^{114}Sn(n,n′γ) 1990Ar32

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 113, 515 (2012)	1-Jan-2012

^{114}Sn enriched target: 70%. Reactor neutron beam filtered with Cd, B_4C and metallic uranium. Preliminary results in 1990ZlZZ. Measured: γ, γγ, γ(θ). Energies measured at 90°, intensities at 125°. Linear polarization with a two-crystal Compton polarimeter. A comparison for all even isotopes ($^{114-124}$Sn) is made by 1991Go07, including the data of 1990Ar32.

^{114}Sn Levels

E(level)	Jπ†	$T_{1/2}$	E(level)	Jπ†	E(level)	Jπ†
0.0	0^+	stable	2905.10 *4*	4^+	3244.27? *10*	$4^-,5^-,6^-$
1299.908 *7*	2^+		2915.73 *14*	2^+	3308.4 *6*	0^+
1953.27 *2*	0^+		2943.43 *5*	$1,2^+,3$	3326.50 *16*	(1)
2156.28 *3*	0^+		3025.32 *10*	$2,3^+$	3357.2 *2*	4^+
2187.602 *11*	4^+		3028.09 *10*	$2,3^+$	3422.7 *9*	0^+
2238.953 *16*	2^+		3087.36 *6*	7^-	3448.37 *10*	
2274.976 *11*	3^-		3149.79 *13*	6^+	3451.7 *3*	6^+
2421.3 *3*	0^+		3186.15 *8*	2^+	3471.4 *7*	6^+
2454.073 *15*	2^+		3189.00 *10*	6^+	3479.3 *3*	(2^+)
2514.74 *2*	3^+		3190.6 *2*	(8^-)	3514.19 *10*	$2^+,3^+$
2614.466 *16*	4^+		3207.3 *2*	$2^+,3^+,4^+$	3561.2 *3*	2^+
2765.36 *4*	4^+		3211.8 *2*	$1,2^+$	3740.0 *2*	
2815.14 *2*	5^-		3225.73 *8*	$2^+,3^+$		
2859.81 *3*	4^+		3242.05? *10*	$3^+,4^+,5$		

† From γ(θ) and pol.

γ(^{114}Sn)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.#	Comments
103.2 *2*	0.18 *9*	3190.6	(8^-)	3087.36	7^-		
250.5 *5*	0.05 *2*	2765.36	4^+	2514.74	3^+		
272.22 *6*	0.52 *3*	3087.36	7^-	2815.14	5^-	E2‡	
x278.0 *2*	0.18 *3*						
285.6 *4*	0.040 *15*	2238.953	2^+	1953.27	0^+		
320.3 *4*	0.030 *10*	3225.73	$2^+,3^+$	2905.10	4^+		
327.15 *2*	3.8 *2*	2514.74	3^+	2187.602	4^+	M1+E2	Mult.: δ=∞ or +0.11 *2*.
334.65 *13*	0.21 *3*	3149.79	6^+	2815.14	5^-		
375.5 *6*	0.11 *3*	2614.466	4^+	2238.953	2^+		
390.5 *2*	0.28 *3*	2905.10	4^+	2514.74	3^+	M1+E2	δ: δ=+2.9 *11* or +0.49 *+8−4*.
426.8& *4*	0.10 *3*	2614.466	4^+	2187.602	4^+		
429.13& *10*	0.38 *3*	3244.27?	$4^-,5^-,6^-$	2815.14	5^-		
x449.0 *4*	0.09 *3*						
521.4 *3*	0.05 *2*	2943.43	$1,2^+,3$	2421.3	0^+		
540.15 *13*	0.35 *3*	2815.14	5^-	2274.976	3^-		
574.53@ *10*	0.40@ *3*	3189.00	6^+	2614.466	4^+	E2‡	I_γ: from Iγ=0.49 *3* for the doubly placed 574γ and Iγ deduced for placement from the 3479 level.
574.53@ *10*	0.090@ *20*	3479.3	(2^+)	2905.10	4^+		I_γ: from Iγ/Iγ(2179γ)=0.41 *8* in ε decay.
x582.2 *2*	0.14 *3*						
627.54 *2*	3.61 *15*	2815.14	5^-	2187.602	4^+	E1	
653.36 *2*	3.63 *15*	1953.27	0^+	1299.908	2^+		
668.48 *8*	0.56 *3*	2943.43	$1,2^+,3$	2274.976	3^-		

