

Target isotope: $^{55}_{25}\text{Mn}$ $I^\pi_\circ = 5/2^-$ Abundance: 100 % $S_\text{p} = 10183.59(17)$ keV

$^{56}_{26}\text{Fe}(\text{p})$

E_\circ	J^π	T	Y_{p_1}	Y_{n_1}	Y_γ	Y_Σ	Γ	E^*_{analog}	E_{cm}	E^*	Ref.
[keV]							[keV]	[keV]	[keV]	[keV]	
1287.6(30)			6.2		8.7	14.9			1264	11448(3)	88St14
1301.9(30)			31.7			31.7			1278	11462(3)	88St14
1321.3(30)			16.2			16.2			1297	11481(3)	88St14
1331.8(30)			7.5			7.5			1308	11491(3)	88St14
1344.1(3)	3^+	$\langle 3 \rangle$	21.8		45*	68.6	1.8	0.0	1324	11503.9(2)**	00Ma82 74Pe15 70Sa19 68Ot02
1367.8(30)			19.8			19.8			1343	11527(3)	88St14
1375.1(30)	$\langle 2^+ \rangle$				14.6	14.6	3.5	26	1350	11534(3)	88St14 74Pe15 70Sa19 68Ot02
1387.3(30)			11.2		16.6	27.8			1362	11546(3)	88St14 74Pe15
1410.3(30)			21.2		10.4	31.6			1385	11568(3)	88St14
1424.4(30)					7.7	7.7			1399	11582(3)	88St14
1441.0(2)	1^+	$\langle 3 \rangle$	3.9		21*	24.7	2.9	111	1416	11599.1(1)	00Ma82 74Pe15 70Sa19 68Ot02
1455.4(3)	$\langle 1^+ \rangle$	$\langle 3 \rangle$			31*	31.0			1425	11613.2(2)	00Ma82 88St14 74Pe15 70Sa19
1463.7(30)			6.2		17.4	23.6			1437	11621(3)	88St14
1474.2(30)				0.4	9.7	10.1			1447	11631(3)	88St14
1480.7(3)	$3^{\langle - \rangle}$		14.3	0.9	40*	55.6			1458	11638.1(2)	00Ma82
1483.4(3)	$3^{\langle - \rangle}$	incl	incl	incl	incl*	incl			1458	11640.8(2)	00Ma82 88St14
1486.9(3)	$3^{\langle - \rangle}$	incl	incl	incl	incl*	incl			1458	11644.3(3)	00Ma82
1501.1(30)				5.6	18.1	23.7			1474	11657(3)	88St14
1507.2(3)	$\langle 3^- \rangle$		14.0	2.9	28*	44.8			1481	11664.1(2)	00Ma82 88St14
1521.3(3)	$\langle 4^+ \rangle$	$\langle 3 \rangle$	29.8	1.4	69*	99.9		212	1494	11678.0(3)	00Ma82 88St14
1524.1(2)	$\langle 4^+ \rangle$	$\langle 3 \rangle$	incl	incl	incl*	incl			1496	11680.7(1)	00Ma82
1531.8(2)	$\langle 4^+ \rangle$	$\langle 3 \rangle$	27.8		57*	84.5			1503	11688.3(1)	00Ma82 88St14 74Pe15 76OtZV
1535.9(2)	$\langle 2^+ \rangle$	$\langle 3 \rangle$	100.7	12.6	112*	225.6	3.7	215	1510	11692.2(1)**	00Ma82 74Pe15 70Sa19 68Ot02
1548.0(30)			6.6	3.9	26.6	37.1			1520	11704(3)	88St14
1557.0(30)			9.9	9.4	35.1	54.4			1529	11713(3)	88St14
1571.7(30)					27.4	27.4			1543	11727(3)	88St14
1578.1(30)			22.0	14.6		36.6			1549	11733(3)	88St14
1586.3(30)					20.2	20.2			1558	11741(3)	88St14
1593.8(30)			10.7	4.0	13.6	23.8			1565	11748(3)	88St14
1603.7(30)				5.6	9.3				1575	11758(3)	88St14
1612.6(30)			26.6	4.0	16.4				1583	11767(3)	88St14
1623.2(30)				7.9	15.4				1594	11777(3)	88St14
1634.3(30)			20.1	10.7	21.4	52.2			1605	11788(3)	88St14
1644.0(30)				7.0	7.0				1615	11798(3)	88St14
1652.4(30)			17.8	15.9	22.9	56.6			1622	11806(3)	88St14
1667.7(30)				9.1	12.8	21.9			1637	11821(3)	88St14
1670.5(30)			7.7	2.3	11.1	21.1			1640	11824(3)	88St14
1679.0(2)	$\langle 3^+ \rangle$	$\langle 3 \rangle$	31.3	11.4	39*	81.2	7.8	341	1650	11832.9(1)	00Ma82 88St14 74Pe15 68Ot02
1687.2(2)	$\langle 3^+ \rangle$	$\langle 3 \rangle$	43.1	11.9	40*	95.0			1659	11841.0(2)**	00Ma82 88St14 74Pe15
1696.5(5)	$\langle 3^+ \rangle$	$\langle 3 \rangle$		9.3	28*				1667	11850.0(4)	00Ma82 88St14 74Pe15
1704.7(30)				8.4	16.6				1674	11857(3)	88St14 74Pe15
1709.9(30)				9.6					1679	11863(3)	88St14
1713.6(30)			73.6		12.8				1683	11866(3)	88St14
1720.5(30)				5.5	11.6				1689	11873(3)	88St14
1726.7(3)	$\langle 5^+ \rangle$	$\langle 3 \rangle$		10.0	40*			335	1697	11879.7(2)**	00Ma82 88St14 74Pe15

(continued)

