^{64}Zn(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. Target was 1.0 mg/cm^2 self-supporting 99.7% enriched ^{64}Zn. Charged particles were detected with four silicon ΔE-E detector telescopes (FWHM=170 keV) and γ rays were detected with two Ge(Li) detectors. Measured Eγ, Iγ, ^{3}He-γ-coin, Doppler-shift attenuation. Deduced levels, $T_{1/2}$, γ-ray branching ratios, transition strengths.

^{63}Cu Levels

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$[#]	Comments
0.0	3/2$^-$		
669.56 *10*	1/2$^-$	219 fs *48*	
962.18 *12*	5/2$^-$	0.52 ps *+24−17*	
1326.89 *15*	7/2$^-$	0.81 ps *+20−18*	
1412.05 *15*	5/2$^-$	1.7 ps *+59−11*	
1547.32 *30*	3/2$^-$	0.30 ps *+55−14*	
1861.33 *9*	7/2$^-$	0.66 ps *+24−18*	
2092.54 *17*	7/2$^-$	165 fs *+52−45*	
2337.5 *6*	5/2$^-$		
2404.64 *27*	7/2$^-$	0.13 ps *+10−5*	
2497.9 *7*	(3/2)		J$^\pi$: (1/2,3/2)$^-$ in 1992Se03.
2505.52 *22*	9/2$^+$	>67 fs	
2515.0 *26*	(3/2)$^+$		J$^\pi$: (3/2$^-$,1/2$^-$) in 1992Se03.
2673.19 *20*	5/2,7/2$^-$	66 fs *+23−19*	
2832.95 *19*	(7/2$^-$)	200 fs *+68−56*	J$^\pi$: (5/2,7/2)$^-$ in 1992Se03.
2858.1 *6*	(1/2$^-$,3/2$^-$)	0.4 ps *+15−2*	
3297.32 *14*	3/2$^-$	16 fs *+16−9*	
3465.3 *19*	1/2$^-$,3/2$^-$	0.07 ps *+15−4*	
3579.3 *6*	1/2$^-$,3/2$^-$	5 fs *+8−4*	
3583.5 *6*	(5/2$^-$,7/2$^-$)	0.10 ps *+13−5*	
3681.0 *7*	5/2$^-$,7/2$^-$	63 fs *+29−23*	
3775.2 *4*	5/2$^-$,7/2$^-$	116 fs *+44−33*	
3888.8 *6*	5/2$^-$,7/2$^-$	119 fs *+79−48*	
3895.1 *9*	5/2$^-$,7/2$^-$	28 fs *+11−8*	
4110.5 *7*	1/2$^+$	16 fs *+5−4*	
4222.1 *11*	5/2$^-$,7/2$^-$	20 fs *+9−7*	
4286.9 *9*	5/2$^-$,7/2$^-$	31 fs *+10−9*	
4432.85 *28*	1/2$^+$	16 fs *+9−6*	
4498.8 *7*	5/2$^-$	8 fs *2*	
4805.1 *25*	(1/2$^+$)	7 fs *5*	

[†] 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 as indicated by the authors and therefore has been added in quadrature to the reported uncertainty by the evaluator for uncertainties quoted in this dataset.

