^{34}S(n,n),(n,γ):resonances 1984Ca14,2006MuZX

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen, John Cameron and Balraj Singh	NDS 112,2715 (2011)	20-Oct-2011

1984Ca14: E_n=30-1500 keV neutrons produced from the Oak Ridge Electron Linear Accelerator (ORELA). Target: 94.33%-enriched ^{34}S with a 5.54% impurity of ^{32}S. Neutron detected by a NE110 proton-recoil detector of 2-cm-thick and 7.5-cm-diam and γ-rays detected by two non-hydrogenous fluorocarbon scintillators (NE-226). Measured $\sigma(E_n)$. Deduced levels, J^π, L, widths and spectroscopic factors from the comparison of the R-matrix prediction of the cross section with data.
2006MuZX: Compilation of thermal neutron induced cross sections, resonance parameter data for Z=1-100.
Additional information 1.

^{35}S Levels

$g\Gamma_n$ and $g\Gamma_n\Gamma_\gamma/\Gamma$ from 1984Ca14. $g\Gamma_n=(2J+1)\Gamma_n/2$.
All resonance parameters including resonance neutron energies, J^π, L, $g\Gamma_n$ and Γ_γ are directly adopted from the compilation in 2006MuZX, unless otherwise indicated.

E(level)[†]	J^π	L	E_n(lab)(keV)	Comments
6985.5?	$1/2^+$	0	−0.305	E(level): fictitious level. Γ_γ=3 eV.
7018.89 *5*		[2]	34.03 *1*	$g\Gamma_n\Gamma_\gamma/\Gamma$=0.025 eV *1*.
7072.66 *6*			89.40 *3*	$g\Gamma_n\Gamma_\gamma/\Gamma$=0.14 eV *4*.
7074.33 *6*			91.12 *4*	$g\Gamma_n\Gamma_\gamma/\Gamma$=0.084 eV *3*.
7097.7 *3*		[2]	115.2 *3*	$g\Gamma_n\Gamma_\gamma/\Gamma$=0.009 eV *3*.
7099.85 *20*		[2]	117.4 *2*	$g\Gamma_n$=<1 eV; $g\Gamma_n\Gamma_\gamma/\Gamma$=0.033 eV *5*.
7100.73 *5*	3/2	[1]	118.30 *1*	$g\Gamma_n$=372 eV *3*; Γ_γ=0.70 eV *4*.
7143.27 *11*		[2]	162.1[‡] *1*	$g\Gamma_n$=<1 eV; $g\Gamma_n\Gamma_\gamma/\Gamma$=0.42 eV *1*. Additional information 2.
7210.42 *5*		[2]	231.25 *2*	$g\Gamma_n$=62 eV *4*; Γ_γ=0.30 eV *2*.
7217.9 *4*		[2]	239.0 *4*	$g\Gamma_n$=<4 eV; $g\Gamma_n\Gamma_\gamma/\Gamma$=0.33 eV *2*.
7234.0 *5*		[2]	255.5 *5*	$g\Gamma_n$=<4 eV; $g\Gamma_n\Gamma_\gamma/\Gamma$=0.19 eV *1*.
7239.8 *6*		[2]	261.5 *6*	$g\Gamma_n$=<2 eV; $g\Gamma_n\Gamma_\gamma/\Gamma$=0.06 eV *2*.
7253.2 *6*		[2]	275.3 *6*	$g\Gamma_n$=<1 eV; $g\Gamma_n\Gamma_\gamma/\Gamma$=0.35 eV *2*.
7275.93 *6*	1/2	0	298.70 *3*	$g\Gamma_n$=9600 eV *150*; Γ_γ=2.82 eV *67*. C^2S=0.024.
7279.1			302	$g\Gamma_n\Gamma_\gamma/\Gamma$=0.10 *3*.
7289.8 *8*		[2]	313.0 *8*	$g\Gamma_n$=<6 eV; $g\Gamma_n\Gamma_\gamma/\Gamma$=0.31 eV *3*. Additional information 3.
7294.19 *7*	$3/2^-$	1	317.51 *5*	$g\Gamma_n$=2500 eV *25*; Γ_γ=0.23 eV *8*.
7331.00 *5*	$1/2^+$	0	355.41 *2*	$g\Gamma_n$=4810 eV *80*; Γ_γ=0.30 eV *30*. C^2S=0.012.
7338.18 *20*		[1]	362.8 *2*	$g\Gamma_n$=230 eV *10*; Γ_γ=1.06 eV *7*.
7343.91 *20*		[2]	368.7 *2*	$g\Gamma_n$=<2 eV; $g\Gamma_n\Gamma_\gamma/\Gamma$=0.72 eV *3*.
7347.2 *5*		[2]	372.1 *5*	$g\Gamma_n$=<2 eV; $g\Gamma_n\Gamma_\gamma/\Gamma$=0.44 eV *6*.
7347.9 *5*		[2]	372.8 *5*	$g\Gamma_n$=<2 eV; $g\Gamma_n\Gamma_\gamma/\Gamma$=0.30 eV *5*.
7353.9 *5*		[2]	379.0 *5*	$g\Gamma_n$=<10 eV; $g\Gamma_n\Gamma_\gamma/\Gamma$=0.44 eV *4*.
7357.6 *5*		[2]	382.8 *5*	$g\Gamma_n$=<6 eV; $g\Gamma_n\Gamma_\gamma/\Gamma$=0.16 eV *4*.
7370.56 *6*	$1/2^-$	1	396.14 *4*	$g\Gamma_n$=6430 eV *150*; Γ_γ=3.08 eV *20*. Additional information 4.
7372.0			397.6	$g\Gamma_n\Gamma_\gamma/\Gamma$=0.12 eV.
7396.0 *6*		[2]	422.3 *6*	$g\Gamma_n\Gamma_\gamma/\Gamma$=0.44 eV *33*.
7404.6 *6*		[2]	431.2 *6*	$g\Gamma_n$=<1 eV; $g\Gamma_n\Gamma_\gamma/\Gamma$=0.21 eV *5*.
7408.68 *11*	$3/2^-$	1	435.4 *1*	$g\Gamma_n$=1570 eV *40*; Γ_γ=0.91 eV *8*.
7411.55 *7*		[2]	438.35 *5*	$g\Gamma_n$=49 eV *5*.
7416.50 *5*		[2]	443.45 *1*	$g\Gamma_n$=80 eV *8*; Γ_γ=0.51 eV *5*.