 $^{56}\text{Fe}(\text{p})$

E_o	J^π	T	Y_{p1}	Y_{n1}	Y_γ	Y_Σ	Γ	E_{analog}^*	E_{cm}	E^*	Ref.		
[keV]							[keV]	[keV]	[keV]	[keV]			
1734.0(4)	$\langle 5^+ \rangle$	$\langle 3 \rangle$		14.3	incl*	14.3			1705	11886.9(3)	00Ma82	88St14	
1743.3(30)			9.7	5.8		15.5			1712	11895(3)	88St14		
1752.0(30)				7.0	36.9	43.9			1721	11904(3)	88St14		
1761.0(6)	$\langle 4^+ \rangle$		20.7	150.4	21*	191.8			1730	11913.4(5)	00Ma82	88St14	
1773.2(2)	$3^{\langle - \rangle}$		27.7		53*	80.6		454	1741	11925.4(1)	00Ma82	88St14	73Ah03
1777.1(30)		$\langle 3 \rangle$		88.4		88.4			1745	11929(3)	88St14	74Pe15	68Ot02
1783.0(30)					22.1	22.1			1751	11935(3)	88St14		
1787.2(30)				27.9		27.9			1755	11938(3)	88St14		
1796.1(2)	$\langle 4^- \rangle$		32.3		32*	67.5			1760	11947.8(1)	00Ma82	88St14	
1801.0(3)	4^+		82.8	29.3	52*	164.0			1766	11952.7(2)**	00Ma82	88St14	
1806.6(3)	$\langle 3^+ \rangle$	$\langle 3 \rangle$	311.2	23.8	46*	380.8	11	486	1773	11958.1(2)	00Ma82	74Pe15	68Ot02 73Ah03
1809.7(30)	$\langle 1^+ \rangle$		77.6		16.5	94.1			1777	11961(3)	88St14	74Pe15	
1817.7(30)			60.6	7.7	46.5	114.8			1785	11968(3)	88St14		
1828.9(30)			24.0	65.8	26.2	116.0			1796	11979(3)	88St14		
1834.4(30)				51.4		51.4			1801	11985(3)	88St14		
1840.8(30)			20.8		29.5	50.3			1807	11991(3)	88St14		
1845.0(30)				39.5		39.5			1812	11996(3)	88St14		
1853.2(30)			19.2	56.9		76.1			1820	12003(3)	88St14		
1861.1(30)				64.7	32.9	97.6			1827	12011(3)	88St14		
1873.0(30)			16.9	95.7	28.3	140.9			1840	12023(3)	88St14		
1885.0(30)			19.0		38.9	57.5			1851	12035(3)	88St14		
1890.0(30)				45.1		45.1			1856	12040(3)	88St14		
1896.5(30)			12.4	31.9	27.3	71.6			1862	12046(3)	88St14		
1904.8(30)			24.3	80.9	34.5	139.7			1870	12054(3)	88St14		
1917.0(30)			5.9	61.6	16.4	83.9			1883	12066(3)	88St14		
1924.1(30)				47.0		47.0			1889	12073(3)	88St14		
1931.6(30)			10.2	181.2	29.7	221.1			1897	12080(3)	88St14		
1942.8(30)					21.6	21.6			1908	12091(3)	88St14		
1947.4(30)			22.1	83.9	17.6	123.6			1912	12096(3)	88St14		
1959.2(30)			25.0			25.0			1924	12107(3)	88St14		
1962.7(30)				79.7	51.4	131.1			1927	12111(3)	88St14		
1972.9(30)			22.3	223.9	48.2	294.4			1937	12121(3)	88St14		
1987.7(30)			7.1	221.2	22.3	250.6			1952	12135(3)	88St14		
2001.3(30)			16.7	145.5	61.0	223.2		716	1965	12149(3)	88St14	73Ah03	
2108(10)								750	2070	12254(10)	73Ah03		
2148(10)								839	2110	12293(10)	73Ah03		
2458(10)								1166	2414	12598(10)	73Ah03		
2505(10)								1180	2460	12644(10)	73Ah03		
2560(10)								1236	2514	12698(10)	73Ah03		
2583(10)								1252	2537	12720(10)	73Ah03		
2620(10)								1291	2573	12757(10)	73Ah03		
2685(10)								1321	2637	12821(10)	73Ah03		
2709(10)								1348	2661	12844(10)	73Ah03		
2733(10)								1376	2684	12868(10)	73Ah03		
2797(10)								1434	2747	12931(10)	73Ah03		

(continued)

 $^{56}_{26}\text{Fe}(\text{p})$

E_{o}	J^{π}	T	Y_{p1}	Y_{n1}	Y_{γ}	Y_{Σ}	Γ	E_{analog}^*	E_{cm}	E^*	Ref.
[keV]							[keV]	[keV]	[keV]	[keV]	
2852(10)								1483	2801	12985(10)	73Ah03
2886(10)								1510	2834	13018(10)	73Ah03
2944(10)								1557	2891	13075(10)	73Ah03
2971(10)								1582	2918	13102(10)	73Ah03
3012(10)								1639	2958	13142(10)	73Ah03

Additional data on this isotope can be found in [92Ma23, 91Gu0A, 88St03, 78Se02, 78Vi03, 76El09, 76OtZV, 75KaYV, 74Fo03, 74Pe15, 73El05, 73El16, 70Sa19, 69Fr22, 68Ot02, 67Me13].

* spectra from these resonances including the possible IAS (Isobar-Analog States) of the low-lying excitations of ^{56}Mn were studied in [03Kr11]; values E_{o} and E^* in [88St14] and [00Ma82] are shifted relative to each other by several keV.

** probable doublets with $E^*=11503.3(1)$ – $11504.2(1)$, $11691.6(2)$ – $11692.4(1)$

$11840.8(1)$ – $11841.7(2)$, $11879.3(2)$ – $11880.2(2)$ and $11952.3(2)$ – $11953.1(1)$ keV [00Ma82].

In the separate table parameters of 36 resonances in the energy region $E_{\text{o}}=1420$ – 1470 keV [92Gu03] are given. Intensities of γ -transitions are given together with branching ratios from other works in which 4 strong resonances in this region were investigated [88St14].

Compound states in ^{56}Fe decay through different states: 1) the first excitations of ^{55}Mn , γ -yield Y_{p1} with $E_{\gamma}=126$ keV, 2) the first excited state of ^{55}Fe , γ -yield Y_{n1} with $E_{\gamma}=411$ keV and 3) the first excited state of ^{56}Fe , γ -yield with $E_{\gamma}=846$ keV, Y_{Σ} is a sum of these yields.

Parameters of proton resonances in the region $E_{\text{o}}=1420$ – 1470 keV [92Gu03] $^{56}_{26}\text{Fe}(\text{p})$

E_{o}	$S_{\text{p}\gamma}$	S_{pn}	Γ_{p}	Γ_{n}	Γ_{γ}	Γ
[keV]	[eV]	[eV]	[eV]	[eV]	[eV]	[eV]
1419.89(11)	0.11					
1420.56(11)	0.14	2.6(6)				
1421.69(15)	0.11	1.9(6)				
1426.64(18)	≈ 0.02	1.5(4)				
1427.80(11)	0.05					
1428.89(11)	0.02					
1429.89(11)	0.07	0.6(2)				
1431.06(18)	≈ 0.04	1.2				
1431.82(18)	≈ 0.06	1.5				
1434.66(18)	0.19	4.6(13)				
1435.42(15)	0.5(1)	0.7				
1437.23(15)	0.02	0.03				
1438.48(15)	≈ 0.04	0.22				
1438.78(11)		0.3(1)				
1439.88(15)	0.09	0.9(4)				
1440.64(7)	2.1(2)	17(4)	16	6.1	0.8	22.5
1443.86(10)	0.19					

(continued)

 $^{56}_{26}\text{Fe}(\text{p})$

E_{o}	$S_{\text{p}\gamma}$	S_{pn}	Γ_{p}	Γ_{n}	Γ_{γ}	Γ
[keV]	[eV]	[eV]	[eV]	[eV]	[eV]	[eV]
1445.72(8)	0.6(1)	2.4(6)	4	1.0	0.26	5.7
1446.38(18)		0.22				
1447.92(10)	0.54					
1448.77(11)		0.9(2)				
1449.4(2)	≈ 0.4					
1451.74(11)	0.4(1)	0.15				
1452.62(18)		0.6				
1453.17(18)		0.7(3)				
1454.47(18)		0.6				
1455.18(7)	1.8(3)	2.4(6)	13	0.9	0.7	14.6
1456.72(18)		0.15				
1457.31(15)	≈ 0.1					
1460.04(10)	0.4(1)	0.5(1)				
1461.87(11)		0.3(1)				
1462.50(11)	0.7					
1462.86(11)		0.9(2)				
1466.05(14)	0.08	0.6(2)				
1469.1(2)	≈ 0.15	2.0(8)				
1469.8(3)	≈ 0.02	1.2				

For $S_{\text{p}\gamma}$ values without stated errors the uncertainty is estimated as 30% , for those with a sign \approx it might amount to a factor of two, for S_{pn} values the uncertainty amounts to a factor of two.

