^{33}S(n,γ),(n,n):resonances 2006MuZX

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Ninel Nica, Balraj Singh	NDS 113, 1563 (2012)	28-May-2012

Includes ^{33}S(n,α) resonances.
$J^\pi(^{33}S$ g.s.)=3/2$^+$.
Measurements: 1987Co23 ((n,α) E=0.010-2 MeV, measured σ); 1987Wa20 ((n,α) E=0.010-1 MeV, measured σ); 1975Au06 ((n,γ) and (N,α_0) E=10-700 keV, measured σ).

^{34}S Levels

All data are from 2006MuZX evaluation.

E(level)[†]	J$^\pi$	Γ	L	g$\Gamma_n\Gamma_\gamma/\Gamma$ (eV)[‡]	Comments
11411.31[#]	2$^+$		0		Γ_γ=1.5 eV E(n)(lab)=−5.987 keV.
11430.17	2$^+$	0.116 keV *20*	0	0.086 *6*	Γ_n=75.0 eV *8*; Γ_γ=0.21 eV *5*; $\Gamma\alpha$=41 eV *5* E(n)(lab)=13.45 keV.
11434.23	2$^-$	0.049 keV *10*	1	0.55 *3*	Γ_n=39.1 eV *8*; Γ_γ=0.90 eV *5* E(n)(lab)=17.63 keV.
11440.36	3$^-$	0.0198 keV *10*	1	1.02 *5*	Γ_n=16.0 eV *9*; Γ_γ=1.44 eV *10*; $\Gamma\alpha$=2.5 eV *3* E(n)(lab)=23.95 keV.
11447.97		<0.015 keV		0.062 *4*	E(n)(lab)=31.79 keV.
11467.68	2$^+$	0.368 keV *8*	0	0.309 *20*	Γ_n=349 eV *6*; Γ_γ=0.52 eV *4*; $\Gamma\alpha$=18 eV *2* E(n)(lab)=52.11 keV.
11469.11	3$^-$	0.152 keV *15*	1	0.54 *3*	Γ_n=68 eV *3*; Γ_γ=1.4 eV *3*; $\Gamma\alpha$=83 eV *13* E(n)(lab)=53.58 keV.
11474.51	2$^-$	0.45 keV *6*	1	0.66 *4*	Γ_n=275 eV *5*; Γ_γ=1.08 eV *7*; $\Gamma\alpha$=0.17 keV *5* E(n)(lab)=59.15 keV.
11485.90	1$^-$		1		Γ_n=65 eV *10*; $\Gamma\alpha$=0.11 keV *6* E(n)(lab)=70.86 keV.
11492.64	2$^-$	0.51 keV *10*	1	1.31 *8*	Γ_n=507 eV *13*; Γ_γ=2.11 eV *14* E(n)(lab)=77.83 keV.
11496.06	2$^+$	0.71 keV *3*	0	0.58 *4*	Γ_n=705 eV *19*; Γ_γ=0.94 eV *6*; $\Gamma\alpha$=4 eV *2* E(n)(lab)=81.36 keV.
11499.47	1$^-$		1		Γ_n=1.33 keV *8*; $\Gamma\alpha$=4.0 keV *6* E(n)(lab)=84.88 keV.
11502.15	1$^-$	0.292 keV *25*	1	0.8 *5*	Γ_n=280 eV *20*; Γ_γ=2.11 eV *14*; $\Gamma\alpha$=10 eV *5* E(n)(lab)=87.63 keV.
11502.82		0.26 keV *5*		0.14 *10*	E(n)(lab)=88.32 keV.
11515.21	2$^-$	1.262 keV *25*	1	0.93 *8*	Γ_n=1.260 keV *25*; Γ_γ=1.48 eV *13* E(n)(lab)=101.09 keV.
11541.09	1$^-$	0.63 keV *7*	1	0.30 *4*	Γ_n=0.36 keV *4*; Γ_γ=1.4 eV *4*; $\Gamma\alpha$=0.27 keV *6* E(n)(lab)=127.76 keV.
11543.84		0.20 keV *4*		0.34 *4*	E(n)(lab)=130.6 keV.
11546.27		0.23 keV *4*		0.41 *3*	E(n)(lab)=133.1 keV.
11551.22		0.15 keV *3*		0.91 *7*	E(n)(lab)=138.2 keV.
11564.19	≥1			0.85 *7*	gΓ_n=134 eV *18*. E(n)(lab)=151.57 keV.
11574.64	(0$^-$)		(1)		gΓ_n=0.15 keV *3*. E(n)(lab)=162.34 keV.
11580.67	2$^-$	3.42 keV *8*	1	1.65 *16*	Γ_n=3.42 keV *8*; Γ_γ=2.6 eV *3* E(n)(lab)=168.51 keV.
11590.12	2$^-$	0.76 keV *4*	1	0.54 *7*	Γ_n=0.76 keV *4*; Γ_γ=0.87 eV *11* E(n)(lab)=178.29 keV.
11607.88	3$^-$	0.62 keV *3*	1	1.2 *9*	Γ_n=0.61 keV *3*; Γ_γ=1.33 eV *12*