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

$\gamma(^{63}Cu)$

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π
669.56	1/2$^-$	669.6 *1*	100	0.0	3/2$^-$
962.18	5/2$^-$	962.0 *2*	100	0.0	3/2$^-$
1326.89	7/2$^-$	364.7 *2*	19 *2*	962.18	5/2$^-$
		1327.0 *4*	81 *2*	0.0	3/2$^-$
1412.05	5/2$^-$	449.7 *2*	36 *4*	962.18	5/2$^-$
		1412.2 *2*	64 *4*	0.0	3/2$^-$
1547.32	3/2$^-$	1547.3 *3*	100	0.0	3/2$^-$
1861.33	7/2$^-$	899.1 *2*	41 *1*	962.18	5/2$^-$
		1861.3 *1*	59 *1*	0.0	3/2$^-$
2092.54	7/2$^-$	765.5 *2*	45 *3*	1326.89	7/2$^-$
		1130.4 *2*	41 *3*	962.18	5/2$^-$
		2092.6 *5*	14 *3*	0.0	3/2$^-$
2337.5	5/2$^-$	2336.2 *20*	100	0.0	3/2$^-$
2404.64	7/2$^-$	1077.8 *4*	57 *3*	1326.89	7/2$^-$
		1442.4 *3*	43 *3*	962.18	5/2$^-$
2497.9	(3/2)	2497.8 *7*	100	0.0	3/2$^-$
2505.52	9/2$^+$	412.8 *3*	41 *3*	2092.54	7/2$^-$
		644.1 *3*	37 *3*	1861.33	7/2$^-$
		1179.1 *4*	22 *3*	1326.89	7/2$^-$
2515.0	(3/2)$^+$	2514.9 *26*	100	0.0	3/2$^-$
2673.19	5/2,7/2$^-$	811.6 *3*	37 *2*	1861.33	7/2$^-$
		1346.4 *2*	63 *2*	1326.89	7/2$^-$
2832.95	(7/2$^-$)	971.8 *2*	76 *1*	1861.33	7/2$^-$
		1505.6 *3*	24 *1*	1326.89	7/2$^-$
2858.1	(1/2$^-$,3/2$^-$)	2858.0 *6*	100	0.0	3/2$^-$
3297.32	3/2$^-$	2627.7 *1*	68 *5*	669.56	1/2$^-$
		3297.4 *17*	32 *5*	0.0	3/2$^-$
3465.3	1/2$^-$,3/2$^-$	3465.2 *19*	100	0.0	3/2$^-$
3579.3	1/2$^-$,3/2$^-$	2910.0 *6*	54 *5*	669.56	1/2$^-$
		3574.2 *24*	46 *5*	0.0	3/2$^-$
3583.5	(5/2$^-$,7/2$^-$)	2256.2 *9*	48 *4*	1326.89	7/2$^-$
		2621.5 *8*	52 *4*	962.18	5/2$^-$
3681.0	5/2$^-$,7/2$^-$	2718.8 *7*	100	962.18	5/2$^-$
3775.2	5/2$^-$,7/2$^-$	1437.6 *5*	27 *2*	2337.5	5/2$^-$
		1913.0 *6*	33 *3*	1861.33	7/2$^-$
		2448.9 *5*	40 *2*	1326.89	7/2$^-$
3888.8	5/2$^-$,7/2$^-$	2562.0 *7*	59 *5*	1326.89	7/2$^-$
		2925.9 *13*	41 *5*	962.18	5/2$^-$
3895.1	5/2$^-$,7/2$^-$	3895.0 *9*	100	0.0	3/2$^-$
4110.5	1/2$^+$	4110.4 *7*	100	0.0	3/2$^-$
4222.1	5/2$^-$,7/2$^-$	3261.0 *18*	80 *3*	962.18	5/2$^-$
		4221.3 *14*	20 *3*	0.0	3/2$^-$
4286.9	5/2$^-$,7/2$^-$	3327.0 *34*	62 *7*	962.18	5/2$^-$
		4286.6 *9*	38 *7*	0.0	3/2$^-$
4432.85	1/2$^+$	3764.7 *7*	52 *5*	669.56	1/2$^-$
		4432.4 *3*	48 *5*	0.0	3/2$^-$
4498.8	5/2$^-$	4498.6 *7*	100	0.0	3/2$^-$
4805.1	(1/2$^+$)	4804.9 *25*	100	0.0	3/2$^-$

† From 1992Se03.