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^{114}Sn(n,n′γ) 1990Ar32 (continued)

γ(^{114}Sn) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ	Comments
717.49 *4*	1.13 *6*	2905.10	4^+	2187.602	4^+	M1+E2	+2.46 *23*	
x791.3 *4*	0.29 *3*							
856.37 *3*	2.12 *10*	2156.28	0^+	1299.908	2^+	E2		
x883.1 *3*	0.07 *3*							
887.690 *8*	16.5 *5*	2187.602	4^+	1299.908	2^+	E2		
x930.1 *2*	0.36 *6*							
939.036 *14*	4.27 *12*	2238.953	2^+	1299.908	2^+	M1+E2	−7.1 *+19−12*	
962.1†	0.35 *5*	3149.79	6^+	2187.602	4^+			
x966.8 *2*	0.35 *10*							
975.076 *8*	10.0 *3*	2274.976	3^-	1299.908	2^+	E1		
1001.4 *2*	0.10 *3*	3189.00	6^+	2187.602	4^+			
1054.44& *10*	0.52 *2*	3242.05?	$3^+,4^+,5$	2187.602	4^+			
x1109.6 *2*	0.30 *10*							
1121.4 *3*	1.56 *15*	2421.3	0^+	1299.908	2^+			
x1123.0 *5*	0.34 *10*							
1154.160 *14*	3.85 *13*	2454.073	2^+	1299.908	2^+	M1+E2	+7.5 *+18−13*	
1209.41 *10*	0.31 *10*	3448.37		2238.953	2^+			
1240.7†	0.35 *4*	3479.3	(2^+)	2238.953	2^+			I_γ: from Iγ/Iγ(2179γ)=0.67 *17* in (α,2nγ) one expects Iγ=0.15 *4* for placement from the 3479 level. This leaves Iγ=0.20 *6* for placement elsewhere.
1283.8 *7*	0.05 *2*	3471.4	6^+	2187.602	4^+			
1299.900 *7*	100	1299.908	2^+	0.0	0^+	E2		
1314.550 *14*	3.93 *12*	2614.466	4^+	1299.908	2^+	E2		
x1337.5 *2*	0.26 *5*							
1373.2 *3*	0.16 *2*	3326.50	(1)	1953.27	0^+			
x1395.1†	0.08 *3*							
1404.8 *3*	0.13 *4*	3561.2	2^+	2156.28	0^+	E2		
x1422.81 *13*	0.27 *2*							
1465.44 *4*	1.83 *8*	2765.36	4^+	1299.908	2^+	E2‡		
x1476.0 *8*	0.10 *5*							
1559.89 *3*	1.80 *6*	2859.81	4^+	1299.908	2^+	E2		
x1586.8 *2*	0.15 *3*							
x1602.2 *2*	0.15 *3*							
1604.7 *6*	0.05 *2*	2905.10	4^+	1299.908	2^+			
1615.9 *2*	0.28 *2*	2915.73	2^+	1299.908	2^+	M1+E2		Mult.: +0.08<δ<+1.69.
x1622.5 *3*	0.13 *4*							
1643.50 *7*	0.72 *3*	2943.43	$1,2^+,3$	1299.908	2^+	M1+E2		Mult.: δ=−0.61 *15* or −7 *+10−3*.
x1683.1 *3*	0.17 *2*							
1725.37 *6*	0.65 *4*	3025.32	$2,3^+$	1299.908	2^+			
1728.17 *10*	0.52 *2*	3028.09	$2,3^+$	1299.908	2^+			
x1778.85 *13*	0.35 *4*							
x1802.7 *3*	0.11 *2*							
x1817.4 *5*	0.08 *3*							
x1839.9 *6*	0.17 *5*							
x1854.8 *4*	0.12 *2*							
x1859.0 *4*	0.14 *2*							
1886.25 *8*	0.65 *5*	3186.15	2^+	1299.908	2^+	M1+E2		Mult.: δ=−0.27 *7* or +7 *+5−2*.
1907.4 *2*	0.30 *6*	3207.3	$2^+,3^+,4^+$	1299.908	2^+			
1912.0 *6*	0.08 *3*	3211.8	$1,2^+$	1299.908	2^+			
1925.80 *8*	0.59 *2*	3225.73	$2^+,3^+$	1299.908	2^+	M1+E2		Mult.: δ=+0.05 *5* for J=3 or −7.0 *+27−15* for J=2.
x1951.0 *4*	0.15 *3*							
x1988.6 *5*	0.12 *2*							