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^{34}S(n,n),(n,γ):resonances 1984Ca14,2006MuZX (continued)

^{35}S Levels (continued)

E(level)[†]	J$^{\pi}$	L	E_n(lab)(keV)	Comments
7429.1 *6*		[2]	456.4 *6*	$g\Gamma_n$=<6 eV; Γ_γ=0.12 eV *3*.
7433.56 *5*		[2]	461.01 *2*	$g\Gamma_n$=50 eV *5*; Γ_γ=0.035 eV *20*.
7436.4 *4*		[1]	463.9[‡] *4*	$g\Gamma_n$=296 eV *30*; Γ_γ=0.28 eV *3*. Additional information 5.
7442.14 *5*	1/2$^+$	0	469.85 *2*	$g\Gamma_n$=1050 eV *35*; Γ_γ=0.37 eV *8*. C^2S=0.002.
7462.2 *6*		[2]	490.5[‡] *6*	$g\Gamma_n$=50 eV *10*; $g\Gamma_n\Gamma_\gamma/\Gamma$=0.33 eV *4*. Additional information 6.
7481.15 *6*	1/2$^-$	1	510.02 *4*	$g\Gamma_n$=375 eV *25*; Γ_γ=2.1 eV *1*.
7494.5 *6*		[2]	523.8 *6*	$g\Gamma_n$=<4 eV; $g\Gamma_n\Gamma_\gamma/\Gamma$=0.17 eV *4*.
7542.3 *6*		[2]	573.0 *6*	$g\Gamma_n$=<1 eV; $g\Gamma_n\Gamma_\gamma/\Gamma$=0.21 eV *3*.
7604.0 *6*		[2]	636.5 *6*	$g\Gamma_n$=<10 eV; $g\Gamma_n\Gamma_\gamma/\Gamma$=0.90 eV *8*.
7609.26 *6*	3/2$^-$	1	641.93 *3*	$g\Gamma_n$=2520 eV *60*; Γ_γ=0.51 eV *6*.
7648.9 *6*		[2]	682.7 *6*	$g\Gamma_n$=<30 eV; $g\Gamma_n\Gamma_\gamma/\Gamma$=0.21 eV *3*.
7655.7 *6*		[2]	689.7 *6*	$g\Gamma_n$=<10 eV; $g\Gamma_n\Gamma_\gamma/\Gamma$=0.80 eV *5*.
7663.91 *11*		[2]	698.2 *1*	$g\Gamma_n$=305 eV *50*; Γ_γ=0.80 eV *8*.
7678.3 *7*		[2]	713.0 *7*	$g\Gamma_n$=<4 eV; $g\Gamma_n\Gamma_\gamma/\Gamma$=0.45 eV *7*.
7731.0 *7*		[2]	767.3 *7*	$g\Gamma_n$=<4 eV; $g\Gamma_n\Gamma_\gamma/\Gamma$=0.31 eV *13*. Additional information 7.
7749.7 *4*		[1]	786.5 *4*	$g\Gamma_n$=18 eV *6*; Γ_γ=2.65 eV *18*.
7761.46 *8*	3/2$^-$	1	798.65[‡] *6*	$g\Gamma_n$=25350 eV *300*; Γ_γ=1.52 eV *50*. Additional information 8.
7776.17 *11*	1/2$^-$	1	813.8 *1*	$g\Gamma_n$=860 eV *60*; Γ_γ=0.19 eV *13*.
7797.99 *9*	1/2$^+$	0	836.27 *8*	$g\Gamma_n$=3600 eV *160*; Γ_γ=0.39 eV *18*. C^2S=0.005.
7812.24 *8*	3/2$^+$	2	850.94 *6*	$g\Gamma_n$=2650 eV *110*; Γ_γ=0.24 eV *19*.
7853.25 *8*	3/2$^-$	1	893.17 *6*	$g\Gamma_n$=4950 eV *160*; Γ_γ=0.38 eV *16*.
7861.8 *12*		[2]	902.0 *12*	$g\Gamma_n$=<3 eV; $g\Gamma_n\Gamma_\gamma/\Gamma$=1.13 eV *19*.
7880.8 *12*		[2]	921.5 *12*	$g\Gamma_n$=<20 ; $g\Gamma_n\Gamma_\gamma/\Gamma$=0.67 eV *17*.
7889.0 *12*		[2]	930.0 *12*	$g\Gamma_n$=<20 ; $g\Gamma_n\Gamma_\gamma/\Gamma$=0.57 eV *25*. Additional information 9.
7894.63 *8*	3/2$^-$	1	935.78[‡] *6*	$g\Gamma_n$=4100 eV *160*; Γ_γ=3.48 eV *23*. Additional information 10.
7899.7 *3*		[2]	941.0 *3*	$g\Gamma_n$=176 eV *16*. Additional information 11.
7934.1 *15*		[2]	976.4 *15*	$g\Gamma_n$=<2 eV; $g\Gamma_n\Gamma_\gamma/\Gamma$=0.5 eV *3*.
7939.5 *15*		[2]	982.0 *15*	$g\Gamma_n$=<8 eV; $g\Gamma_n\Gamma_\gamma/\Gamma$=0.89 eV *4*.
7954.96 *11*	3/2$^-$	1	997.9 *1*	$g\Gamma_n$=930 eV *80*; Γ_γ=3.51 eV *19*. Additional information 12.
7974.19 *11*	3/2$^-$	1	1017.7 *1*	$g\Gamma_n$=4020 eV *180*; Γ_γ=1.22 eV *17*. Additional information 13.
8019.54 *20*		[2]	1064.4 *2*	$g\Gamma_n$=1032 eV *90*. Additional information 14.
8041.20 *20*		[2]	1086.7 *2*	$g\Gamma_n$=2650 eV *160*.
8076.45 *20*		[2]	1123.0 *2*	$g\Gamma_n$=5480 eV *388*.
8077.9 *3*		[2]	1124.5 *3*	$g\Gamma_n$=4730 eV *320*. Additional information 15.
8093.0 *5*	1/2$^-$	1	1140.0 *5*	$g\Gamma_n$=34880 eV *830*.
8143.66 *20*		[2]	1192.2 *2*	$g\Gamma_n$=5510 eV *290*. Additional information 16.
8187.2 *3*	1/2$^-$	1	1237.0 *3*	$g\Gamma_n$=2945 eV *230*.
8211.3 *3*		[1]	1261.8[‡] *3*	$g\Gamma_n$=975 eV *86*. Additional information 17.
8224.2 *4*	1/2$^-$	1	1275.1 *4*	$g\Gamma_n$=2170 eV *180*.
8228.3 *4*		[2]	1279.4[‡] *4*	$g\Gamma_n$=1140 eV *100*.