Branching ratios of γ -transitions [03Kr11, 92Gu03, 00Ma82, 02Nu0A]. Part 1. $^{56}_{26}\text{Fe}(\text{p})$

E^*	J^{π}	Γ_{cm}	$t_{1/2}$	E_{o}	Branching ratios									
[keV]		[keV]	[fs]	[keV]	Percentage									
E^*				0.0	847	2085	2658	2942	2960	3120	3370	3389	3445	3448
J^{π}_{f}				0^+	2^+	4^+	2^+	0^+	2^+	X^+	2^+	6^+	3^+	1^+
846.776(5)	2^+			100										
2085.076(7)	4^+													
2657.56(1)	2^+			2.9(4)	97.1(4)									
2941.50(3)	0^+													
2959.92(1)	2^+													
3076.59(3)	$\langle 3^- \rangle$		54(+17-11)		68(9)	32(9)								
3120.11(5)	$\langle 1^+ \rangle$			4.6(7)	95.4(7)									
3122.927(7)	4^+													
3369.84(4)	2^+													
3388.55(5)	6^+													
3445.31(1)	3^+													
3448.41(6)	1^+			75(2)	25(2)									

(continued)

 $^{56}_{26}\text{Fe(p)}$

E^*	J^π	$t_{1/2}$	Branching ratios										
[keV]		[fs]	Percentage										
E^* J^π_f			0.0 0^+	847 2^+	2085 4^+	2658 2^+	2942 0^+	2960 2^+	3120 X^+	3370 2^+	3389 6^+	3445 3^+	3448 1^+
3600.21(7)	$\langle 1,2^+ \rangle$		83(3)	17(3)	<2	<2							
3605.69(6)	2^+		33(3)	59(3)	<0.8	8.4(12)							
3610.21(19)	$0^{(+)}$		<7	100	<0.7	<1.5							
3744.13(24)	2^+			100									
3755.57(4)	6^+												
3759.6(10)	$\langle 2-6 \rangle$												
3829.77(9)	2^+		18(2)	52(5)		30(5)							
3856.449(7)	3^+												
4048.83(1)	3^+												
4085.93(17)	$\langle 1,2^+ \rangle$		25(6)	75(6)									
4100.307(8)	4^+												
4119.87(1)	3^+												
4298.04(1)	4^+												
4300.0(4)	0^+												
4368.13(25)*	3^-												
4394.83(6)	3^+												
4401.27(5)	2^+	81(+69-31)		64(2)	<4			7.5(15)		<1.3		29(2)	
4447.6(4)													
4458.53(1)	4^+												
4509.56(8)	3^-	54(+14-10)	***	98(18)	20(8)	100			28(15)	39(17)			
4539.5(6)	$1^+, 2^+$		18(1)	8.5(7)	2.7(6)	34.3(13)		36(2)				<0.8	<0.8
4554.77(9)	4^+	135(+62-35)	***	7(3)	100	11(4)			34(8)		16(4)		
4608.56(11)*	2^+	68(+48-26)	***	47(7)	100	9(4)	10(5)		19(8)				
4610.82(18)	4^+	39(+56-21)	***	100	77(28)	33(8)		15(8)					
4620(4)													
4658.26(5)	$\langle 2-4 \rangle^+$	71(+12-10)	<2	40(3)	60(3)	<2		<3		<2		<2	
4673.41(19)													
4683.04(5)	3^+	95(+91-36)	***	100	100(50)				24(10)	<48			
4692.32(4)*	4^+	48(+14-10)	***	17(3)	100	51(13)			16(5)				
4700.63(13)	7^+												
4728.14(18)	2^+		10(3)	90(3)									
4730.0(10)	0^+												
4737.33(4)	2^+	46(+10-8)	40(15)	27(6)	***	100							
4784.12(25)	$\langle 1,2^+ \rangle$		44(4)	46(4)					10(3)				
4812.68(10)	$4^+, 5^+$											x	
4822													
4847.88(27)	$\langle 2^+ \rangle$	64(27)			x	x							
4866.52(3)	$\langle 1,2^+ \rangle$		2.8(5)	51.2(12)	<0.4	28.1(8)			1.1(3)	4.0(2)		0.9(3)	8(1)
4877(5)	4^+	51(+14-10)	24(7)	42(7)	34(5)								
4878.28(6)	2^+												
4881.7(6)													
4887.1(12)													

(continued)

 $^{56}_{26}\text{Fe}(\text{p})$

E^*	J^π	$t_{1/2}$	Branching ratios										
[keV]		[fs]	Percentage										
E^* J^π_{f}			0.0 0^+	847 2^+	2085 4^+	2658 2^+	2942 0^+	2960 2^+	3120 X^+	3370 2^+	3389 6^+	3445 3^+	3448 1^+
5023.49(3)	$\langle 1,2 \rangle^+$		7.4(8)	2.7(5)		<0.8		38(2)		25.1(10)			24(1)
5026.7(8)													
5033.02(7)*	$\langle 4,5 \rangle^+$	14(+4-3)	***	42(28)	100						<17		
5038.49(12)*	4^+	112(+52-32)							x				
5055.87(8)*	4^+	95(+91-36)	***		68(22)								
5041.9(11)	4^+												
5122.11(10)	5^-												
5131.66(10)		106(+41-25)	***	39(7)					60(7)			100	
5143.6(8)													
5149.54(11)	2^+		***	100					27(15)				
5186.82(10)	1^-				x								
5188(5)	2^+												
5194.80(18)	$\langle 1,2 \rangle^+$			39(3)		25(2)	18(2)		9(2)				
5219(10)													
5227.3(20)	1												
5232.57(60)	2^+	12(+9-7)	***	100	16(2)							28(3)	6(2)
5235.89(85)	4^+	150(+80-40)	***		100	<25		<12			33(5)	17(3)	
5249(5)	4^+												
5255.7(4)	8^+												
5256.01(27)	$1^{\langle - \rangle}$	20(4)		50(10)	50(10)								
5274(5)													
5283.90(20)*													
5296(5)	0^+												
5302.94(6)*		41(+21-13)	***	<40	100				27(7)		40(10)		
5307.81(22)											x		
5386(7)	0^+												
5402.3(10)	$\langle 1 \rangle$												
5444(8)													
5451.60(8)*		141(+56-41)	***	10(6)							96(30)		
5476(5)	0^+												
5479.15(11)*	$\langle 4^+ \rangle$	36(+35-13)			x								
5488.24(10)	$2-4$	4(3)	***		100							69(18)	
5503.46(6)	$\langle 2-4 \rangle^+$	7(3)	***		100	57(9)				54(16)		<30	
5510.10(24)	2^+												
5528(5)													
5538.07(18)	$\langle 1,2 \rangle^+$		38(3)	22(2)		27(2)				13(2)			
5562.38(10)													
5568(10)													
5573.51(11)	2^+			x									
5590.06(21)	$\langle 1-3 \rangle$			16(4)		40(4)				11(3)		13(4)	20(4)
5612(5)	0^+												
5618.36(10)*		110(+73-35)	***	100	88(30)			27(15)			15(10)	<100	

(continued)