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^{114}Sn(n,n′γ) 1990Ar32 (continued)

γ(^{114}Sn) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	Comments
2008.5 *6*	0.11 *3*	3308.4	0^+	1299.908	2^+		
2026.6 *2*	0.21 *2*	3326.50	(1)	1299.908	2^+		
x2053.1 *5*	0.14 *2*						
2057.3 *2*	0.42 *2*	3357.2	4^+	1299.908	2^+		
2122.8 *9*	0.06 *3*	3422.7	0^+	1299.908	2^+		
x2134.9 *6*	0.05 *2*						
2148.5 *6*	0.08 *4*	3448.37		1299.908	2^+		
2179.4 *3*	0.22 *2*	3479.3	(2^+)	1299.908	2^+		
2214.26 *10*	0.44 *4*	3514.19	$2^+,3^+$	1299.908	2^+	M1+E2	Mult.: δ=−0.02 *5* for J=3 or −4.3 *10* for J=2.
x2225.2 *6*	0.10						
2238.94 *2*	5.2 *2*	2238.953	2^+	0.0	0^+	E2[‡]	
x2257.6 *3*	0.10 *2*						
x2283.6 *3*	0.14 *3*						
x2340.4 *8*	0.06 *2*						
x2378.9[†]	0.09 *4*						
x2392.1 *5*	0.07 *3*						
x2414.9 *6*	0.08 *3*						
2440.1 *2*	0.38 *5*	3740.0		1299.908	2^+		
2454.02 *7*	1.18 *8*	2454.073	2^+	0.0	0^+	E2	
x2460.4 *6*	0.06 *3*						
x2483.6 *6*	0.05 *3*						
x2495.1 *6*	0.08 *4*						
x2522.2 *7*	0.06 *3*						
x2548.1[†]	0.09 *3*						
x2585.3 *4*	0.11 *3*						
x2592.9 *7*	0.06 *3*						
x2651.8 *14*	0.08 *3*						
x2657.6 *9*	0.07 *3*						
x2670.1 *11*	0.10 *3*						
x2683.7 *11*	0.07 *3*						
x2718.7 *13*	0.09 *4*						
x2754.3 *10*	0.07 *3*						
x2778.9 *7*	0.12 *3*						
x2834.5 *7*	0.10 *3*						
x2852.2 *12*	0.09 *3*						
2915.6 *2*	1.21 *6*	2915.73	2^+	0.0	0^+	E2[‡]	
x2947.2 *15*	0.06 *3*						
x2960.3 *7*	0.10 *3*						
x2999.2[†]	0.20 *7*						
x3056.9 *17*	0.06 *3*						
x3062.0 *17*	0.06 *3*						
x3126.4 *10*	0.07 *4*						
x3166.6[†]	0.09 *4*						
3185.8 *2*	0.33 *4*	3186.15	2^+	0.0	0^+	E2[‡]	
3211.7 *2*	0.29 *3*	3211.8	$1,2^+$	0.0	0^+		
x3241.0[†]	0.10 *5*						
x3256.1[†]	0.06 *4*						
x3268.5[†]	0.11 *5*						
3326.3 *6*	0.15 *3*	3326.50	(1)	0.0	0^+	D	
x3342.6 *15*	0.06 *4*						
x3385.3 *7*	0.06 *4*						
x3437.5 *6*	0.10 *4*						
3451.7 *3*	0.50 *5*	3451.7	6^+	0.0	0^+		
x3465.0 *12*	0.07 *4*						

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^{114}Sn(n,n′γ) 1990Ar32 (continued)

γ(^{114}Sn) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	E_γ	I_γ	E_i(level)
[x]3493.9 *8*	0.15 *3*					[x]3911.3 *17*	0.13 *6*	
[x]3539.3 *9*	0.09 *3*					[x]3934.1 *18*	0.11 *6*	
3561.4 *7*	0.28 *4*	3561.2	2^+	0.0	0^+	[x]4021.4 *15*	0.08 *4*	
[x]3650.0 *10*	0.08 *4*					[x]4136.6 *15*	0.09 *3*	
[x]3679.2 *10*	0.09 *4*					[x]4148 *2*	0.06 *3*	
[x]3792.5 *7*	0.13 *6*					[x]4204 *4*	0.07 *3*	
[x]3868.0 *16*	0.11 *5*							

