^{58}Ni(^{36}Ar,2p2nγ) 1994He09

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	S. K. Basu, E. A. Mccutchan	NDS 165, 1 (2020)	1-Mar-2020

1994He09: ^{58}Ni(^{36}Ar,2p2nγ), E=149 MeV. 99.98% enriched ^{58}Ni target. Measured γ rays using the OSIRIS array of 12 Compton-suppressed hyperpure germanium detectors. Measured Eγ, Iγ, nγγ coin, pγγ coin. Charge-particle and neutron detectors: ΔE silicon surface barrier for protons, NE213 for neutrons.

^{90}Ru Levels

E(level)†	Jπ‡	Comments
0.0	0^+	
738.00 *10*	(2^+)	
1638.11 *14*	(4^+)	
2584.3 *3*	(6^+)	E(level): This level has been omitted from Adopted Levels; instead a level at 2524.5 keV has been adopted based on more extensive measurement in ^{58}Ni(^{40}Ca,2αγ) dataset.
3096.2 *4*	(8^+)	E(level): This level has been omitted from Adopted Levels; instead a level at 3037.7 keV has been adopted based on more extensive measurement in ^{58}Ni(^{40}Ca,2αγ) dataset.
3981.8 *7*	(10^+)	
4957.4 *8*	(12^+)	
5730.4 *13*	$(13^+,14^+)$	
6097.4 *16*	(15^+)	
6387.9 *19*	(16^+)	

† Deduced by evaluators from a least-squares fit to γ-ray energies.

‡ J^π values are from authors′ assignments based on systematics in this mass region and shell-model calculations. The energies of the most intense γ-ray transitions are very similar to those in the isotone ^{88}Mo. Thus, the detected γ rays have been assumed to belong to a cascade connecting yrast states with even parity.

γ(^{90}Ru)

Eγ†	Iγ	Ei(level)	J_i^π	E_f	J_f^π	Comments
290.5 *10*	22 *3*	6387.9	(16^+)	6097.4	(15^+)	
367.0 *10*	24 *3*	6097.4	(15^+)	5730.4	$(13^+,14^+)$	
511.9 *3*	64 *8*	3096.2	(8^+)	2584.3	(6^+)	
738.0 *1*	100 *12*	738.00	(2^+)	0.0	0^+	
773.0 *10*	26 *4*	5730.4	$(13^+,14^+)$	4957.4	(12^+)	
885.6 *5*	39 *7*	3981.8	(10^+)	3096.2	(8^+)	Eγ: This γ-ray has been interchanged with 946.2 keV γ-ray by 2004Bu13 in ^{58}Ni(^{40}Ca,2αγ) dataset from intensity consideration and placed below 512.2 keV γ-transition.
900.1 *1*	90 *14*	1638.11	(4^+)	738.00	(2^+)	
946.2 *3*	73 *11*	2584.3	(6^+)	1638.11	(4^+)	Eγ: This γ-ray has been interchanged with 885.6 keV γ-ray by 2004Bu13 in ^{58}Ni(^{40}Ca,2αγ) dataset from intensity consideration and placed above 512.2 keV γ-transition.
975.6 *5*	35 *5*	4957.4	(12^+)	3981.8	(10^+)	

† Uncertainties in Eγ are 0.1-1.0 keV, depending on the γ-ray energy and intensity. Values for individual transitions are estimates assigned by the evaluators.

^{58}Ni(^{36}Ar,2p2nγ) 1994He09

Level Scheme

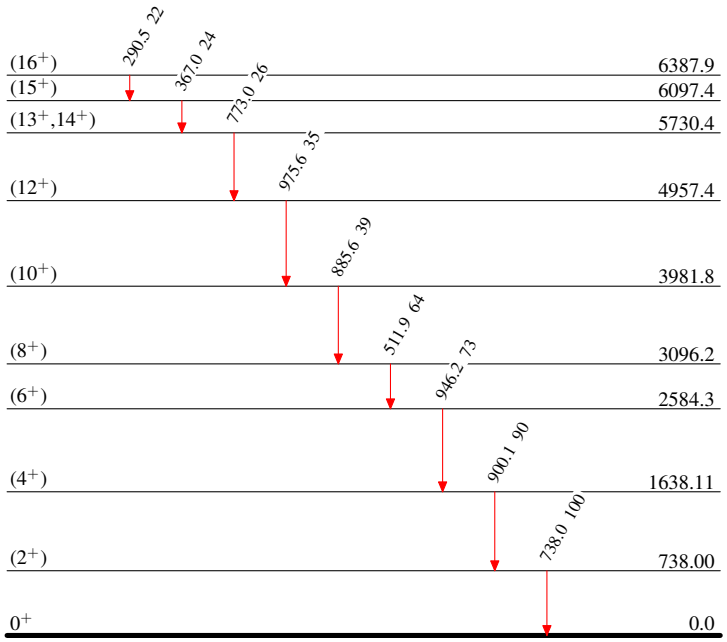
Intensities: Relative I_γ

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$



$^{90}_{44}Ru_{46}$