^{64}Ni(d,^{3}Heγ) 1992Se03

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 196,17 (2024)	30-Sep-2023

1992Se03: E=31 MeV deuteron beam was produced from the Heidelberg MP tandem-post accelerator facility. Target was a 1.0 mg/cm^2 self-supporting Ni foil (99.7% enriched). Charged particles were detected with four silicon ΔE-E detector telescopes (FWHM=170 keV); γ rays were detected with two Ge(Li) and two intrinsic Ge detectors. Measured Eγ, Iγ, particle-γ-coin, Doppler shift. Deduced levels, $T_{1/2}$, γ-ray branching ratios, transition strengths.

^{63}Co Levels

E(level)†	J$^\pi$‡	$T_{1/2}$#	Comments
0.0	7/2$^-$		
994.64 *9*	3/2$^-$	>10 ps	
1383.50 *12*	(9/2$^-$)		J$^\pi$: (5/2,7/2)$^-$ from 1992Se03.
1426.6 *3*	(5/2$^-$)		J$^\pi$: (1/2,3/2)$^-$ from 1992Se03.
1494.65 *10*	(3/2$^-$)		J$^\pi$: (5/2,7/2)$^-$ from 1992Se03.
1671.5 *10*	11/2$^-$		J$^\pi$: (9/2,11/2)$^-$ from 1992Se03.
1887.81 *21*	1/2$^-$	>244 fs	
2077.67 *21*	(5/2$^-$,7/2$^-$)		
2128.60 *15*	7/2$^-$	155 fs *+46−41*	$T_{1/2}$: original value=155 fs *+34−26*.
2190.91 *18*	1/2$^+$	47 fs *+46−23*	$T_{1/2}$: original value=47 fs *+45−21*.
2330.14 *9*	7/2$^-$	143 fs *+36−33*	$T_{1/2}$: original value=143 fs *+22−16*.
2374.8 *12*		0.14 ps *+11−5*	$T_{1/2}$: original value=136 fs *+108−45*. Additional information 1.
2688.96 *18*	3/2$^+$	238 fs *+72−63*	$T_{1/2}$: original value=238 fs *+54−41*.
3037.0 *10*	5/2$^-$,7/2$^-$		
3133.4 *9*	(5/2$^-$,7/2$^-$)	0.15 ps *+11−6*	$T_{1/2}$: original value=150 fs *+103−49*.
3179.9 *8*	5/2$^-$,7/2$^-$	56 fs *+17−15*	$T_{1/2}$: original value=56 fs *+13−10*.
3412.5 *6*	5/2$^-$,7/2$^-$	41 fs *+42−22*	J$^\pi$: (3/2,5/2)$^+$ in 1992Se03. See comments for L-transfer of 3413 level in (d,^{3}He) where L=3 from 1979Ha03 is adopted instead of L=(2) from 1991Se09. $T_{1/2}$: original value=41 fs *+41−20*.
3602 *6*	(5/2$^-$,7/2$^-$)		

† From a least-squares fit to γ-ray energies.

‡ From Adopted Levels. Assignments in 1992Se03 are from 1991Se09 in (d,^{3}He) based on their measured $\sigma(\theta)$ data, and are given under comments if different from adopted assignments.

From DSAM in 1992Se03. An additional 20% uncertainty due to stopping power theory as stated in 1992Se03 seems not included in the reported uncertainties in 1992Se03 and therefore has been added in quadrature to the reported uncertainty by the evaluator for uncertainties quoted in this dataset.

γ(^{63}Co)

E$_i$(level)	J$_i^\pi$	E$_\gamma$†	I$_\gamma$†	E$_f$	J$_f^\pi$
994.64	3/2$^-$	994.5 *1*	100	0.0	7/2$^-$
1383.50	(9/2$^-$)	1381.9 *8*	100	0.0	7/2$^-$
1426.6	(5/2$^-$)	1425.9 *6*	100	0.0	7/2$^-$
1494.65	(3/2$^-$)	499.4 *2*	31 *3*	994.64	3/2$^-$
		1495.2 *2*	69 *3*	0.0	7/2$^-$
1671.5	11/2$^-$	1671.5 *10*	100	0.0	7/2$^-$
1887.81	1/2$^-$	460.3 *4*	54 *6*	1426.6	(5/2$^-$)
		893.0 *3*	46 *6*	994.64	3/2$^-$
2077.67	(5/2$^-$,7/2$^-$)	582.9 *2*	52 *6*	1494.65	(3/2$^-$)
		2078.7 *6*	48 *6*	0.0	7/2$^-$
2128.60	7/2$^-$	745.1 *1*	47 *2*	1383.50	(9/2$^-$)

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^{64}Ni(d,^{3}Heγ) 1992Se03 (continued)