 $^{56}_{26}\text{Fe}(\text{p})$

E^*	J^π	Γ_{cm}	$t_{1/2}$	E_o	Branching ratios									
[keV]		[keV]	[fs]	[keV]	Percentage									
E^*				0.0	847	2085	2658	2942	2960	3120	3370	3389	3445	3448
J^π_{f}				0^+	2^+	4^+	2^+	0^+	2^+	X^+	2^+	6^+	3^+	1^+
5623.86(10)	$\langle 4,5 \rangle^+$		28(+20-15)	***		100				36(11)				
5661.18(17)			<20	x										
5670.33(8)	$\langle 2-4 \rangle^+$		23(+12-9)	***	48(7)	100			40(12)					
5684(5)														
5694.98(13)	$\langle 2^+ \rangle$		123(+60-48)											
5705.43(7)	2^+		4(3)	***	88(26)	100			60(20)	35(15)			74(20)	
5725(5)														
5737(10)														
5768(5)	$\langle 4^+ \rangle$													
5774.00(13)*			17(+13-9)	***			100							
5795.2(10)														
5801.34(18)*								x						
5806.3(4)*					x									
5817.22(17)											x			
5824.3(8)														
5853(2)														
5861.6(4)	4^+								x					
5866.54(18)*	$\langle 4^+ \rangle$					x						x		
5871.26(11)	$\langle 2-4 \rangle$		18(+39-15)			x								
5874.1(5)														
5882.7(8)														
5913.51(12)	2^+													
5914.53(14)*	$\langle 2-4 \rangle^+$		32(+20-12)	***	67(12)	100				<39				
5921.4(8)														
5936.17(10)	2^+				67(2)									
5941.48(19)														
5965.81(20)														
5986.86(15)	1^+-3^+				32(4)								48(3)	
6002(7)														
6013(10)														
6021.11(10)					x									
6031.68(20)*														
6041(8)	$\langle 7^- \rangle$													
6047.53(13)			32(+20-12)		x									
6055(8)	2^+													
6061.79(6)*	4^+		93(+75-25)	***	52(25)	100			<30					
6071.6(6)	6^+													
6078(3)														
6092.2(6)	$\langle 3^- \rangle$													
6102.21(15)	$\langle 0-3 \rangle$				20(4)									52(3)
6110.6(4)*	$\langle 0^+ \rangle$					x								
6115.7(7)														

(continued)

 $^{56}_{26}\text{Fe}(\text{p})$

E^*	J^π	Γ_{cm}	$t_{1/2}$	E_o	Branching ratios									
[keV]		[keV]	[fs]	[keV]	Percentage									
E^*				0.0	847	2085	2658	2942	2960	3120	3370	3389	3445	3448
J^π_{f}				0^+	2^+	4^+	2^+	0^+	2^+	X^+	2^+	6^+	3^+	1^+
6131.24(10)	2^+		7(+6-4)	***	100					43(20)				
6146.35(13)*														
6174(7)														
6201(10)														
6219(3)														
6250.78(24)	1			61(17)	39(17)									
6265(8)	4^+													
6289(10)														
6312.75(20)														
6316.7(6)														
6327.6(6)														
6351(8)														
6363(7)														
6386.99(18)														
6397(8)														
6434.8(4)														
6437.08(16)*														
6439.50(25)*														
6442.91(20)*														
6446.92(26)	$2^+, 3^+$		16(+10-6)	43**	x	x				27(3)				
6454.40(30)*					x									
6463(8)														
6472.5(5)*														
6489(10)	$\langle 2^+ \rangle$													
6509(8)	0^+													
6512.4(4)*														
6527(10)														
6543(10)														
6555(10)														
6563(10)	0^+													
6566.81(25)*														
6593(12)														
6613(10)														
6621.94(23)*														
6625.10(18)	$\langle 0-3 \rangle$									34(3)			21(3)	
6652(10)														
6662(10)	3^-													
6666.62(15)*														
6670(12)														
6698(1)	1													
6700(12)	0^+													
6709(15)														

(continued)

 $^{56}_{26}\text{Fe}(\text{p})$

E^*	J^π	Γ_{cm}	$t_{1/2}$	E_o	Branching ratios									
[keV]		[keV]	[fs]	[keV]	Percentage									
E^*				0.0	847	2085	2658	2942	2960	3120	3370	3389	3445	3448
J^π_{f}				0^+	2^+	4^+	2^+	0^+	2^+	X^+	2^+	6^+	3^+	1^+
6715.90(21)*														
6725(15)														
6742(15)														
6767.41(21)														
6781(15)	3^-													
6800(15)	0^+													
6807.8(5)*														
6815(15)														
6843(15)														
6854.67(20)*														
6869.78(17)*														
6878(15)	$\langle 3^- \rangle$													
6883.13(16)*														
6889.98(22)*								x						
6916(15)														
6926.5(20)	1	$1 \cdot 10^{-3}$												
6940(15)														
6967(15)														
6978.0(4)*														
6981.68(20)	$\langle 0-3 \rangle$				54(10)		46(10)							
6994(15)														
7008.00(25)*						x								
7010.8(4)	$\langle >3^- \rangle$													
7029.8(4)	$\langle >3^- \rangle$													
7055(15)														
7061.6(4)	1^+													
7071.37(22)*						x								
7077(15)														
7084.6(12)														
7090(15)														
7102(15)														
7124(15)	0^+													
7135(3)	1													
7154(15)														
7167.27(24)	1			65(8)	35(8)									
7178.1(5)*														
7189(15)														
7198.5(4)*														
7204(15)														
7211.5(20)	1	$8 \cdot 10^{-4}$		x	≈ 40									
7219	0^+				44(10)									
7248.5(20)	1													

(continued)

 $^{56}_{26}\text{Fe}(\text{p})$

E^*	J^π	Γ_{cm}	$t_{1/2}$	E_o	Branching ratios									
[keV]		[keV]	[fs]	[keV]	Percentage									
E^*				0.0	847	2085	2658	2942	2960	3120	3370	3389	3445	3448
J^π_{f}				0^+	2^+	4^+	2^+	0^+	2^+	X^+	2^+	6^+	3^+	1^+
7254.19(20)*														
7285.8(4)														
7312(15)														
7398.5(4)*														
7422.67(22)	$\langle 1,2^+ \rangle$			10(5)	60(10)	30**								
7446.5(20)	1													
7468.5(20)	1			36(5)	64**									
7475(15)	$\langle 3^- \rangle$													
7541.3(2)*														
7768.6(2)*						x								
7875.8(3)*	2^+													
7886.5(2)	$\langle 1,2^+ \rangle$			70(10)										
8128.6(20)	1	$36 \cdot 10^{-4}$												
8138.2(3)														
8219(4)														
8239.7(20)	1	$58 \cdot 10^{-4}$		x	26(10)									
8247.8(3)	$\langle 0-3 \rangle$				43(12)	57**								
8309.6(2)	$\langle 1,2^+ \rangle$			26(8)	74(8)									
8329.6(2)*														
8447.9(2)	$\langle 0-3 \rangle$				25(6)	75**								
8535.9(2)	1	$49 \cdot 10^{-4}$												
8758.5(2)	$\langle 0-3 \rangle$										10(5)			
8767(3)														
8879(4)														
8909.9(3)	$\langle 1,2^+ \rangle$			50(12)	50**									
8962(4)														
8989(4)														
9107(4)														
9140.3(6)	1^-	$13 \cdot 10^{-4}$												
9154(4)														
9287(3)														
9311(4)														
9322(4)														
9402(3)														
9557.6(2)	$\langle 1,2^+ \rangle$			100										
9666(5)														
9737(5)														
9768(4)														
9895(5)														
9948(5)														
9969(5)														
10060(5)														

