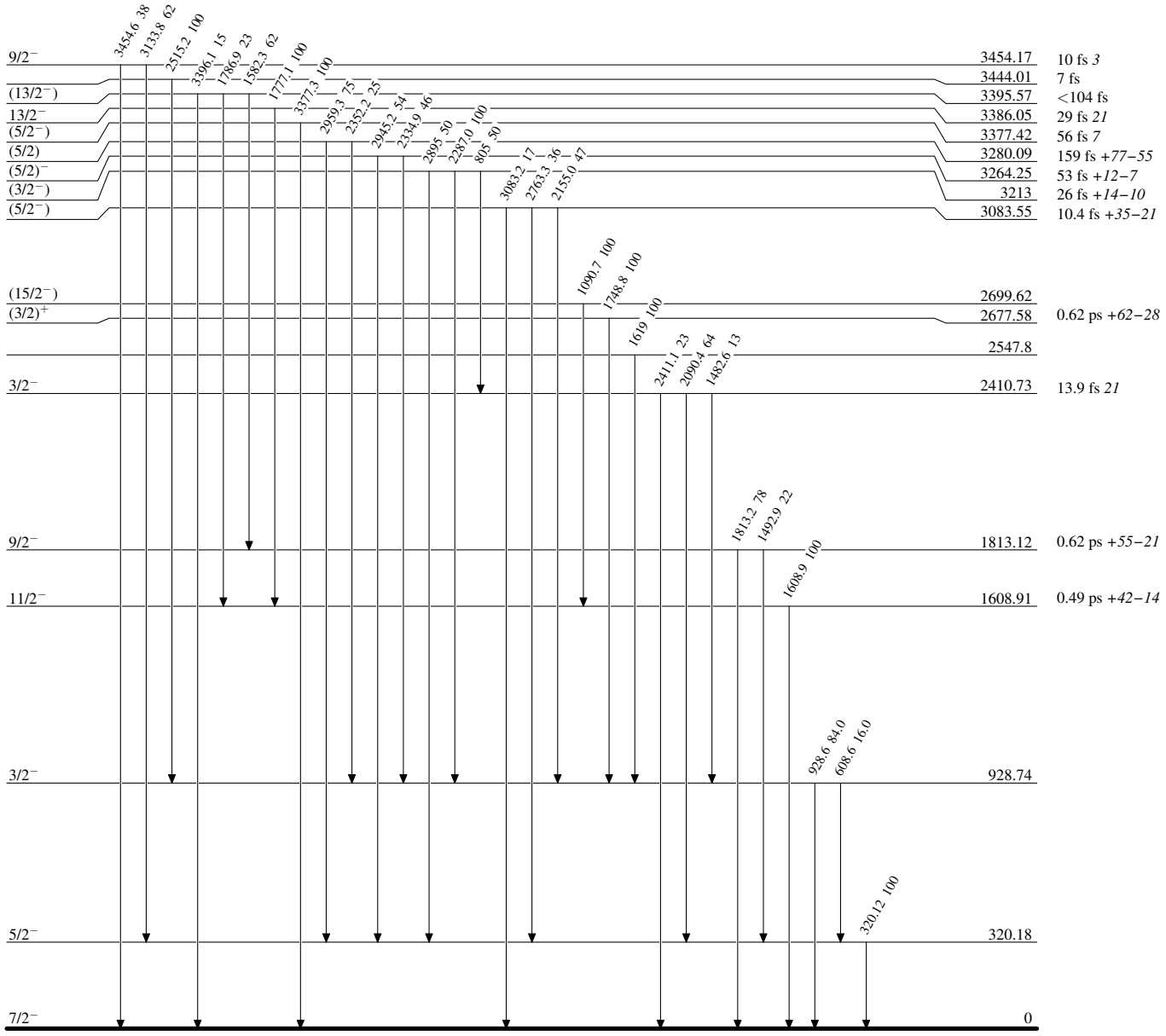



$^{51}_{23}V_{28}$

## $^{51}$V(n,n′γ) 1980Ka40,1982Ab06,1970PoZZ

### Level Scheme (continued)

Intensities: % photon branching from each level




$^{51}_{23}V_{28}$