^{58}Ni(p,n) 1983Ra30,1967Co11

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Caroline D. Nesaraja, Scott D. Geraedts and Balraj Singh	NDS 111, 897 (2010)	12-Jan-2010

1983Ra30 (also 1982Ra30): E=120 MeV and 160 MeV. Enriched target. The time-of-flight method was used to determine neutron energies. The $\sigma(\theta)$ were measured between 0° and 5.1° at 120 MeV and between 0° and 18.7°at 160 MeV. DWBA analysis.

1967Co11 (also 1967Co13): E=13 MeV. Measured $\sigma(\theta)$ for six groups up to 1640.

Others:

2009Sa06: E=198, 297 MeV. Measured neutron time-of-flight spectra, cross sections and angular distributions. Deduced Gamow-Teller strengths for ground state, 203 and 1051 levels.

2008An15: E=134.3 MeV. Measured neutron spectra, cross sections, angular distributions at IUCF neutron time-of-flight facility Deduced Gamow-Teller strengths. FWHM=500 keV. Excitations reported at 0.2, 1.1, 3.7, 5.3, 9.1, 10.6, 12.0 and 13.0 MeV.

2000Jo17: E=35 MeV. Enriched target. The time-of-flight method was used to measure neutron energies. The main group studied was the 203-keV state, the isobaric analog (IAS) of ^{58}Ni g.s.

Additional information 1.

1983Ma37: E=35 MeV. Enriched target. Measured $\sigma(\theta)$ for the analog states of the g.s. and the first excited 2^+ state of ^{58}Ni; time-of-flight method. DWBA and coupled-channel analysis.

1969Ki10: E=10.2-12 MeV. Level energies from this priv. comm. were originally listed in A=58 evaluation by 1970Ra49 and later repeated in successive A=58 evaluations such as 1997Bh02. Energies from this work are not adopted here since these are systematically lower than those in other studies and also in 'Adopted Levels', differing by as much as 30 keV at 1650. A total of seven levels reported up to 1621 keV.

1968Is01: E=11.6, 12.6 MeV. A total of seven levels reported.

Others:

1966Ha14: E=9.5-11 MeV. The g.s. and first excited state reported.

^{58}Cu Levels

B(GT) (Gamow-Teller) values are from 1983Ra30.
Isotopic spin (T) from 1983Ra30.

E(level)‡	Jπ@	Γ#	L#	dσ/dΩ (mb/sr)†	Comments
0.0	1^+			0.65 *10*	T=0 B(GT)=0.165 (from β decay, 1983Ra30)).
209 *12*	0^+			1.65 *25*	T=1 E(level): isobar analog state of ^{58}Ni g.s. Additional information 2.
441 *13*					Additional information 3.
1043 *20*				1.9 *3*	T=0 B(GT)=0.5.
					Additional information 4.
1418 *25*					Additional information 5.
1540					E(level): from 1968Is01. Other: 1569 *6* (1969Ki10). Level not reported by 1967Co11.
1638 *29*	2^+				Additional information 6. Jπ: IAS of first excited 2^+ state in ^{58}Ni.
3.7×10^3 *4*	(1^+)		0	2.4 *4*	T=0 B(GT)=0.69.
5.2×10^3 *4*	(1^+)		0	2.2 *3*	T=(0,1) B(GT)=0.65.
6.4×10^3 *4*	(1^+)		0	1.7 *3*	T=(0,1) B(GT)=0.53.
9.2×10^3 *4*	(1^+)	≈1.3 MeV	0	7.0 *10*	T=(0,1) B(GT)=2.36.

Continued on next page (footnotes at end of table)

^{58}Ni(p,n) 1983Ra30,1967Co11 (continued)

^{58}Cu Levels (continued)

E(level)‡	Jπ@	Γ#	L#	dσ/dΩ (mb/sr)†	Comments
11.2×10^3 *4*	(1$^+$)	≈0.7 MeV	0	4.2 *6*	T=(0,1,2) E(level): 10.6 (strong) and 12.0 MeV (weak) groups in spectral figure 2 of 2008An15. B(GT)=1.58.
13.0×10^3 *4*	(1$^+$)	≈0.5 MeV	0	1.9 *3*	T=(0,1,2) B(GT)=0.76.

† From 1983Ra30, at θ=0° and E(p)=120 MeV.
‡ From 1967Co11 for levels below 3700 and from 1983Ra30 for levels above this energy, unless otherwise stated. In 1983Ra30, uncertainty of 0.1-0.4 MeV is stated, the evaluators have assigned 0.4 MeV for levels above 3 MeV.
# From 1983Ra30.
@ From 'Adopted Levels'.