(continued)

 $^{56}_{26}\text{Fe}(\text{p})$

E^*	J^π	Γ_{cm}	$t_{1/2}$	E_\circ	Branching ratios									
[keV]		[keV]	[fs]	[keV]	Percentage									
E^*				0.0	847	2085	2658	2942	2960	3120	3370	3389	3445	3448
J^π_{f}				0^+	2^+	4^+	2^+	0^+	2^+	X^+	2^+	6^+	3^+	1^+
10497(3)	1	$34 \cdot 10^{-4}$												
11133(3)	1	$21 \cdot 10^{-4}$												
11503.9(2)	3^+			1344	0.0	1.6	2.9	2.0	7.3	1.6	8.9		1.4	
11593****				1435	2.4	7.2	95.4	7.1	30.4	5.2			23.8	sum
11599****				1441	902	293	9.1	14.8	<0.8	109	38	46.0	9.8	14.7
11599.1(1)	1^+			1441	28.5	10.7	1.5	0.7		4.2	1.8	2.0	0.6	0.8
11603****				1446	44(6)	21.4	6.4	5.0		2.3	5.6	8.1		9.4
11609****				1452	2.8	<1.3	11.1							1.7
11613****				1455	1057	403	8.1	23.0	6.8	56.2	7.7	13.1	2.3	14.8
11613.2(2)	1^+			1455	30.0	13.6		1.1		2.0	0.5	0.6	0.4	2.0
11618****				1460	<0.9	4.5	41.8				6.6	13.3		6.0
11638.06(18)	$3^{(-)}$			1481		3.7	3.8	1.3		1.3	8.3	0.5		2.9
11640.79(18)	$3^{(-)}$			1483		2.1	1.8	0.3		2.5	5.1	0.4	0.3	0.8
11644.29(28)	$3^{(-)}$			1487		9.0	6.4			4.2	7.1	1.7		2.3
11664.14(20)	$\langle 3^- \rangle$			1507		6.4	2.7	0.8			12	30.3	0.7	
11678.04(26)	4^+			1521		1.4	4.0	0.8			13			3.9
11680.72(13)	4^+			1524		1.4	1.6	0.8		1.0	1.4			6.5
11688.33(9)	4^+			1532		0.0	3.7	0.7			7.0	0.7	0.6	0.5
11692.27(14)	2^+			1536	0.2	13.2	0.8	0.4				0.6		2.1
11832.90(7)	3^+			1679		4.6	3.5	2.5		1.7	3.8	3.0	1.4	4.6
11840.95(17)	3^+			1687		7.6	8.1	2.7		6.3	6.0	0.3		4.6
11850.02(42)	$\langle 3^+ \rangle$			1696		3.0	2.0	1.2		4.2	8.0	1.8		1.3
11879.71(24)	$\langle 5^+ \rangle$			1727		1.1	2.4	0.4		0.5	2.0	1.1	3.7	0.5
11886.88(32)	$\langle 5^+ \rangle$			1734		0.8	9.3			1.4	1.5		2.9	2.9
11913.40(52)	$\langle 4^+ \rangle$			1761		1.6	6.5				6.9	2.6		1.5
11925.35(12)	$3^{(-)}$			1773		3.0	10.3	4.4		1.0	2.0	1.7		3.6
11947.84(13)	$\langle 4^- \rangle$			1796		1.1	1.7				1.3			0.8
11952.71(20)	4^+			1801		1.4	9.2	0.3		0.3	1.6	0.5	1.9	1.4
11958.14(16)	$\langle 3^+ \rangle$			1807		37.1	6.5	4.8			6.7	1.7	0.7	2.0

* Level introduced in [03Kr11] from a study of resonance γ -spectra;

** transitions to the unknown states.

*** I_{γ_i} in this line are expressed as a fraction (in %) to the most intense transition [03Kr11]**** In this line intensities of γ -transitions observed in [92Gu03] are presented.Comparison of presented here recent results on parameters of proton resonances at $E^*=11.5$ – 12.0 MeV with data in compilation ENSDF [02Nu0A] is given in [00Ma82].

Branching ratios of γ -transitions [92Gu03, 02Nu0A]. Part 2. **$^{56}_{26}\text{Fe}(\text{p})$**

E^*	J^π	I	Branching ratios													
[keV]			Percentage													
E^*			3600	3606	3610	3756	3830	3856	4049	4100	4120	4298	4300	4368	4395	4401
J_f^π				2 ⁺	$\langle 0^+ \rangle$	6 ⁺	2 ⁺	3 ⁺	3 ⁺	4 ⁺	3 ⁺	4 ⁺	0 ⁺	3 ⁻	3 ⁺	2 ⁺
4458.532(11)	4 ⁺															
4509.56(8)	3 ⁻					<21	**									
4539.5(6)	1 ⁺ , 2 ⁺															
4554.77(9)	4 ⁺					14(5)	**									
4608.56(11)	2 ⁺															
4610.82(18)	4 ⁺					**	35(8)	<7								
4620(4)																
4658.26(5)	$\langle 2-4 \rangle^+$															
4673.41(19)																
4683.04(5)	3 ⁺															
4692.32(4)	4 ⁺					25(4)	**									
4700.63(13)	7 ⁺															
4728.14(18)	2 ⁺															
4730.0(10)	0 ⁺															
4737.33(4)	2 ⁺					**					18(7)					
4784.12(25)	$\langle 1, 2^+ \rangle$															
4812.68(10)	4 ⁺ , 5 ⁺					x					x					
4822																
4847.88(27)	$\langle 2^+ \rangle$															
4866.52(3)	$\langle 1, 2^+ \rangle$															
4877(5)	4 ⁺															
4878.28(6)	2 ⁺															
4881.7(6)																
4887.1(12)																
5023.49(3)	$\langle 1, 2 \rangle^+$															
5026.7(8)																
5033.02(7)	$\langle 4, 5 \rangle^+$					32(8)	**									
5038.49(12)	4 ⁺															
5055.87(8)	4 ⁺					**						100				
5041.9(11)	4 ⁺															
5122.11(10)	5 ⁻															
5131.66(10)						**			23(6)							
5143.6(8)																
5149.54(11)	2 ⁺															
5186.82(10)	1 ⁻															
5188(5)	2 ⁺															
5194.80(18)	$\langle 1, 2^+ \rangle$															
5219(10)																
5227.3(20)	1															
5232.57(60)	2 ⁺					**			29(10)	9(2)						
5235.89(85)	4 ⁺					5(2)	**		6(2)	34(4)		16(3)				
5249(5)	4 ⁺															

(continued)

