^{25}Mg(n,γ),(n,n):res 2012Ma14

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. S. Basunia and A. M. Hurst	NDS 134,1 (2016)	1-Feb-2016

$J^{\pi}(^{25}Mg)=5/2^{+}$.

Target=^{25}Mg of areal density 0.01234 atoms/b. Neutron beam at about 1 GeV produced in a massive lead target by a pulsed 20-GeV proton beam at CERN. Measured cross sections. Deduced spin and resonance parameters from R-matrix analysis.

^{26}Mg Levels

E(level)‡	J$^{\pi}$#	Γ_n	L	Comments
10944.83? *4*	2^+	30.00 keV	0	Γ_γ=6.5 eV. E(n)(lab)=−154.25 keV.
11112.18 *9*	2^+	2.31 keV *3*	0	Γ_γ=1.7 eV *2*. E(n)(lab)=19.86 *5*.
11153.38 *4*	1^+@	28 eV *5*	1	Γ_γ=4.1 eV *7*. E(n)(lab)=62.727 *3*.
11162.93 *7*	2^+	5.08 keV *8*	0	Γ_γ=2.5 eV *4*. E(n)(lab)=72.66 *3*.
11169.30 *7*	(3^+)	1.56 keV *8*	(0)	Γ_γ=3.3 eV *4*. E(n)(lab)=79.29 *3*.
11171.06 *4*	$(2)^+$	0.8 eV *7*	0	Γ_γ=3 eV *2*. E(n)(lab)=81.117 *1*.
11183.06 *6*	(1^-)	0.6 eV *2*	(1)	Γ_γ=2.3 eV *2*. E(n)(lab)=93.60 *2*.
11189.24 *6*	3^+	5.24 keV *4*	0	Γ_γ=1.0 eV *1*. E(n)(lab)=100.03 *2*.
11191.13† *5*	2^-†	4† eV *3*	1†	Γ_γ=0.2 eV *1*. E(n)(lab)=101.997 *9*.
11196.51† *6*	3^+†	2† eV *1*	0†	Γ_γ=0.3 eV *1*. E(n)(lab)=107.60 *2*.
11243.36 *6*	(2^-)	5.520 keV *20*	(1)	Γ_γ=6.1 eV *4*. E(n)(lab)=156.34 *2*.
11274.13 *5*	$(2)^+$	0.590 keV *20*	0	Γ_γ=1.7 eV *2*. E(n)(lab)=188.347 *9*.
11280.03 *5*	$4^{(-)}$	1.730 keV *20*	(1)	Γ_γ=0.2 eV *1*. E(n)(lab)=194.482 *9*.
11285.52 *7*	1^-	1.41 keV *6*	1	Γ_γ=0.3 eV *3*. E(n)(lab)=200.20 *3*.
11286.24 *5*	(2^+)	0.7 eV *7*	(2)	Γ_γ=3.0 eV *3*. E(n)(lab)=200.944 *6*.
11289.06 *4*	(2^-)	2 eV *1*	(1)	Γ_γ=0.8 eV *3*. E(n)(lab)=203.878 *1*.
11293.28† *5*	1^-†	0.230† eV *20*	1†	Γ_γ=1.2 eV *5*. E(n)(lab)=208.27 *1*.
11296.04 *9*	(2^-)	12.40 keV *10*	(1)	J$^{\pi}$: Spin assignment based on χ^2. Γ_γ=3.1 eV *7*. E(n)(lab)=211.14 *5*.
11310.57 *4*	(1^-)	0.4 eV *2*	(1)	Γ_γ=4 eV *3*. E(n)(lab)=226.255 *1*.
11326.15 *6*	(1^-)	0.3 eV *2*	(1)	Γ_γ=6 eV *4*. E(n)(lab)=242.47 *2*.
11328.20 *7*	1^-	50 eV *20*	1	Γ_γ=3.5 eV *6*. E(n)(lab)=244.60 *3*.
11329.11 *4*	(1^-)	0.5 eV *2*	(1)	Γ_γ=2.3 eV *2*. E(n)(lab)=245.552 *2*.

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^{25}Mg(n,γ),(n,n):res 2012Ma14 (continued)

^{26}Mg Levels (continued)

E(level)‡	Jπ#	Γ_n	L	Comments
11336.88 *5*	(1⁻)	0.1 eV *1*	(1)	Γ_γ=3.1 eV *27*. E(n)(lab)=253.63 *1*.
11344.77 *7*	4(−)	3.49 keV *6*	(1)	Γ_γ=2.6 eV *4*. E(n)(lab)=261.84 *3*.
11361.84 *23*	(2⁺)	3.29 keV *5*	(0)	Γ_γ=1.9 eV *7*. E(n)(lab)=279.6 *2*.
11392.57 *5*	(5⁺)	240& eV *10*	(2)	Γ_γ=(0.84) eV *9*. E(n)(lab)=311.57 *1*.
11441.08 *6*	4⁺	2.020 keV *40*	2	Γ_γ=2.2 eV *2*. E(n)(lab)=362.04 *2*.
11465.62 *8*	(5⁻)@	8.91& keV *8*	(3)	Γ_γ=(1.7) eV *3*. E(n)(lab)=387.57 *4*.
11500.09 *5*	(1⁻)@	25& eV *10*	1	Γ_γ=(20) eV *10*. E(n)(lab)=423.43 *1*.
11526.82 *10*	(3⁻)@	3.00& keV *10*	(1)	Γ_γ=(6.6) eV *8*. E(n)(lab)=451.24 *6*.
11587.99 *7*	(2⁻)	1.80& keV *10*	(1)	Γ_γ=(8.6) eV *8*. E(n)(lab)=514.88 *3*.
11608.29 *6*	(4⁻)	0.84& keV *4*	(1)	Γ_γ=(2.7) eV *3*. E(n)(lab)=536.00 *2*.

† 2012Ma14 note of caution for the resonance and associated parameters/values.
‡ S(n)(^{26}Mg)+E(n)(c.m.), where S(n)=11093.09 keV *4* (2012Wa38).
# Assignment in 2012Ma14, based on R-matrix analysis, except otherwise noted.
@ Listed in 2012Ma14 from literature.
& Γ_n value should be considered with caution.