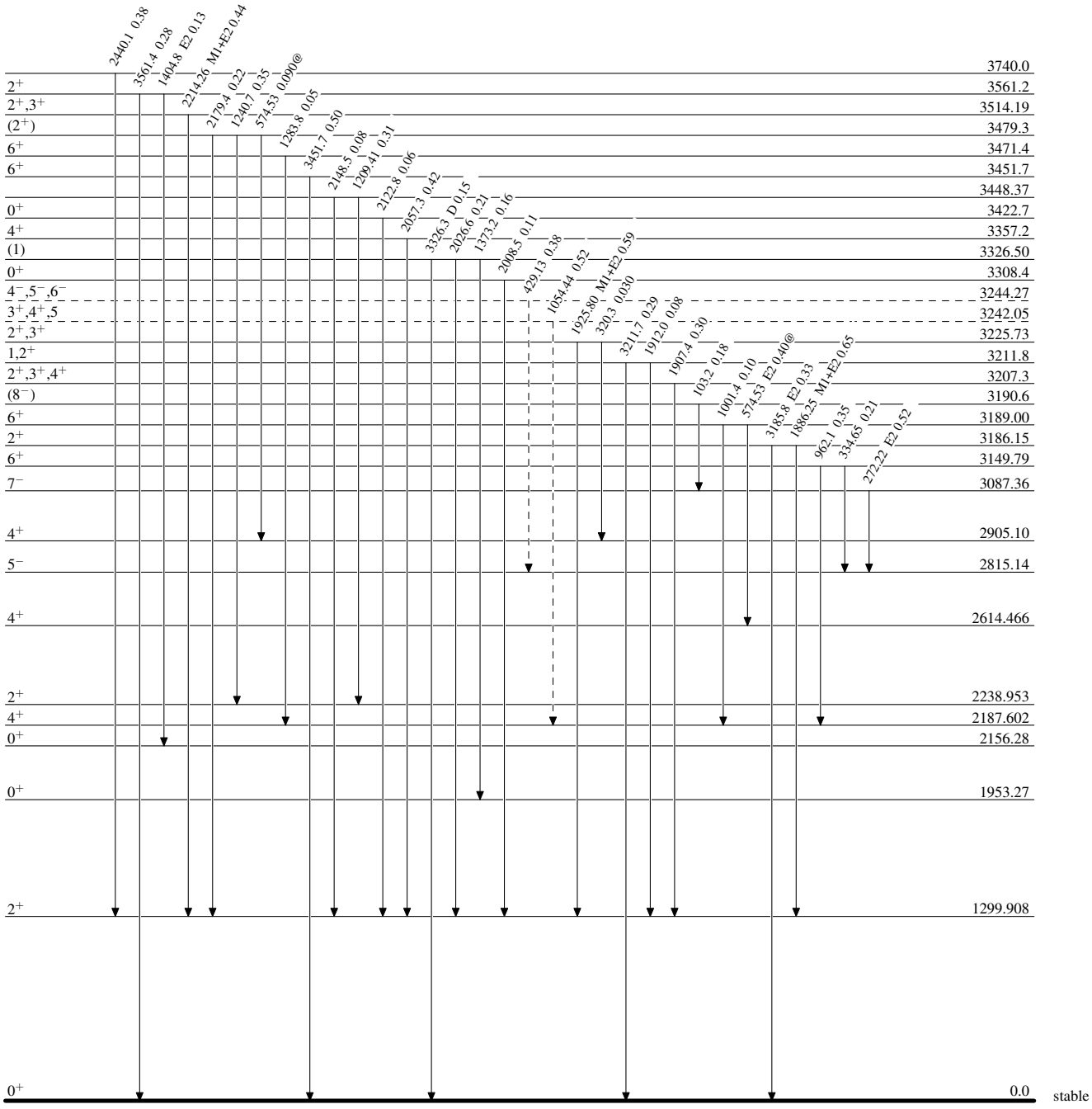
† Complex peak.
‡ From γ(θ). Mult=Q, assumed to be E2.
# From γ(θ, linear pol), except as noted otherwise.
@ Multiply placed with intensity suitably divided.
& Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

