^{164}Dy(n,γ),(n,n):resonances 2018MuZZ

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 194,460 (2024)	31-Oct-2022

2018MuZZ: evaluation of n-resonance data. Most data for ^{164}Dy(n,γ),(n,n): resonances are from 1975Li02.

1975Li02: measured neutron resonances in the energy range 147 eV to 21.15 keV, time-of-flight method. Deduced partial neutron widths.

Others:

2018Sh43, 2017Sh50, 2014Ka38, 2008Bu10: these references deal with different aspects of resonance data, but not with detailed list of discrete resonances.

2005Le37: E<20 MeV, compiled resonances.

1970Mu08 (seven resonances in the range 145 eV to 1316 eV), 1972Fa20.

All data are from 2018MuZZ.

^{165}Dy Levels

E(level)[†]	J$^\pi$	L	gΓ_{n0}(meV)	Comments
S(n)-0.00188? *4*	1/2$^+$	0	37.8 *10*	E(level): fictitious level. Γ_γ=61.4 meV *30*.
S(n)+0.14697 *32*	1/2$^+$	0	68 *3*	gΓ_n=820 meV *40*.
S(n)+0.22757 *38*	(1/2$^-$,3/2$^-$)	(1)		gΓ_n=0.36 meV *18*.
S(n)+0.45041 *42*	1/2$^+$	0	12 *1*	gΓ_n=260 meV *20*, Γ_γ=110 meV *20*.
S(n)+0.47939 *59*	(1/2,3/2$^-$)	(1)		gΓ_n=1.6 meV *5*.
S(n)+0.53630 *28*	1/2$^+$	0	5.0 *4*	gΓ_n=116 meV *9*, Γ_γ=120 meV *20*.
S(n)+0.54876 *28*	(1/2$^-$,3/2$^-$)	(1)		gΓ_n=6.8 meV *9*.
S(n)+0.74091 *56*	(1/2$^-$,3/2$^-$)	(1)		gΓ_n=3 meV *2*.
S(n)+0.80424 *50*	(1/2$^-$,3/2$^-$)	(1)		gΓ_n=8.8 meV *10*.
S(n)+0.85389 *55*	1/2$^+$	0	19 *2*	gΓ_n=550 meV *16*.
S(n)+0.9259 *8*	(1/2$^-$,3/2$^-$)	(1)		gΓ_n=3 meV *1*.
S(n)+0.94098 *81*	(1/2$^-$,3/2$^-$)	(1)		gΓ_n=4.9 meV *20*.
S(n)+0.98306 *34*	1/2$^+$	0	3.8 *5*	gΓ_n=120 meV *20*, Γ_γ=120 meV *25*.
S(n)+1.05200 *38*	1/2$^+$	0	7.1 *9*	gΓ_n=230 meV *30*, Γ_γ=105 meV *25*.
S(n)+1.20770 *46*	1/2$^+$	0	19 *2*	gΓ_n=660 meV *70*.
S(n)+1.2865 *13*	(1/2$^-$,3/2$^-$)	(1)		gΓ_n=4.3 meV *25*.
S(n)+1.3236 *5*	1/2$^+$	0	25 *3*	gΓ_n=0.90 eV *11*.
S(n)+1.4058 *15*	(1/2$^-$,3/2$^-$)	(1)		gΓ_n=6.4 meV *15*.
S(n)+1.5674 *18*	(1/2$^-$,3/2$^-$)	(1)		gΓ_n=9.9 meV *24*.
S(n)+1.5881 *4*	1/2$^+$	0	5.5 *8*	gΓ_n=220 meV *30*, Γ_γ=115 meV *25*.
S(n)+1.6447 *19*	1/2$^+$	0	0.57 *10*	gΓ_n=23 meV *4*.
S(n)+1.7090 *4*	(1/2$^-$,3/2$^-$)	(1)		gΓ_n=9.9 meV *25*.
S(n)+1.8962 *9*	1/2$^+$	0	46 *7*	gΓ_n=2.00 eV *31*.
S(n)+1.9602 *5*	1/2$^+$	0	28 *3*	gΓ_n=1.24 eV *13*.
S(n)+2.0387 *5*	(1/2$^-$,3/2$^-$)	(1)		gΓ_n=29 meV *6*.
S(n)+2.0659 *26*	1/2$^+$	0	1.01 *22*	gΓ_n=46 meV *1*.
S(n)+2.2507 *30*	(1/2$^-$,3/2$^-$)	(1)		gΓ_n=8 meV *4*.
S(n)+2.2851 *6*	(1/2$^-$,3/2$^-$)	(1)		gΓ_n=31 meV *6*.
S(n)+2.3193 *6*	1/2$^+$	0	39 *6*	gΓ_n=1.90 eV *30*.
S(n)+2.3526 *32*	(1/2$^-$,3/2$^-$)	(1)		gΓ_n=8 meV *6*.
S(n)+2.3958 *7*	1/2$^+$	0	8.6 *12*	gΓ_n=420 meV *59*.
S(n)+2.5366 *7*	1/2$^+$	0	13 *2*	gΓ_n=0.66 eV *10*.
S(n)+2.7232 *40*	(1/2$^-$,3/2$^-$)	(1)		gΓ_n=27 meV *9*.
S(n)+2.8044 *42*	(1/2$^-$,3/2$^-$)	(1)		gΓ_n=16.0 meV *58*.
S(n)+2.8719 *9*	1/2$^+$	0	47 *8*	gΓ_n=2.50 eV *40*.
S(n)+2.9687 *9*	1/2$^+$	0	59 *7*	gΓ_n=3.20 eV *38*.
S(n)+3.0482 *9*	(1/2$^-$,3/2$^-$)	(1)		gΓ_n=17.0 meV *77*.
S(n)+3.1000 *48*	(1/2$^-$,3/2$^-$)	(1)		gΓ_n=19 meV *8*.
S(n)+3.2090 *51*	(1/2$^-$,3/2$^-$)	(1)		gΓ_n=53 meV *14*.