$\gamma(^{63}Co)$ (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π
2128.60	7/2$^-$	2128.5 *3*	53 *2*	0.0	7/2$^-$
2190.91	1/2$^+$	302.8 *2*	4 *1*	1887.81	1/2$^-$
		1196.3 *2*	96 *1*	994.64	3/2$^-$
2330.14	7/2$^-$	835.5 *1*	27 *1*	1494.65	(3/2$^-$)
		946.6 *1*	38 *3*	1383.50	(9/2$^-$)
		2330.1 *1*	35 *3*	0.0	7/2$^-$
2374.8		2374.8 *12*	100	0.0	7/2$^-$
2688.96	3/2$^+$	497.8 *2*	13 *1*	2190.91	1/2$^+$
		1263.3 *5*	9 *1*	1426.6	(5/2$^-$)
		1694.4 *2*	78 *1*	994.64	3/2$^-$
3037.0	5/2$^-$,7/2$^-$	3036.9 *10*	100	0.0	7/2$^-$
3133.4	(5/2$^-$,7/2$^-$)	3133.3 *9*	100	0.0	7/2$^-$
3179.9	5/2$^-$,7/2$^-$	3179.8 *8*	100	0.0	7/2$^-$
3412.5	5/2$^-$,7/2$^-$	2028.8 *7*	27 *3*	1383.50	(9/2$^-$)
		3412.9 *11*	73 *3*	0.0	7/2$^-$
3602	(5/2$^-$,7/2$^-$)	3602 *6*	100	0.0	7/2$^-$

† From 1992Se03. Quoted intensities are relative values; authors also list branching ratios deduced from those relative intensities.

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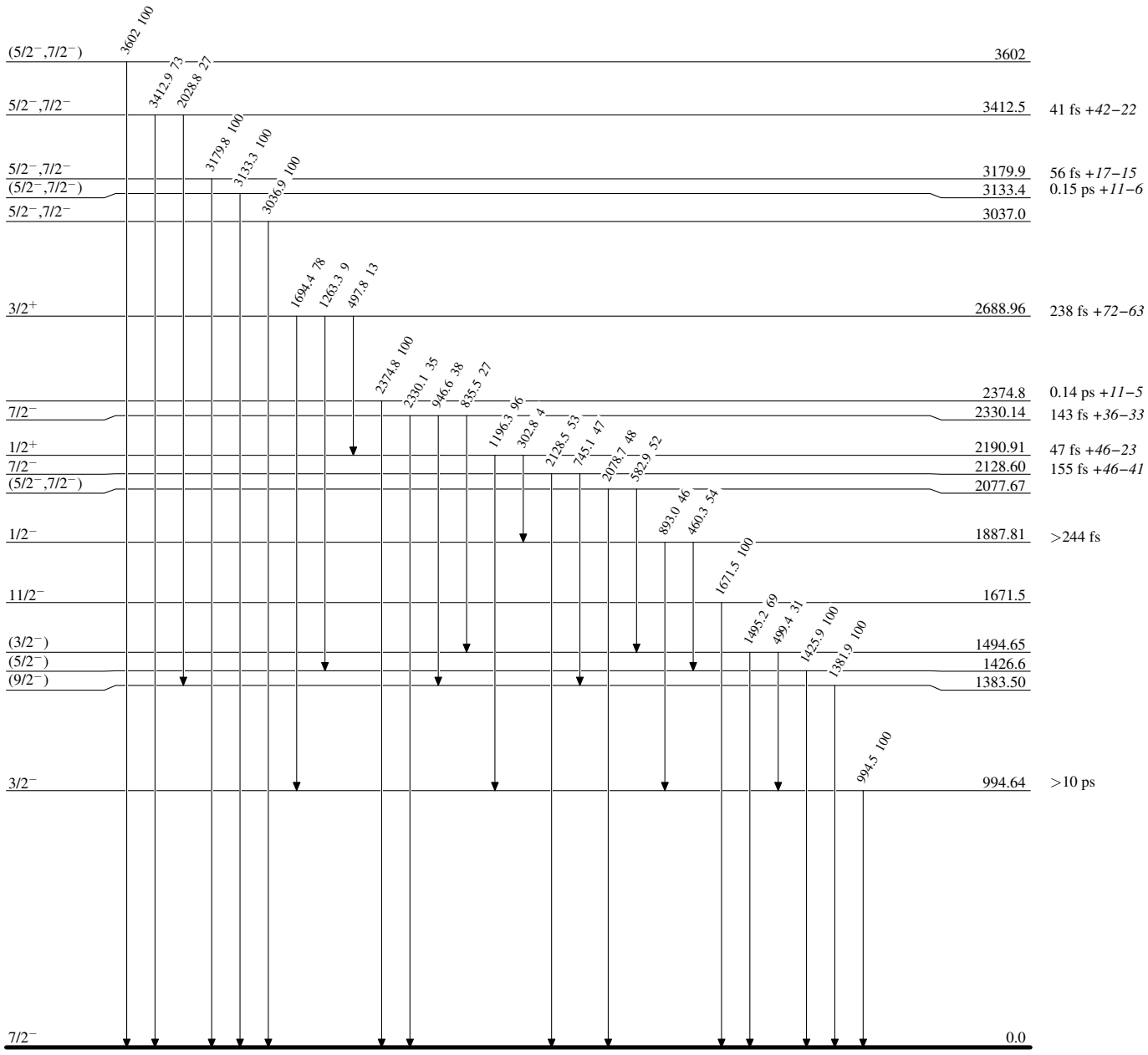
Level Scheme

Intensities: % photon branching from each level



$^{63}_{27}Co_{36}$