 $^{56}_{26}\text{Fe}(\text{p})$

E^*	J^π	I	Branching ratios													
[keV]			Percentage													
E^*			3600	3606	3610	3756	3830	3856	4049	4100	4120	4298	4300	4368	4395	4401
J^π_{f}				2^+	$\langle 0^+ \rangle$	6^+	2^+	3^+	3^+	4^+	3^+	4^+	0^+	3^-	3^+	2^+
5255.7(4)	8^+															
5256.01(27)	$1^{\langle - \rangle}$															
5274(5)																
5283.90(20)																
5296(5)	0^+															
5302.94(6)						**						18(9)				
5307.81(22)																
5386(7)	0^+															
5402.3(10)	$\langle 1 \rangle$															
5444(8)																
5451.60(8)						100	**		41(20)			57(16)	57(16)			
5476(5)	0^+															
5479.15(11)	$\langle 4^+ \rangle$															
5488.24(10)	$2-4$					**					<50			46(11)		
5503.46(6)	$\langle 2-4 \rangle^+$					**				25(15)						<20
5510.10(24)	2^+															
5528(5)																
5538.07(18)	$\langle 1, 2^+ \rangle$															
5562.38(10)																
5568(10)																
5573.51(11)	2^+															
5590.06(21)	$\langle 1-3 \rangle$															
5612(5)	0^+															
5618.36(10)						**									<12	
5623.86(10)	$\langle 4, 5 \rangle^+$					83(27)	**		<15	54(28)						
5661.18(17)																
5670.33(8)	$\langle 2-4 \rangle^+$															
5684(5)																
5694.98(13)	$\langle 2^+ \rangle$															x
5705.43(7)	2^+															
5725(5)																
5737(10)																
5768(5)	$\langle 4^+ \rangle$															
5774.00(13)						**										
5795.2(10)																
5801.34(18)							x									
5806.3(4)																
5817.22(17)																
5824.3(8)																
5853(2)																
5861.6(4)	4^+															
5866.54(18)	$\langle 4^+ \rangle$															

(continued)

 $^{56}_{26}\text{Fe}(\text{p})$

E^*	J^π	Γ	Branching ratios													
[keV]			Percentage													
E^*			3600	3606	3610	3756	3830	3856	4049	4100	4120	4298	4300	4368	4395	4401
J^π_{f}				2 ⁺	$\langle 0^+ \rangle$	6 ⁺	2 ⁺	3 ⁺	3 ⁺	4 ⁺	3 ⁺	4 ⁺	0 ⁺	3 ⁻	3 ⁺	2 ⁺
5871.26(11)	$\langle 2-4 \rangle$															
5874.1(5)																
5882.7(8)																
5913.51(12)	2 ⁺															
5914.53(14)	$\langle 2-4 \rangle^+$					**		<29				24(12)			12(9)	
5921.4(8)																
5936.17(10)	2 ⁺							33(2)								
5941.48(19)																
5965.81(20)																
5986.86(15)	1 ⁺ -3 ⁺															
6002(7)																
6013(10)																
6021.11(10)																
6031.68(20)				x												
6041(8)	$\langle 7^- \rangle$															
6047.53(13)																
6055(8)	2 ⁺															
6061.79(6)	4 ⁺					25(14)	**				56(24)				<20	
6071.6(6)	6 ⁺															
6078(3)																
6092.2(6)	$\langle 3^- \rangle$															
6102.21(15)	$\langle 0-3 \rangle$															
6110.6(4)	$\langle 0^+ \rangle$	42(16)														
6115.7(7)																
6131.24(10)	2 ⁺					**					67(25)					
6146.35(13)																
6174(7)				28(3)												
6201(10)																
6219(3)																
6250.78(24)	1															
6265(8)	4 ⁺															
6289(10)																
6312.75(20)																
6316.7(6)																
6327.6(6)																
6351(8)																
6363(7)																
6386.99(18)										x						
6397(8)																
6434.8(4)																
6437.08(16)																
6439.50(25)																

(continued)

 $^{56}_{26}\text{Fe}(\text{p})$

E^*	J^π	Γ	Branching ratios													
[keV]			Percentage													
E^* J_f^π			3600	3606 2 ⁺	3610 ⟨0 ⁺ ⟩	3756 6 ⁺	3830 2 ⁺	3856 3 ⁺	4049 3 ⁺	4100 4 ⁺	4120 3 ⁺	4298 4 ⁺	4300 0 ⁺	4368 3 ⁻	4395 3 ⁺	4401 2 ⁺
6442.91(20)	2 ⁺ , 3 ⁺						6(3)	43*								
6446.92(26)																
6454.40(30)																
6463(8)																
6472.5(5)											x					
6489(10)	⟨2 ⁺ ⟩															
6509(8)	0 ⁺	16(3)	8(3)													
6512.4(4)																
6527(10)																
6543(10)																
6555(10)																
6563(10)	0 ⁺															
6566.81(25)																
6593(12)																
6613(10)																
6621.94(23)																
6625.10(18)	⟨0-3⟩															
6652(10)																
6662(10)	3 ⁻															
6666.62(15)																
6670(12)																
6698(1)	1	45(5)														
7312(15)																
7398.5(4)		37(10)	19**													
7422.67(22)	⟨1,2 ⁺ ⟩															
7446.5(20)	1			x												
8962(4)																
8989(4)		11(5)	69**													
11133(3)	1															
11503.89(23)	3 ⁺	0.0					4.3	0.2	2.0	4.5	3.2	6.5	0.9	0.9	0.9	5.1
11593***		0.8	0.6				4.8	31.6		1.6	4.4	1.3			2.0	4.9
11599***		5.4	21.5	17.2	16.8	18.9	5.8	1.8	1.8	27.8	1.8	3.4			11.9	73.6
11599.06(9)	1 ⁺	0.8		1.2	0.4	1.0		0.2	1.3				0.4	0.4	0.4	3.4
11603***		0.8														
11609***							1.0	4.4	4.7	1.3	5.1				3.6	
11613***		6.1	44.9	66.3	19.2	3.7	7.6			7.5	9.4				3.1	8.1
11613.24(20)	1 ⁺	1.6		3.4			0.6			1.1						
11618***		16.3				9.6	1.9	≈3	≈2	15.3					<1	7.3
11638.06(18)	3 ^{⟨-⟩}	0.7		0.6			3.0	1.0	2.2	4.4	4.0	3.2	3.2	3.2	3.2	0.5
11640.79(18)	3 ^{⟨-⟩}	0.4					1.7	1.0	0.5	1.3	7.4	1.8	1.8	1.8	1.8	0.6
11644.29(28)	3 ^{⟨-⟩}	0.4		0.4		1.5	1.2	2.6	0.8	0.8	4.3	1.8	1.8	1.8	1.8	
11664.14(20)	⟨3 ⁻ ⟩	1.1				0.2	0.3	2.9		3.4	0.7	0.8	0.6	0.6	0.6	0.6

(continued)