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^{34}S(n,n),(n,γ):resonances 1984Ca14,2006MuZX (continued)

^{35}S Levels (continued)

E(level)[†]	J$^{\pi}$	L	E_n(lab)(keV)	Comments
8244.0 *3*		[2]	1295.5 *3*	$g\Gamma_n$=1980 eV *150*.
8256.31 *20*	3/2$^-$	1	1308.2 *2*	$g\Gamma_n$=12475 eV *770*.
8262.4 *4*	5/2$^+$	2	1314.5 *4*	$g\Gamma_n$=6240 eV *500*.
8273.3 *4*	1/2	[1]	1325.7 *4*	$g\Gamma_n$=1635 eV *145*.
8298.3 *3*		[2]	1351.4 *3*	$g\Gamma_n$=14470 eV *650*.
8333.8 *4*	3/2$^-$	1	1388.0[‡] *4*	$g\Gamma_n$=28845 eV *1057*. Additional information 18.
8335.9 *4*		[2]	1390.1 *4*	$g\Gamma_n$=1955 eV *170*.
8391.3 *4*	3/2$^-$	1	1447.2 *4*	$g\Gamma_n$=27100 eV *1390*.
8393.6 *3*		[2]	1449.6[‡] *3*	$g\Gamma_n$=3025 eV *260*. Additional information 19.
8406.6 *3*		[2]	1462.9[‡] *3*	$g\Gamma_n$=3885 eV *345*. Additional information 20.
8418.8 *4*		[2]	1475.5[‡] *4*	$g\Gamma_n$=3795 eV *340*. Additional information 21.

[†] From $E_{c.m.}$+S(n) where S(n)= 6985.84 *5* (2011AuZZ) and $E_{c.m.}$ deduced from E_n(lab), unless otherwise noted.
[‡] Resonance parameters from 1984Ca14.