^{54}Ni IT decay:152 ns 2008Ru09

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Yang Dong, Huo Junde	NDS 121, 1 (2014)	20-Jun-2014

Parent: ^{54}Ni: E=6457.4 *9*; $J^\pi=10^+$; $T_{1/2}$=152 ns *4*; %IT decay=100.0

^{54}Ni produced using the reaction ^{9}Be(^{58}Ni,Xγ) with a 550 MeV/nucleon beam produced at GSI. ^{54}Ni selected using GSI Fragment Separator consisting of scintillators and ionization detectors. Measured Eγ, Iγ, $\gamma\gamma$-coin using RISING array of Cluster Ge detectors. Comparisons with shell-model calculations, conf=1F7/2,2 and 1F7/2,−2 were used.

^{54}Ni Levels

E(level)†	J^π	$T_{1/2}$	Comments
0.0‡	0^+		
1392.3‡ *4*	2^+		
2619.7‡ *6*	4^+		
3070.7‡ *7*	6^+		
6311.3‡ *9*	8^+		
6457.4‡ *9*	10^+	152 ns *4*	$T_{1/2}$: from 2008Ru09, timing of γ rays.

† From a least-squares fit to Eγ's.

‡ Band(A): Yrast sequence.

$\gamma(^{54}Ni)$

Iγ normalization, I(γ+ce) normalization: %p decay=36 *2* (2008Ru09), so %IT=64 *2*.

E_i(level)	J_i^π	E_γ	I_γ‡	E_f	J_f^π	Mult.†	α#	$I_{(\gamma+ce)}$‡	Comments
1392.3	2^+	1392.3 *4*		0.0	0^+	[E2]		100.0 *15*	
2619.7	4^+	1227.4 *4*		1392.3	2^+	[E2]		100.0 *15*	
3070.7	6^+	451.0 *3*		2619.7	4^+	[E2]		100.0 *15*	
6311.3	8^+	3240.7 *7*		3070.7	6^+			94.9 *11*	
6457.4	10^+	146.1 *2*	83.6 *10*	6311.3	8^+	[E2]	0.135	94.9 *11*	I_γ: From Iγ(3386γ)=5.1 *11* and α.
		3386.2 *9*	5.1 *11*	3070.7	6^+	[E4]		5.1 *11*	

† From Adopted Levels and gammas.

‡ For absolute intensity per 100 decays, multiply by 0.64 *2*.

Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

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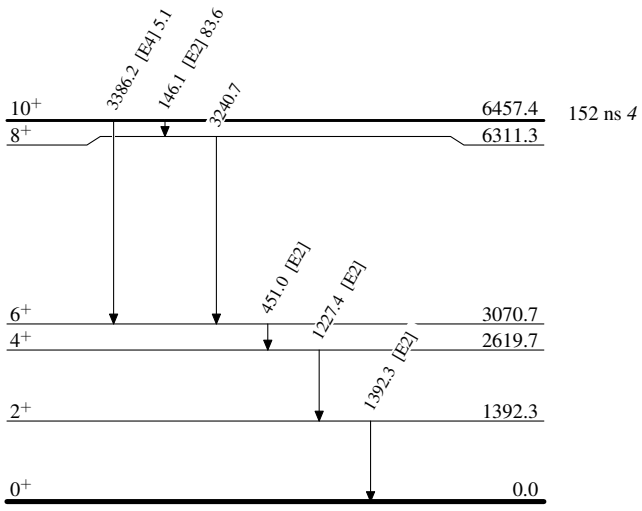
Decay Scheme

Intensities: % photon branching from each level
%IT=100.0



$^{54}_{28}Ni_{26}$

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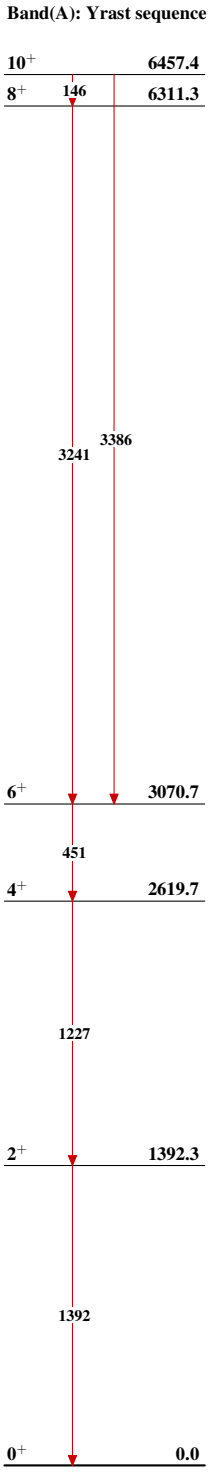

$^{54}_{28}Ni_{26}$