 $^{56}_{26}\text{Fe}(\text{p})$

E^*	J^π	Γ	Branching ratios													
[keV]			Percentage													
E^* J^π_f			3600	3606 2 ⁺	3610 ⟨0 ⁺ ⟩	3756 6 ⁺	3830 2 ⁺	3856 3 ⁺	4049 3 ⁺	4100 4 ⁺	4120 3 ⁺	4298 4 ⁺	4300 0 ⁺	4368 3 ⁻	4395 3 ⁺	4401 2 ⁺
11678.04(26)	4 ⁺	0.0						2.1	0.8	1.1	2.7	1.6	0.9	0.9	0.9	
11680.72(13)	4 ⁺	0.0				0.3	0.2	2.1	0.4	0.5	1.1	0.8	0.7	0.7	0.7	
11688.33(9)	4 ⁺	0.0				0.3		1.4	4.0	1.3	0.5	2.6	1.0	1.0	1.0	
11692.27(14)	2 ⁺	0.6			0.2		0.1	0.6	1.7	9.0	1.2	3.1	0.8	0.8	0.8	0.2
11832.90(7)	3 ⁺	5.6				2.0	0.8	1.2	4.5	1.3	6.1	0.6	0.7	0.7	0.7	1.8
11840.95(17)	3 ⁺	4.7				0.8		1.4	4.1	1.7	7.7	5.2	1.1	1.1	1.1	3.8
11850.02(42)	⟨3 ⁺ ⟩	1.4							1.5	0.9		2.2	2.7	2.7	2.7	
11879.71(24)	⟨5 ⁺ ⟩					5.8	0.4	0.5	0.4	1.4	0.9	3.0	1.8	1.8	1.8	
11886.88(32)	⟨5 ⁺ ⟩					1.0			1.2	2.7	1.1		0.9	0.9	0.9	
11913.40(52)	⟨4 ⁺ ⟩					1.9	2.8	2.5	2.2	2.9						
11925.35(12)	3 ⁽⁻⁾	0.8						1.9	2.2	2.7	1.1	5.5	1.9	1.9	1.9	
11947.84(13)	⟨4 ⁻ ⟩							0.7		2.1		2.6				
11952.71(20)	4 ⁺					0.8		0.5	4.7	5.4	0.6	4.2				
11958.14(16)	⟨3 ⁺ ⟩					1.0			3.5	3.1	1.7	1.4	0.3	0.3	0.3	0.3

* transitions to the unknown states.

** I_{γ_i} in this line are expressed as fraction in % to the most intense transition [03Kr11]*** In this line intensities of γ -transitions observed in [92Gu03] are presented.Branching ratios of γ -transitions. Part 3. $^{56}_{26}\text{Fe}(\text{p})$

E^*	J^π	Γ	E_o	Branching ratios													
[keV]			[keV]	Percentage													
E^* J_f^π				4458 4 ⁺	4509 3 ⁻	4540 X ⁺	4554 X ⁺	4612 4 ⁺	4658 <X> ⁺	4683 4 ⁺	4692 4 ⁺	4737	4867 1 ⁺ ,2 ⁺	4878 2 ⁺	5023 1 ⁺ ,2 ⁺	5033	5038
5131.66				30(8)													
5235.89(85)	4 ⁺			23(3)					*		17(6)						
5914.53(14)	<2-4> ⁺								*		15(6)						
5774.00				34(11)													
11503.89(23)	3 ⁺		1344.05	6.4	0.6	2.2	1.2	3.8	6.6	8.1		1.2			3.1		2.1
11593**			1435	0.9	2.9			2.9	20.1	3.9			2.2	2.6			
11599**			1441	1.2	5.0	101	5.6	3.7	9.3			<24>	305		171		
11599.06(9)	1 ⁺		1440.95	0.2	1.0	4.3	0.2	0.2		0.2	0.3		11.4		6.1		
11603**			1446			<1							32		3.6		
11609**			1452	1.9	4.6					1.6				4.2			
11613**			1455	<4	≈3	17.1	2.0	2.4					229		60.5		
11613.24(20)	1 ⁺		1455.39		0.5	0.8	1.0	13.7			0.4	0.2	8.7		1.9		1.1
11618**			1460	10.6		5.2			4.7								

(continued)

 $^{56}_{26}\text{Fe}(\text{p})$

E^*	J^π	Γ	E_o	Branching ratios													
[keV]			[keV]	Percentage													
E^* J_f^π				4458 4 ⁺	4509 3 ⁻	4540 X ⁺	4554 X ⁺	4612 4 ⁺	4658 (X) ⁺	4683 4 ⁺	4692 4 ⁺	4737	4867 1 ⁺ ,2 ⁺	4878 2 ⁺	5023 1 ⁺ ,2 ⁺	5033	5038
11638.06(18)	3 ⁽⁻⁾		1480.66	1.9	4.0		1.0	0.8	4.5	0.6				1.9			2.6
11640.79(18)	3 ⁽⁻⁾		1483.44	3.3	3.3		0.7	0.6	3.8	0.7		0.4	0.4	2.1	0.5	0.9	1.8
11644.29(28)	3 ⁽⁻⁾		1486.85	2.0	4.2		0.8		2.2	1.8	0.9		1.4	1.5		0.6	0.9
11664.14(20)	3 ⁽⁻⁾		1507.21	1.5	0.5		3.4	0.5	2.7	0.9	1.1	4.3					
11678.04(26)	4 ⁺		1521.37	2.0	1.5	0.8	1.2	3.7	0.7	0.6	0.9	4.5		0.8		1.3	
11680.72(13)	4 ⁺		1524.10	2.8	1.2	0.3	0.4	1.6	1.4	0.9	1.3	7.4		0.8			
11688.33(9)	4 ⁺		1531.84	4.8	1.4		1.2	2.6	2.6	1.8	8.8	0.9			0.5	2.5	
11692.27(14)	2 ⁺		1535.86	5.6	1.6		3.0	2.9	2.4	1.6	2.1	2.2	2.0	1.0	0.7	1.7	0.9
11832.90(7)	3 ⁺		1679.04	4.3	1.9		2.1	1.3	2.7	3.5		4.8	1.5	1.1	1.7	0.2	1.6
11840.95(17)	3 ⁺		1687.24	3.4	0.6	0.7	0.7	1.7	2.7	1.8	1.9	2.4	4.1	1.6	1.2		1.2
11850.02(42)	3 ⁺		1696.47	1.2	0.8	2.6		1.9		1.4	2.1		4.7	0.7		2.4	
11879.71(24)	5 ⁺		1726.70	3.0	0.5		4.4	0.8		1.3	2.1			2.2		1.0	0.4
11886.88(32)	5 ⁺		1734.00	2.5			0.6	2.5		2.2	4.4					3.3	
11913.40(52)	4 ⁺		1761.01							2.3	2.1				2.4	2.4	3.1
11925.35(12)	3 ⁽⁻⁾		1773.17	1.6	5.5			0.9	1.5	1.9	1.7		1.1	0.7			
11947.84(13)	4 ⁻		1796.07	0.6	4.0	0.2	10.2	4.9	1.6	1.1	0.7	1.2		0.4			0.9
11952.71(20)	4 ⁺		1801.03	0.9	2.4	0.6	10.8	6.9	2.4	3.3	2.0	1.2		0.6			0.9
11958.14(16)	3 ⁺		1806.62	1.2	0.9		3.7	1.8	0.7	3.2	0.7	1.7	2.0	5.3			

* I_{γ_i} in this line are expressed as fraction in % to the most intense transition [03Kr11]** In this line intensities of γ -transitions observed in [92Gu03] are presented.Branching ratios of γ -transitions. Part 4. $^{56}_{26}\text{Fe}(\text{p})$

