^{63}Cu(p,n):resonances 1975Le03

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 178, 41 (2021).	12-Nov-2021

1975Le03: E=4.21-4.24 MeV, pulsed beam, time of flight, observed 22 neutron resonances just above threshold corresponding to unbound levels in ^{64}Zn at ≈11.9 MeV, J^π=1$^-$,2$^-$.
Other: 1961Ke05. E=5-11.5 MeV. Resonances reported are at 13.3, 13.7, 14.1, 14.3, 14.9, 15.1, 15.6 and 15.7 MeV.
See 1980Ha44 for reaction mechanism.
J^π(^{63}Cu g.s.)=3/2$^-$.
S(n)(^{64}Zn)=11861.9 *15* (2021Wa16).

^{64}Zn Levels

J^π values are expected to be 1$^-$,2$^-$ from J^π(^{63}Cu g.s.)=3/2$^-$.

E(level)†	Γ	Comments
S(n)+2.430 *25*	25 eV *10*	
S(n)+2.98 *3*		
S(n)+3.5 *1*		
S(n)+3.9 *1*		
S(n)+6.39 *10*	90 eV *20*	dσ/dΩ=2.8 mb/sr 6.
S(n)+7.54 *10*		
S(n)+8.04 *11*		
S(n)+8.8 *1*		
S(n)+9.2 *1*		
S(n)+10.9 *2*		
S(n)+12.6 *2*		
S(n)+13.4‡ *2*		
S(n)+13.9‡ *2*		
S(n)+15.0 *3*		
S(n)+15.8 *3*		
S(n)+16.7‡ *3*		
S(n)+18.0 *4*		
S(n)+19.1 *2*		
S(n)+20.3 *2*		
S(n)+21.6 *3*		
S(n)+23.6 *8*		E(level): several unresolved resonances.
S(n)+27.4 *3*		

† The neutron energies are in the lab system. The absolute excitation energies can be obtained as follows: S(n)+E(n)(c.m.), where S(n)=11861.9 *15* (2021Wa16), E(n)(c.m.)=(63/64)×E(n)(lab). Here the excitation energies are from 11864 to 11889 keV with 22 levels.
‡ Not clearly resolved.