Continued on next page (footnotes at end of table)

^{164}Dy(n,γ),(n,n):resonances 2018MuZZ (continued)

^{165}Dy Levels (continued)

E(level)†	Jπ	L	gΓn0(meV)	Comments
S(n)+3.2816 *10*	1/2+	0	3.8 *5*	gΓn=220 meV *29*.
S(n)+3.4168 *56*	(1/2−,3/2−)	(1)		gΓn=47 meV *12*.
S(n)+3.4605 *11*	(1/2−,3/2−)	(1)		gΓn=56 meV *12*.
S(n)+3.4806 *11*	1/2+	0	32 *5*	gΓn=1.90 eV *30*.
S(n)+3.5203 *12*			1.2 *2*	gΓn=71 meV *12*.
S(n)+3.6210 *61*	(1/2−,3/2−)	(1)		gΓn=17 meV *10*.
S(n)+3.7344 *13*	1/2+	0	12 *2*	gΓn=0.73 eV *12*.
S(n)+3.9116 *69*	(1/2−,3/2−)	(1)		gΓn=34 meV *20*.
S(n)+4.0958 *73*	(1/2−,3/2−)	(1)		gΓn=60 meV *40*.
S(n)+4.1352 *15*	1/2+	0	7.6 *12*	gΓn=490 meV *77*.
S(n)+4.2315 *15*	1/2+	0	34 *5*	gΓn=2.20 eV *30*.
S(n)+4.3488 *80*	(1/2−,3/2−)	(1)		gΓn=51 meV *35*.
S(n)+4.3892 *81*	(1/2−,3/2−)	(1)		gΓn=29 meV *29*.
S(n)+4.4458 *16*	1/2+	0	75 *10*	gΓn=5.00 eV *67*.
S(n)+4.7578 *36*	1/2+	0	2.0 *9*	gΓn=140 meV *60*.
S(n)+4.7801 *18*	1/2+	0	22 *4*	gΓn=1.50 eV *28*.
S(n)+4.8101 *19*	1/2+	0	156 *23*	gΓn=10.8 eV *16*.
S(n)+4.9160 *19*	(1/2−,3/2−)	(1)		gΓn=84 meV *28*.
S(n)+4.9549 *19*	1/2+	0	2.4 *7*	gΓn=170 meV *50*.
S(n)+5.1699 *20*	1/2+	0	29 *6*	gΓn=2.10 eV *40*.
S(n)+5.2119 *21*	1/2+	0	180 *30*	gΓn=13.0 eV *22*.
S(n)+5.5921 *23*	1/2+	0	21 *4*	gΓn=1.60 eV *30*.
S(n)+5.7025 *24*	1/2+	0	3.2 *9*	gΓn=240 meV *70*.
S(n)+5.9233 *50*	1/2+	0	136 *26*	gΓn=10.5 eV *20*.
S(n)+6.0968 *26*	1/2+	0	23 *5*	gΓn=1.80 eV *40*.
S(n)+6.1098 *26*	1/2+	0	27 *5*	gΓn=2.10 eV *40*.
S(n)+6.2807 *27*	1/2+	0	87 *13*	gΓn=6.9 eV *10*.
S(n)+6.4447 *29*	1/2+	0	29 *4*	gΓn=2.30 eV *30*.
S(n)+6.6211 *30*	1/2+	0	47 *7*	gΓn=3.80 eV *60*.
S(n)+6.8542 *31*	1/2+	0	14 *2*	gΓn=1.20 eV *17*.
S(n)+6.9963 *32*	1/2+	0	12 *2*	gΓn=1.00 eV *20*.
S(n)+7.4322 *35*	1/2+	0	45 *7*	gΓn=3.90 eV *60*.
S(n)+7.6952 *37*	1/2+	0	87 *14*	gΓn=7.6 eV *12*.
S(n)+7.9587 *39*	1/2+	0	10 *2*	gΓn=0.89 eV *18*.
S(n)+8.0908 *40*	1/2+	0	34 *6*	gΓn=3.10 eV *54*.
S(n)+8.2524 *41*	1/2+	0	48 *8*	gΓn=4.40 eV *73*.
S(n)+8.3688 *42*	1/2+	0	4.0 *16*	gΓn=0.37 eV *15*.
S(n)+8.7635 *45*	1/2+	0	8.1 *19*	gΓn=0.76 eV *18*.
S(n)+9.3583 *50*	1/2+	0	11 *3*	gΓn=1.10 eV *29*.
S(n)+9.4005 *50*	1/2+	0	15 *3*	gΓn=1.45 eV *29*.
S(n)+9.7021 *52*	1/2+	0	24 *4*	gΓn=2.36 eV *39*.
S(n)+10.974 *6*	1/2+	0	66 *10*	gΓn=6.9 eV *11*.
S(n)+11.530 *7*	1/2+	0	63 *9*	gΓn=6.77 eV *97*.
S(n)+11.753 *7*	1/2+	0	30 *5*	gΓn=3.25 eV *54*.
S(n)+11.890 *7*	1/2+	0	19 *4*	gΓn=2.07 eV *44*.
S(n)+12.411 *8*	1/2+	0	84 *14*	gΓn=9.4 eV *16*.
S(n)+12.894 *8*	1/2+	0	17 *4*	gΓn=1.93 eV *45*.
S(n)+12.942 *8*	1/2+	0	53 *11*	gΓn=6.0 eV *13*.
S(n)+13.060 *8*	1/2+	0	260 *40*	gΓn=29.7 eV *46*.
S(n)+13.280 *9*	1/2+	0	34 *7*	gΓn=3.92 eV *81*.
S(n)+13.466 *9*	1/2+	0	23 *4*	gΓn=2.67 eV *46*.
S(n)+13.762 *9*	1/2+	0	22 *4*	gΓn=2.58 eV *47*.
S(n)+14.076 *9*	1/2+	0	14 *4*	gΓn=1.66 eV *48*.
S(n)+14.141 *9*	1/2+	0	66 *13*	gΓn=7.9 eV *16*.
S(n)+14.298 *9*	1/2+	0	22 *5*	gΓn=2.63 eV *60*.