E^*	J^π	Γ	$E_{\rm o}$	Branching ratios													
[keV]			[keV]	Percentage													
E^*				5236	5284	5303	5452	5488	5503	5538	5562	5574	5618	5624	5670	5695	5705
$J_{\rm f}^\pi$				$\langle 4^+ \rangle$			4^+			$1,2^+$		2^+		$4,5$		$2=4$	
11503.89(23)	3^+		1344.05			4.4	0.5	2.2	0.4		0.1	0.9	1.5	0.6		0.6	1.3
11593*			1435														
11599*			1441							37.6							
11599.06(9)	1^+		1440.95				0.1	0.2	0.2	1.6		0.4	0.1	0.1	0.1		0.1
11603*			1446														
11609*			1452														
11613*			1455														
11613.24(20)	1^+		1455.39	0.8			0.3		0.5						0.3		
11618*			1460							<5							
11638.06(18)	$3^{(-)}$		1480.66	4.2	1.1	1.6	1.9	0.8	1.4	0.5	0.5		1.0	0.7			1.7

(continued)

 $^{56}_{26}\text{Fe}(\text{p})$

E^*	J^π	Γ	E_o	Branching ratios													
[keV]			[keV]	Percentage													
E^* J_f^π				5236 (4^+)	5284	5303	5452 4^+	5488	5503	5538 $1,2^+$	5562	5574 2^+	5618	5624 4,5	5670	5695 2=4	5705
11640.79(18)	$3^{\langle-}$		1483.44	0.6	2.4	0.4	1.3	1.0	3.0					7.7	0.9		
11644.29(28)	$3^{\langle-}$		1486.85	0.5	1.4		1.1	0.8	1.9		1.4		0.6	4.5	0.8	0.5	0.7
11664.14(20)	3^-		1507.21		0.5	2.0			1.2				1.5	2.6	0.6	0.4	0.5
11678.04(26)	4^+		1521.37	3.7		1.1	1.3		2.0		2.4		2.5	1.7	1.0	0.4	1.7
11680.72(13)	4^+		1524.10	4.8		0.7	2.0	1.1	1.4		1.8	0.5	4.5	1.0	1.1		1.5
11688.33(9)	4^+		1531.84	9.2		1.8	0.6	1.2							1.8		5.6
11692.27(14)	2^+		1535.86	9.3	0.4	1.5	0.6		2.2	0.1	0.8		0.8	1.6	0.5	0.2	
11832.90(7)	3^+		1679.04	1.2	0.4	4.0	0.2	1.8	1.2		0.3	2.1	1.1	1.3	0.9	0.9	
11840.95(17)	3^+		1687.24	1.2		2.1	0.1	1.8			0.2	0.3	0.2	0.4	0.8	2.4	1.5
11850.02(42)	3^+		1696.47			1.5		0.6								0.7	
11879.71(24)	5^+		1726.70		2.5		1.5	2.3	0.7								1.6
11886.88(32)	5^+		1734.00		0.7	1.4			0.6				1.6			0.9	2.5
11913.40(52)	4^+		1761.01	1.3		1.4											
11925.35(12)	$3^{\langle-}$		1773.17			3.6	1.0	1.2					0.7	0.4		0.6	1.6
11947.84(13)	4^-		1796.07	0.4		2.6	0.2	1.4	0.7				0.8				0.5
11952.71(20)	4^+		1801.03	0.8	1.1	4.1	0.7	1.1	1.5	0.7	2.0		0.9	0.3	0.9	1.1	1.0
11958.14(16)	3^+		1806.62	1.1		1.0			3.1		0.2		0.7	0.7			4.9

* In this line intensities of γ -transitions observed in [92Gu03] are presented.Branching ratios of γ -transitions. Part 5. $^{56}_{26}\text{Fe}(\text{p})$

E^*	J^π	Γ	$E_{\rm o}$	Branching ratios													
[keV]			[keV]	Percentage													
E^*				5817	5863	5871	5915	5934	5987	6021	6048	6062	6131	6146	6319	6387	6437
$J_{\rm f}^\pi$					4^+		2^+	2^+	X^+		4^+	4^+	$1=3$				
7886.54(23)	$\langle 1,2^+ \rangle$												30(10)				
11503.89(23)	3^+		1344.05	0.1	0.5	4.1		0.2		1.2	0.6	2.7	0.2	0.2			0.3
11593*			1435														
11599*			1441					4.4	18.0								
11599.06(9)	1^+		1440.95				0.1	0.1	0.5			0.6					
11603*			1446														
11609*			1452														
11613*			1455					17.8	26.3								
11613.24(20)	1^+		1455.39			0.4		1.1	0.8							0.4	
11618*			1460														
11638.06(18)	$3^{\langle - \rangle}$		1480.66	1.4	0.8	1.3	1.8	0.5	0.8	0.6		1.3		0.6	0.9	0.9	0.7
11640.79(18)	$3^{\langle - \rangle}$		1483.44	2.6	0.6	0.8	5.0	0.5	0.8	1.2	0.6	1.7	1.8	0.2	0.7		2.6

(continued)

 $^{56}_{26}\text{Fe}(\text{p})$

E^*	J^π	Γ	E_o	Branching ratios													
[keV]			[keV]	Percentage													
E^*				5817	5863	5871	5915	5934	5987	6021	6048	6062	6131	6146	6319	6387	6437
J^π_f					4^+		2^+	2^+	X^+		4^+	4^+	$1=3$				
11644.29(28)	$3^{(-)}$		1486.85	1.8	2.6	2.6	2.6		0.5	0.4		1.7	0.5				1.5
11664.14(20)	$\langle 3^- \rangle$		1507.21			1.4	0.7					1.0	0.4			0.8	
11678.04(26)	4^+		1521.37			1.2	1.3	0.2	0.7		1.1	0.8	1.2	1.9	1.1	1.4	0.4
11680.72(13)	4^+		1524.10			1.0	0.7	0.8	0.6	0.6		0.9	0.8	3.4	1.4	2.2	1.4
11688.33(9)	4^+		1531.84	0.6		1.2	0.8	0.4	0.4	1.4	0.6	3.0	2.6		1.3	1.0	1.0
11692.27(14)	2^+		1535.86			1.5	2.3	0.3		0.1	0.6	1.8	0.8	0.4	0.2		0.8
11832.90(7)	3^+		1679.04	0.6	0.3	2.2	0.7	0.9	1.2		1.0	1.4	0.2	0.3			0.6
11840.95(17)	3^+		1687.24		0.9	2.8	1.2	1.0	0.7	0.1	1.0	1.0	1.4	0.9			1.2
11850.02(42)	$\langle 3^+ \rangle$		1696.47		0.8	1.9		1.6		0.5	0.7					1.2	1.2
11879.71(24)	$\langle 5^+ \rangle$		1726.70		1.5	0.5			0.5	0.4		0.6	1.6			0.4	0.7
11886.88(32)	$\langle 5^+ \rangle$		1734.00			2.1		1.7						1.4			1.0
11913.40(52)	$\langle 4^+ \rangle$		1761.01	1.4		1.7											1.2
11925.35(12)	$3^{(-)}$		1773.17			1.3	0.7					1.1			1.0		
11947.84(13)	$\langle 4^- \rangle$		1796.07										0.4	0.6	1.3		
11952.71(20)	4^+		1801.03	0.6		0.6	2.6					1.1	0.2	0.8	1.5		0.8
11958.14(16)	$\langle 3^+ \rangle$		1806.62			0.2	1.7					1.5					

* In this line intensities of γ -transitions observed in [92Gu03] are presented.Intensities of γ -transitions to levels with $E^*=5.6$ MeV–9.6 MeV are given in [92Gu03].