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^{33}S(n,γ),(n,n):resonances 2006MuZX (continued)

^{34}S Levels (continued)

E(level)[†]	J$^{\pi}$	Γ	L	g$\Gamma_n\Gamma_\gamma/\Gamma$ (eV)[‡]	Comments
					E(n)(lab)=196.6 keV.
11610.31		0.70 keV *14*		1.07 *11*	E(n)(lab)=199.1 keV.
11614.26	3$^-$	2.1 keV *8*	1	1.89 *15*	Γ_n=2.09 keV *8*; Γ_γ=2.17 eV *20*; $\Gamma\alpha$=14 eV *5* E(n)(lab)=203.17 keV.
11621.66		0.31 keV *6*		0.30 *5*	E(n)(lab)=210.8 keV.
11626.32		<0.12 keV		0.32 *5*	E(n)(lab)=215.6 keV.
11631.75	2$^+$	0.75 keV *7*	0	0.72 *11*	Γ_n=0.69 keV *7*; Γ_γ=1.2 eV *4*; $\Gamma\alpha$=55 eV *20* E(n)(lab)=221.2 keV.
11633.67	0$^+$	5.3 keV *10*	2		Γ_n=4.4 keV *9*; $\Gamma\alpha$=0.9 keV *3* E(n)(lab)=223.17 keV; may not be a single resonance.
11638.93	3$^-$	0.96 keV *6*	1	0.56 *8*	Γ_n=0.76 keV *5*; Γ_γ=0.81 eV *13*; $\Gamma\alpha$=0.20 keV *3* E(n)(lab)=228.6 keV.
11648.64	3$^-$	0.61 keV *12*	1	1.58 *14*	Γ_n=0.46 keV *3*; Γ_γ=1.82 eV *20* E(n)(lab)=238.6 keV.
11668.93	2$^-$	0.40 keV *8*	1	1.48 *12*	Γ_n=0.67 keV *6*; Γ_γ=2.4 eV *2* E(n)(lab)=259.51 keV.
11670.29	1$^+$	0.55 keV *11*	0	0.80 *9*	Γ_n=0.23 keV *7*; Γ_γ=2.1 eV *3* E(n)(lab)=260.92 keV.
11703.75		0.61 keV *12*		2.02 *16*	E(n)(lab)=295.4 keV.
11706.47		0.79 keV *16*		1.89 *16*	E(n)(lab)=298.2 keV.
11716.66		0.67 keV *14*		1.18 *22*	E(n)(lab)=308.7 keV.
11743.05		0.28 keV *6*		0.69 *13*	E(n)(lab)=335.9 keV.
11773.61		0.40 keV *8*		1.24 *18*	E(n)(lab)=367.4 keV.
11783.80		1.40 keV *25*		2.7 *5*	E(n)(lab)=377.9 keV.
11796.80		1.30 keV *25*		3.0 *4*	E(n)(lab)=391.3 keV.
11829.80		1.7 keV *3*		1.41 *22*	E(n)(lab)=425.3 keV.
11868.71		3.3 keV *5*		3.1 *3*	E(n)(lab)=465.4 keV.
11949.24		2.3 keV *4*		2.7 *4*	E(n)(lab)=548.4 keV.

[†] Values deduced by the evaluators. E(level)=E(n)(c.m.)+S(n)(^{34}S); E(n)(c.m.)= M(^{33}S)/(M(^{33}S)+M(n)) × E(n)(lab), where M(^{33}S) and M(n) are the atomic masses, and S(n)=11417.12 *6*, all from 2011AuZZ.

[‡] g=statistical weight factor=[(2J+1)]/[(2s+1)(2I+1)], s=1/2 for neutrons. For ^{33}S, I=3/2, thus g=(2J+1)/8.

[#] Fictitious level with a negative E(n) value.