^{114}Sn(n,n′γ) 1990Ar32

Level Scheme

Intensities: Relative I_γ
@ Multiply placed: intensity suitably divided

Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)



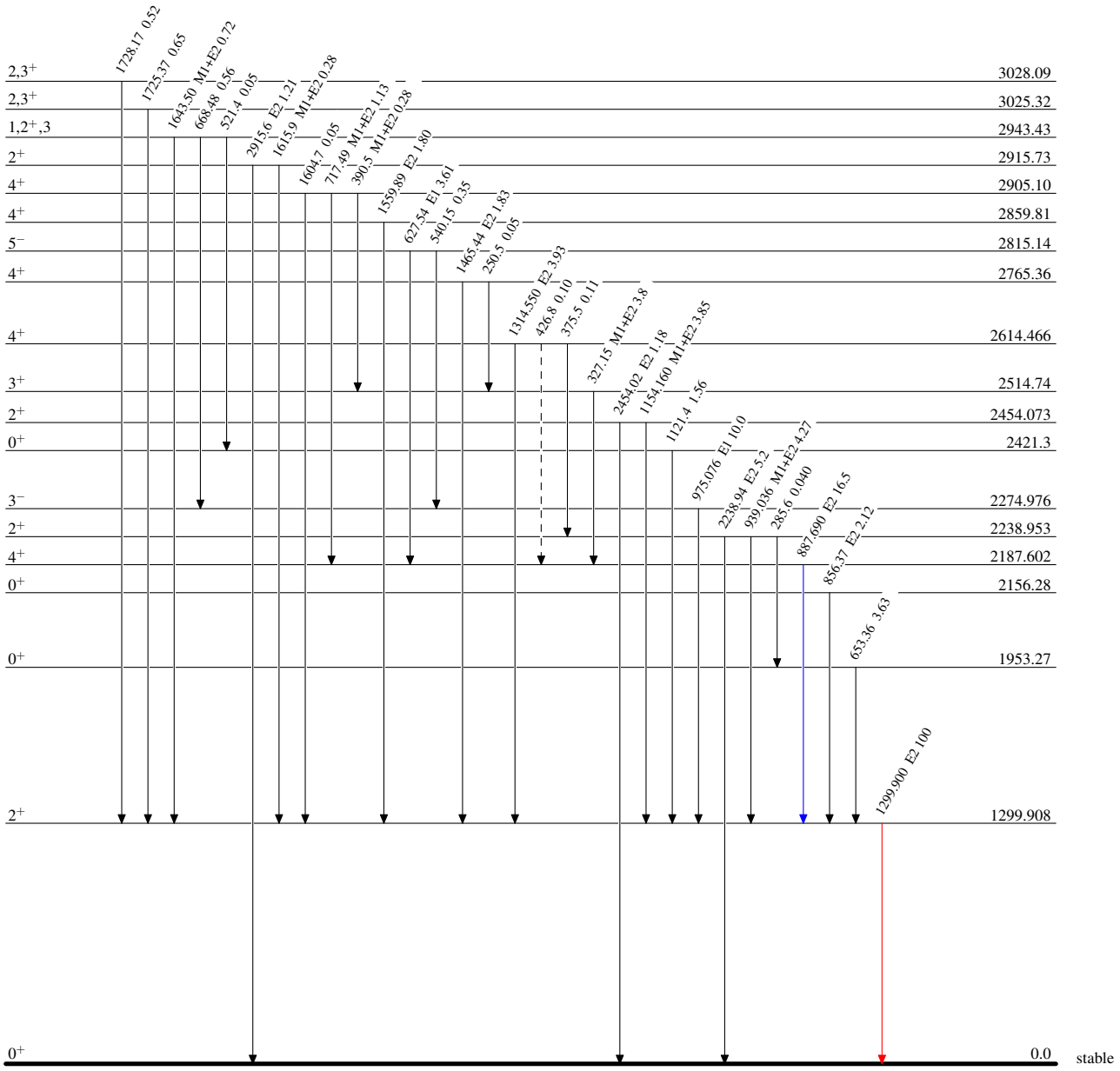
$^{114}_{50}Sn_{64}$

^{114}Sn(n,n′γ) 1990Ar32

Level Scheme (continued)

Intensities: Relative I_γ
@ Multiply placed: intensity suitably divided

Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)



$^{114}_{50}Sn_{64}$