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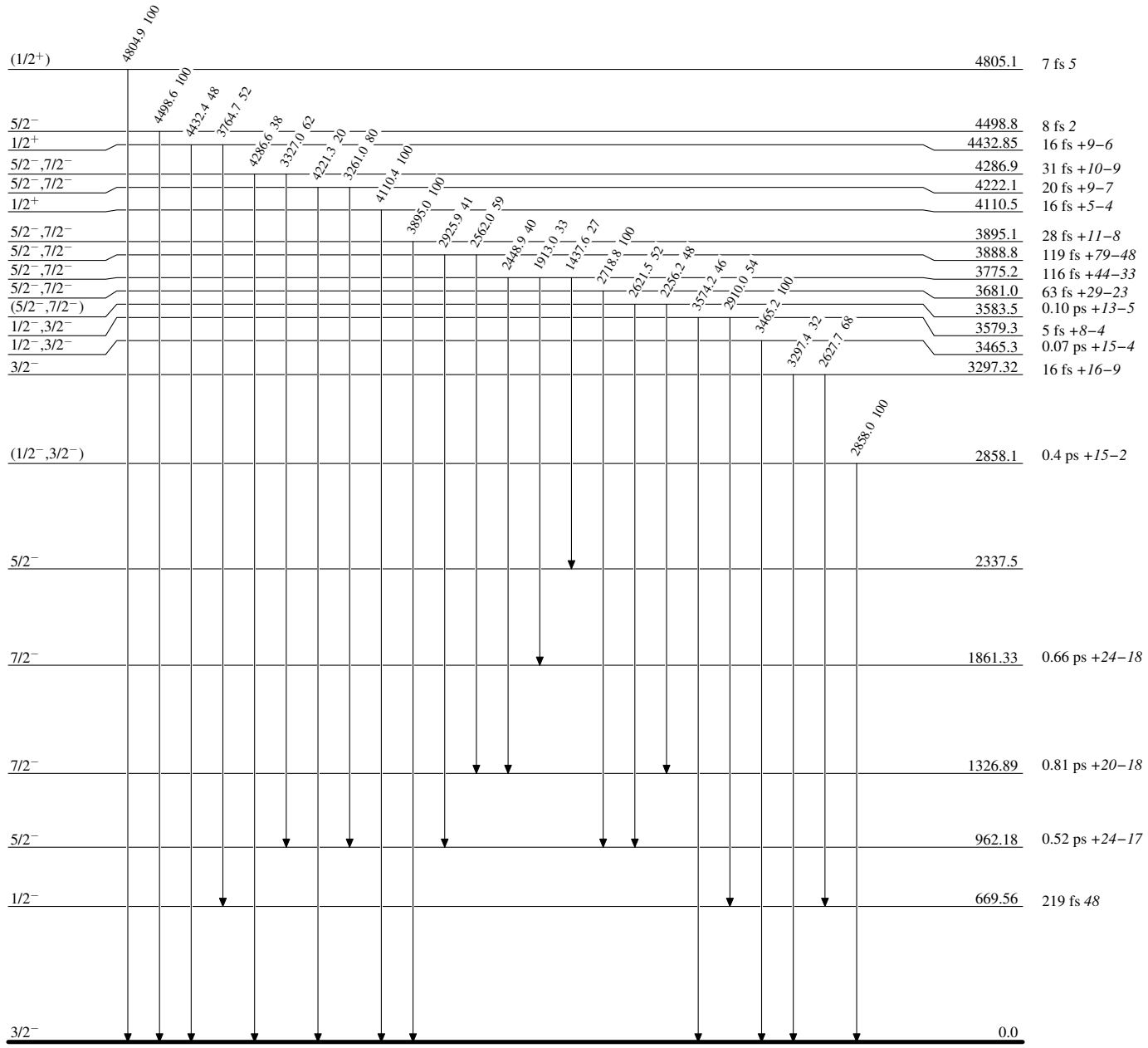
Level Scheme