Continued on next page (footnotes at end of table)

^{164}Dy(n,γ),(n,n):resonances 2018MuZZ (continued)

^{165}Dy Levels (continued)

E(level)†	Jπ	L	gΓ$_{n0}$(meV)	Comments
S(n)+14.690 *10*	1/2$^+$	0	69 *13*	gΓ$_n$=8.4 eV *16*.
S(n)+14.882 *10*	1/2$^+$	0	34 *7*	gΓ$_n$=4.15 eV *85*.
S(n)+15.335 *11*	1/2$^+$	0	35 *7*	gΓ$_n$=4.33 eV *87*.
S(n)+15.455 *11*	1/2$^+$	0	51 *10*	gΓ$_n$=6.3 eV *12*.
S(n)+15.550 *11*	1/2$^+$	0	34 *7*	gΓ$_n$=4.24 eV *87*.
S(n)+15.846 *11*	1/2$^+$	0	17 *5*	gΓ$_n$=2.14 eV *63*.
S(n)+16.179 *11*	1/2$^+$	0	45 *9*	gΓ$_n$=5.7 eV *12*.
S(n)+17.194 *13*	1/2$^+$	0	28 *7*	gΓ$_n$=3.67 eV *92*.
S(n)+17.744 *13*	1/2$^+$	0	14 *5*	gΓ$_n$=1.87 eV *67*.
S(n)+17.900 *13*	1/2$^+$	0	170 *30*	gΓ$_n$=22.7 eV *40*.
S(n)+18.212 *14*	1/2$^+$	0	41 *8*	gΓ$_n$=5.5 eV *11*.
S(n)+18.307 *14*	1/2$^+$	0	33 *10*	gΓ$_n$=4.5 eV *14*.
S(n)+18.368 *14*	1/2$^+$	0	96 *22*	gΓ$_n$=13.0 eV *30*.
S(n)+18.637 *14*	1/2$^+$	0	45 *13*	gΓ$_n$=8.1 eV *18*.
S(n)+18.685 *14*	1/2$^+$	0	80 *22*	gΓ$_n$=11.0 eV *30*.
S(n)+19.127 *15*	1/2$^+$	0	46 *9*	gΓ$_n$=6.4 eV *12*.
S(n)+19.295 *15*	1/2$^+$	0	48 *10*	gΓ$_n$=6.7 eV *14*.
S(n)+19.728 *15*	1/2$^+$	0	30 *9*	gΓ$_n$=4.2 eV *13*.
S(n)+19.804 *15*	1/2$^+$	0	67 *20*	gΓ$_n$=9.4 eV *28*.
S(n)+20.317 *16*	1/2$^+$	0	46 *13*	gΓ$_n$=6.6 eV *19*.
S(n)+20.573 *16*	1/2$^+$	0	44 *13*	gΓ$_n$=6.3 eV *19*.
S(n)+20.917 *17*	1/2$^+$	0	63 *21*	gΓ$_n$=9.1 eV *30*.
S(n)+21.151 *17*	1/2$^+$	0	65 *21*	gΓ$_n$=9.5 eV *31*.

† S(n)=5715.96 *5* (2021Wa16); neutron energies are not corrected for recoil, which varies from 0.1 eV to 0.1 keV over this energy range.