^{22}Ne(d,p),(pol d,p) 1960Fr04,1974WoZA,1970Ho22

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. S. Basunia[#], A. Chakraborty[##]	NDS 171, 1 (2021)	1-Jun-2020

$J^\pi(^{22}Ne)=0^+$.

Other references: 1990Ch41, 1969Ch21, 1969Na02, 1967Lu04, 1967Du01, 1965Pu01.

1960Fr04: ^{22}Ne(d,p), E=4.75-7.5 MeV; Magnetic spectrograph was used for analysis of the reaction products. Both natural (9% ^{22}Ne) and enriched (59% ^{22}Ne) neon gas targets were used. Measured level energies.

1974WoZA: ^{22}Ne(pol d,p), E=12 MeV; Measured $\sigma(\theta)$.

1970Ho22: ^{22}Ne(d,p), E=12.1 MeV. Enriched gas target. Measured σ(Ep,θ). Performed DWBA calculations. Deduced level energies, orbital angular momentum transfer, level spins and parities, and spectroscopic factors.

1990Ch41: ^{22}Ne(d,p), E=24.1 MeV. Solidified ^{22}Ne target. The outgoing proton particles were detected at the focal plane of a Q3D spectrometer. Performed DWBA analysis.

1969Ch21: ^{22}Ne(d,p), E=3 MeV. Measured σ(Ep,θ). Gas target was used.

1969Na02: ^{22}Ne(d,p), E=4-6 MeV, measured σ(Ep,(θ). Also ^{23}Na(n,pγ).

1967Du01: ^{22}Ne(d,p), E=3 MeV, angular distribution measurement for the first excited level.

1967Lu04: ^{22}Ne(d,p), E=12.1 MeV. Enriched ^{22}Ne gas target (with 99.7% enrichment) was used. Particle identification was carried out using detector telescope consisting of a ΔE (transmission-type surface barrier diode) detector and an E (lithium-drifted silicon diode) detector. Measured σ(Ep,θ). Performed DWBA calculations.

1965Pu01: ^{22}Ne(d,p) − Measured angular-distribution.

^{23}Ne Levels

E(level)[†]	J$^\pi$[‡]	L[@]	S[a]	Comments
0.0		2	0.23	
1018 *7*	1/2$^+$[#]	0	0.39	
1703 *7*				
1826 *8*		2	0.023	
2314 *8*	5/2$^+$	2	0.07	
2520 *8*				
3218 *8*	3/2$^-$[#]	1	0.73	
3433 *8*	3/2$^+$	2	0.38	
3836 *10*	1/2$^-$	1	0.14	
3988 *8*	(3/2)$^+$	2	0.32	
4270 *15*				
4431 *12*				
4764 *5*				
4867 *15*				E(level): from 1960Fr04.
4940 *5*				
4995 *15*				E(level): from 1960Fr04.
5029 *5*				
5068 *5*				
5185 *6*	(3/2$^+$,5/2$^+$)[#]	(2)	0.23	S: from 1970Ho22.
5220 *5*		3[&]		
5265?				
5340?				
5462 *5*		1[&]		
5522 *10*				
5560 *15*				
5606 *10*				
5646 *10*				
5726 *10*				
5785 *15*				
5840 *15*				

Continued on next page (footnotes at end of table)

^{22}Ne(d,p),(pol d,p) 1960Fr04,1974WoZA,1970Ho22 (continued)

^{23}Ne Levels (continued)

† E(level)<4700 keV from 1960Fr04, E(level)>4700 keV from 1990Ch41 (unless otherwise stated).
‡ From 1974WoZA ((pol d,p) – vector analyzing power), except where otherwise noted.
# From 1970Ho22, based on L value and literature data.
@ From 1970Ho22, except otherwise noted.
& From 1990Ch41.
a From 1967Lu04 (the average of the two possible values as mentioned in Table 2), unless otherwise stated.