

Target isotope: $^{54}_{26}\text{Fe}$ $I^\pi_\circ = 0^+$ Abundance: 5.845(35) % $Q_\alpha = 6399.52(65)$ keV							$^{58}_{28}\text{Ni}(\alpha)$
E_\circ	J^π	T	θ^2_α	Γ	E_{cm}	E^*	Ref.
[keV]				[keV]	[keV]	[keV]	
6650	[5 ⁻]		0.051	11	6190	12600	77Gr03
6790	[1 ⁻]		0.015	20	6320	12730	77Gr03
6970	[3 ⁻]		0.017	26	6490	12900	77Gr03
7304	[1 ⁻]				6800	13200	77Gr03

J^π values are that predicted theoretically; the parameter $\theta^2_\alpha = \gamma^2_\alpha$ is a reduced width (in units $5\hbar/8Ma^2$ for the channel radius $a=7.64$ fm and reduced mass M), calculated by averaging $d\sigma/d\Omega$.

Target isotope: $^{59}_{27}\text{Co}$ $I^\pi_\circ = 7/2^-$ Abundance: 100 % $S_p = 9533.46(48)$ keV							$^{60}_{28}\text{Ni}(p)$
E_\circ	J^π	Rel.int.	E^*_{analog}	E_{cm}	E^*	Ref.	
[keV]		γ_i	[keV]	[keV]	[keV]		
1479		656		1454	10988		75Er05
1537		515		1511	11045	71De25	75Er05
1632	$\langle 5^+ \rangle$	286	$\langle 0 \rangle$	1605	11138		75Er05
1643		400		1616(4)	11149	76Ah08	75Er05 67Ar01
1652		313		1624	11158		75Er05 67Ar01
1702		342		1674	11207	76Ah08	75Er05 67Ar01
1721		414		1692	11226		75Er05
1928	$\langle 3^+, 4^+ \rangle$	324	282	1896	11429	76Ah08	75Er05 67Ar01
1945		272		1913	11446	76Ah08	75Er05 67Ar01
2006*				1973	11506	76Ah08	
2092	$\langle 5^+ \rangle$	317	432	2057	11591	76Ah08	71De25 75Er05 67Ar01
2154	$\langle 3^+ \rangle$	γ	501	2118	11652	76Ah08	71De25 67Ar01
2208	$\langle 2^+ \rangle$	γ	541	2171	11705	76Ah08	71De25 67Ar01
2236				2199	11732	76Ah08	
2275	$\langle 3^+ \rangle$		612	2237	11771	76Ah08	67Ar01
2381	$\langle 1^+, 2^+ \rangle$		738	2341	11875	76Ah08	67Ar01
2439		γ		2398	11932	76Ah08	71De25
2647				2603	12136	76Ah08	
2886				2838	12371	76Ah08	
2980				2930	12464	76Ah08	
3004				2954	12487	76Ah08	
3033				2982	12516	76Ah08	

Additional data on this isotope can be found in [74Fo03].

* Resonance energies $E_\circ > 2000$ keV are from [76Ah08] where comparison with the other data was made. Energies E_\circ correspond to the positions of groups of proton resonances (seen partially in the high-resolution (p,n)-data).

γ -ray spectra from six and ten resonances were measured in [71De25] and [75Er05], respectively. Intensities of γ -rays from the proton capture states are normalized, so that the intensity of the 1332 keV γ ground-state transition from the first (2^+) excited state is 1000 [75Er05].

Branching ratios of γ -transitions [75Er05]. Part 1. $^{60}_{28}\text{Ni}(\text{p})$

E^*	J^π	T	E_o	Branching ratios										Com.
[keV]			[keV]	Percentage										
			0.0 0 ⁺	1333 2 ⁺	2159 2 ⁺	2506 4 ⁺	2626 3 ⁺	3120 4 ⁺	3186	3269 2 ⁺	3393 2 ⁺	3620	E^*, keV J_f^π	
1332.51(1)	2 ⁺		100											
2158.64(3)	2 ⁺		15(2)	85(2)										
2284.87(14)	0 ⁺													
2505.77(1)	4 ⁺			100										
2626.08(10)	3 ⁺			39(2)	61(2)									
3119.70(9)	4 ⁺			92(2)			8(2)							
3124.02(13)	2 ⁺													
3186.02(7)				33(5)	36(5)	31(5)								
3194.02(13)	1 ⁺ , 2 ⁺													
3269.38(16)	2 ⁺			100										
3318.7(10)	0 ⁺													
3381(4)														
3393.5(3)	2 ⁺			100										
3588.1(10)	0 ⁺													
3619.55(14)							100							
3622.9(10)														
3670.71(8)	4 ⁺					100								
10985			1479	42	27	194	167	46	53			35		
11045			1540	4	29	37	136	23	62	69		17		
11136			1632	33	15	56	11	42	13					
11147			1643	47	9	80	17	23	17					
11155			1652	7	31	66	49	48	44		19	29		
11205			1702	9	57	26	50	20	45	43	7	19		
11223			1721	3	50	35	45	53	30	17	11	6	29	
11427			1928		12	32	35	66	21	25	7		20	
11444			1945		16	31	77	20	55	15	1			
11597			2101		9	9	86	42	29	7	3			

Branching ratios of γ -transitions [75Er05]. Part 2. $^{60}_{28}\text{Ni}(\text{p})$

E^*	J^π	E_o	Branching ratios														
[keV]		[keV]	Percentage														
E^*			3671	3731	3925	4040	4079	4165	4295	4407	4761	4800	4848	4986	5445	5532	5780
J_f^π			4 ⁺														
4407.45(14)			65(10)														
4985.72(10)	$\langle 6^+ \rangle$		15(7)														
10985		1479	44		48												

(continued)

$^{60}_{28}\text{Ni}(\text{p})$

E^*	J^π	E_{o}	Branching ratios														
[keV]		[keV]	Percentage														
E^*		3671	3731	3925	4040	4079	4165	4295	4407	4761	4800	4848	4986	5445	5532	5780	
J^π_{f}		4^+															
11045	1540	29	41				43			25							
11136	1632	41			8		29	9			12					21	
11147	1643	48	13	9			17	8	22		30		36			25	
11155	1652	20															
11205	1702	7				14				15	15	15					
11223	1721	10	22	10		20				29		15		17	12		
11427	1928	33	22	16			14		21								
11444	1945	43	15														
11597	2101	29	34	16				19	34								