^{9}**Be(^{57}Ni,^{56}NiXγ)**   **2006Yu09**

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Huo Junde, Huo Su, Yang Dong	NDS 112, 1513 (2011)	29-Oct-2009

One-neutron knockout reaction.

E(^{57}Ni)=73 MeV/nucleon secondary beam produced from fragmentation of ^{58}Ni beam at 105 MeV/nucleon with a ^{9}Be target. Fragments were separated by A1200 separator. The ^{57}Ni beam impinged another ^{9}Be target and the residues were analyzed by S-800 spectrograph. The knockout residues were identified by time-of-flight, energy loss measurement, position and angle information. The γ rays were detected in coincidence with knockout residues of ^{56}Ni using an array of 38 position-sensitive NaI(Tl) detectors. Deduced cross sections for population of excited states in ^{56}Ni.

Total cross section for ^{56}Ni=41.4 mb *12* in comparison with 85.4 mb from theoretical predictions; σ(exp)/σ(theory)=0.48 *2*.

Cross section to excited states (J^π=2$^+$ to 5$^+$): 33.7 mb *17*; corresponding C^{2}S=3.7 *2* for L-transfer=3. σ(exp)/σ(theory)=0.47 *2*.

All data are from 2006Yu09.

^{56}Ni Levels

E(level)	J^π	Comments
0	0$^+$	σ=7.7 mb *15*; corresponding C^{2}S=0.58 *11* for L-transfer=1. σ(exp)/σ(theory)=0.55 *11*.
2700.6 *4*	2$^+$	
3925.1 *4*	4$^+$	
4935.5 *6*	(3$^+$)	
5661 *72*	(2$^+$,3$^+$,4$^+$,5$^+$)	J^π: 6$^+$ assignment is not expected to be populated in one-neutron knockout reaction due to angular momentum considerations.

γ(^{56}Ni)

E$_\gamma$	E$_i$(level)	J^π_i	E$_f$	J^π_f
1010.4 *4*	4935.5	(3$^+$)	3925.1	4$^+$
1224.5 *2*	3925.1	4$^+$	2700.6	2$^+$
^{x}1379 *10*				
1726 *10*	5661	(2$^+$,3$^+$,4$^+$,5$^+$)	3925.1	4$^+$
2234.5 *7*	4935.5	(3$^+$)	2700.6	2$^+$
2700.6 *3*	2700.6	2$^+$	0	0$^+$
3027 *71*	5661	(2$^+$,3$^+$,4$^+$,5$^+$)	2700.6	2$^+$

^{x} γ ray not placed in level scheme.

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Level Scheme

(2$^+$,3$^+$,4$^+$,5$^+$)	3027 1726	5661
(3$^+$)	2234.5 1010.4	4935.5
4$^+$	1224.5	3925.1
2$^+$	2700.6	2700.6
0$^+$		0

$^{56}_{28}$Ni$_{28}$

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