^{64}Ni(^{7}Li,α2nγ) 2014Bo12

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 202,59 (2025)	25-Feb-2025

Adapted from the XUNDL dataset for 2014Bo12 compiled by B. Singh (McMaster) on May 2, 2014.

2014Bo12: E=32 MeV ^{7}Li beam was produced from the Tandem accelerator (9 MV) of the Horia Hulubei National Institute of Physics and Nuclear Engineering (IFIN-HH) in Bucharest. Target was highly enriched and thick self-supporting ^{64}Ni. γ rays were detected with the mixed ROSPHERE array comprised of 14 HPGe detectors and 11 $LaBr_3$(Ce) detectors. Measured Eγ, Iγ, $\gamma\gamma$-coin, $\gamma\gamma$(t). Deduced levels, J, π, $T_{1/2}$. Comparison with particle-vibration (weak) coupling model.

Other:

2016Sh12: E=24 MeV from the Pelletron Linac in Mumbai. Measured fusion excitation functions.

Level scheme adopted by 2014Bo12 from 2012Ch09 in ^{238}U(^{64}Ni,Xγ), showing the relevant levels populated in the measurement by 2014Bo12.

^{65}Cu Levels

E(level)†	J$^\pi$†	$T_{1/2}$	Comments
0	$3/2^-$		
1116			
1482	$7/2^-$		
2094	$7/2^-$		
2534	$9/2^+$	25.6 ps *21*	$T_{1/2}$: from $\gamma\gamma$(t), fast timing technique (2014Bo12). Level interpreted by 2014Bo12 as member of $\pi p3/2\otimes 3^-$ multiplet; 3^- is octupole phonon state in ^{64}Ni.
2998	$11/2^-$		
3548	$(11/2)^+$		
3660	$13/2^+$		
4006	$13/2^+$		
4075	$(15/2)^+$		
4356	$17/2^+$		

† As given in 2014Bo12, adopted from 2012Ch09.

γ(^{65}Cu)

E$_\gamma$†	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	E$_\gamma$†	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$
281	4356	$17/2^+$	4075	$(15/2)^+$	979	2094	$7/2^-$	1116	
350	4356	$17/2^+$	4006	$13/2^+$	1014	3548	$(11/2)^+$	2534	$9/2^+$
366	1482	$7/2^-$	1116		1052	2534	$9/2^+$	1482	$7/2^-$
415	4075	$(15/2)^+$	3660	$13/2^+$	1115	1116		0	$3/2^-$
439	2534	$9/2^+$	2094	$7/2^-$	1126	3660	$13/2^+$	2534	$9/2^+$
458	4006	$13/2^+$	3548	$(11/2)^+$	1473	4006	$13/2^+$	2534	$9/2^+$
527	4075	$(15/2)^+$	3548	$(11/2)^+$	1482	1482	$7/2^-$	0	$3/2^-$
612	2094	$7/2^-$	1482	$7/2^-$	1516	2998	$11/2^-$	1482	$7/2^-$
661	3660	$13/2^+$	2998	$11/2^-$	2094	2094	$7/2^-$	0	$3/2^-$
697	4356	$17/2^+$	3660	$13/2^+$	2534	2534	$9/2^+$	0	$3/2^-$

† From 2014Bo12.

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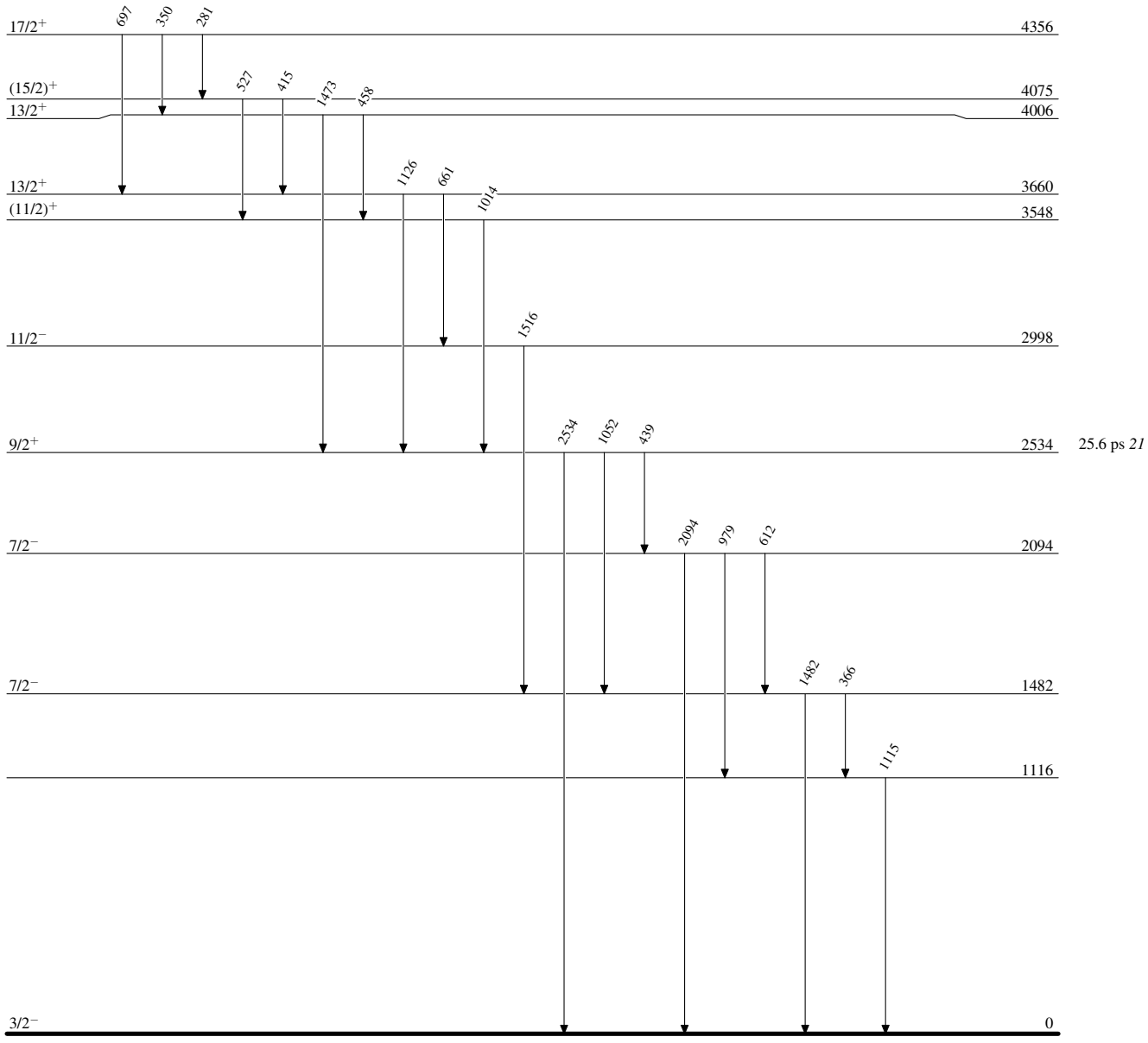
Level Scheme



$^{65}_{29}Cu_{36}$