Intensities: % photon branching from each level

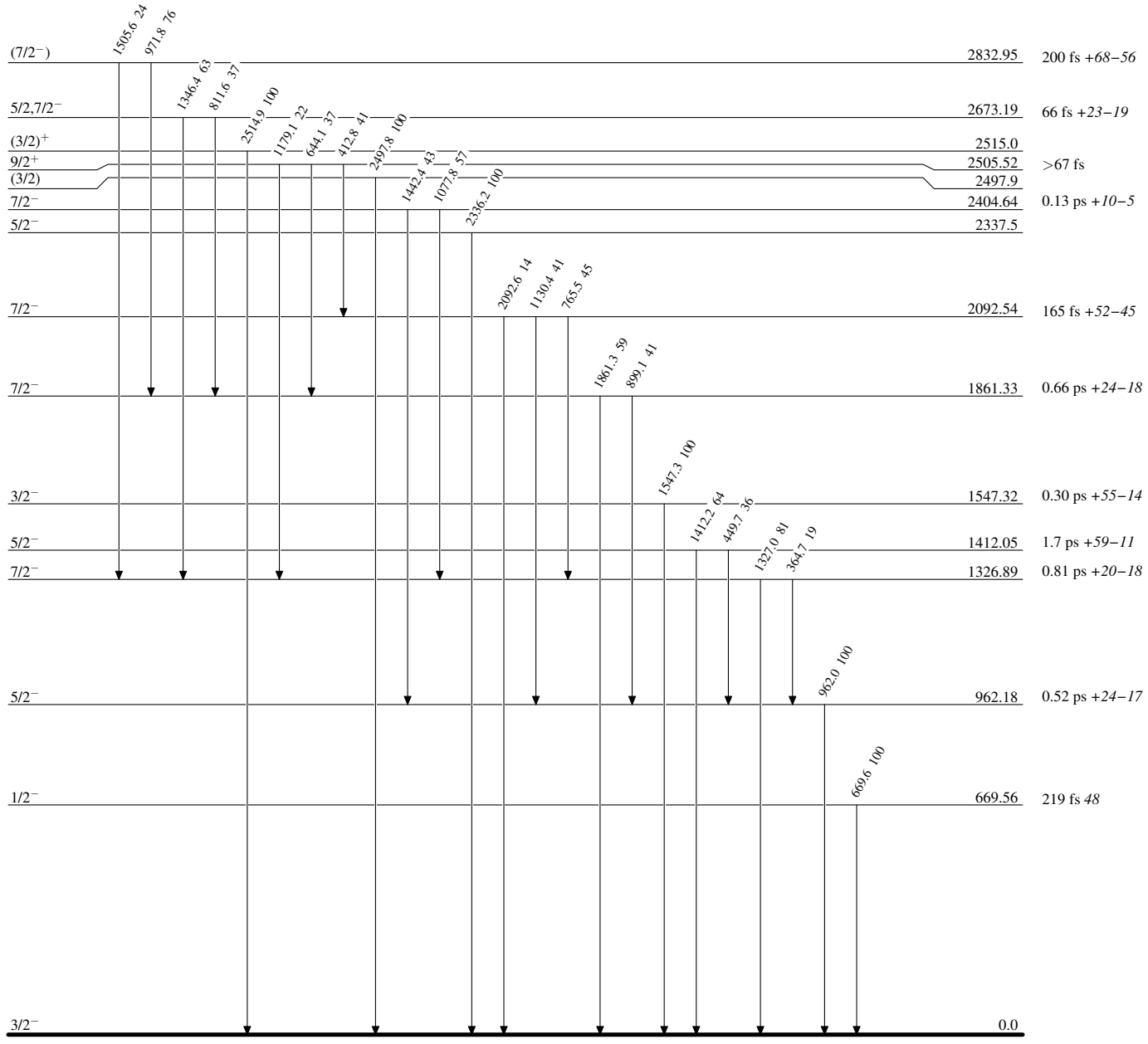


$^{63}_{29}Cu_{34}$

^{64}Zn(d,^{3}Heγ) 1992Se03

Level Scheme (continued)

Intensities: % photon branching from each level



$^{63}_{29}Cu_{34}$