Target isotope: $^{50}_{24}$Cr $I^{\pi}_{\circ} = 0^+$ *Abundance:* 4.345(13) % $S_{\mathrm{p}} = 5271.47(39)$ keV

$^{51}_{25}$Mn(p)

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_{p} [eV]	γ^2_{p} [keV]	$\Gamma_{\mathrm{p}'}$ [eV]	$\gamma^2_{\mathrm{p}'}$ [keV]	Γ [eV]	Rel.int. γ_i	Rel.int. γ_j	E_{cm} [keV]	E^* [keV]	Ref.		
985(1)										966	6237(2)	62Ar03		
1028.2(5)										1008	6280(2)	72Fo25	62Ar03	
1059.1(2)	3^-									1038	6310(2)	72Fo25	62Ar03	67Wa21
1070.8(2)										1050	6321(2)	72Fo25	67Wa21	
1109.6(5)										1088	6359(2)	72Fo25	62Ar03	67Wa21
1123.3(5)										1101	6373(2)	72Fo25	62Ar03	67Wa21
1156(3)										1133	6405(3)	67Wa21		
1164.1(5)										1141	6413(2)	72Fo25	62Ar03	67Wa21
1177.8(5)										1155	6426(2)	72Fo25	67Wa21	
1191.3(5)										1168	6439(2)	72Fo25	67Wa21	
1203.6(5)	5^-									1180	6452(2)	88Ca05	72Fo25	67Wa21
1219.6(5)										1196	6467(2)	72Fo25	62Ar03	67Wa21
1227.9(10)										1204	6475(2)	72Fo25		
1276.0(10)										1251	6522(2)	72Fo25		
1342.8(10)										1317	6588(2)	72Fo25		
1350.6(10)										1324	6596(2)	72Fo25		
1391.2(10)										1364	6635(2)	72Fo25		
1417.1(10)										1389	6661(2)	72Fo25	67Wa21	
1439.8(10)										1412	6683(2)	72Fo25	67Wa21	
1451.3(10)	5^-									1423	6694(2)	88Ca05	72Fo25	67Wa21
1460.2(10)										1432	6703(2)	72Fo25	67Wa21	
1481.0(10)										1452	6723(2)	72Fo25	67Wa21	
1512.9(10)	5^-									1483	6755(2)	88Ca05	72Fo25	67Wa21
1528.0(10)										1498	6770(2)	72Fo25	67Wa21	
1545.0(10)										1515	6786(2)	72Fo25	67Wa21	
1559.8(10)										1529	6801(2)	72Fo25	67Wa21	
1563.0(10)										1532	6804(2)	72Fo25	67Wa21	
1579.9(10)										1549	6820(2)	72Fo25	75Di10	67Wa21
1600.3(10)										1569	6840(2)	72Fo25	75Di10	67Wa21
1603.2(10)										1572	6843(2)	72Fo25		
1609.4(10)										1578	6849(2)	72Fo25	67Wa21	
1623.7(10)										1592	6863(2)	72Fo25	67Wa21	
1629.9(10)										1598	6869(2)	72Fo25	67Wa21	
1654.8(10)										1622	6894(2)	72Fo25	67Wa21	
1666.1(10)										1633	6905(2)	72Fo25		
1678.0(10)										1645	6917(2)	72Fo25	67Wa21	
1686.3(10)										1653	6925(2)	72Fo25	67Wa21	
1689.3(10)										1656	6928(2)	72Fo25	67Wa21	75Di10
1764(3)										1729	7001(3)	67Wa21		
1767(3)										1732	7004(3)	67Wa21		
1789(3)										1754	7025(3)	67Wa21		
1798	3^-							2204	411	1763	7034(3)	86Di01	67Wa21	75Di10
1803								167		1768	7039(3)	86Di01		
1810	1^+							987		1775	7046(3)	86Di01	67Wa21	
1819								146		1783	7055(3)	86Di01		

(continued) $^{51}_{25}\mathbf{Mn}(\mathrm{p})$

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ^2_p [keV]	$\Gamma_{\mathrm{p}'}$ [eV]	$\gamma^2_{\mathrm{p}'}$ [keV]	Γ [eV]	Rel.int. γ_i	Rel.int. γ_j	E_cm [keV]	E^* [keV]	Ref.	
1830	3^-							2856	476	1794	7066(3)	86Di01	67Wa21
1861								215		1825	7096(3)	86Di01	67Wa21
1872	$5,7^-$							1575	146	1835	7107(3)	86Di01	67Wa21
1878								480	192	1841	7113(3)	86Di01	67Wa21
1892(1)*	1^-		125(15)	19.9				2379	872	1855	7126(3)	76Bi0A	86Di01
1893(3)										1856	7127(3)	67Wa21	
1902								265		1865	7136(3)	86Di01	67Wa21
1908	5^-							1374	100	1871	7142(3)	86Di01	67Wa21
1913	3^-							1264	109	1875	7147(3)	86Di01	67Wa21
1929	1^-							3392	212	1891	7163(3)	86Di01	67Wa21
1936	1^-							2149	1220	1898	7170(3)	86Di01	67Wa21
1937	5^-							incl	incl	1899	7170(3)	86Di01	
1940(1)*	1^+		80(10)	4.25				3690		1902	7173(2)	76Bi0A	86Di01
1942	5							incl	incl	1904	7175(3)	86Di01	
1954(1)*	1^-		50(5)	6.16				1685	1404	1916	7187(2)	76Bi0A	86Di01
1972								370		1933	7205(3)	86Di01	
1978	$\langle 5\rangle$							590		1939	7211(3)	86Di01	
1981	$\langle 1,3\rangle$							489		1942	7214(3)	86Di01	
1990	5^-							608	274	1951	7222(3)	86Di01	
1995								688		1956	7227(3)	86Di01	
2009	$5^{\langle +\rangle}$							1316		1970	7241(3)	86Di01	
2026(1)*	1^+		210(20)	8.16				2767		1987	7258(2)	76Bi0A	86Di01
2030	5^-							incl	incl	1990	7262(3)	86Di01	86Di01
2039.7	3^-		15(5)	1.31	1	6.37		4599	1949	2000	7271(3)	85Mi0A	86Di01
2042	5							incl	incl	2002	7273(3)	86Di01	75Di10
2062(1)*	1^-		30(5)	2.44						2021	7293(2)	76Bi0A	
2062.5	3^-		20	1.61	1	5.32		3831	965	2022	7294(3)	85Mi0A	86Di01
2074								398		2033	7305(3)	86Di01	
2080	5^+							750	2575	2039	7311(3)	86Di01	
2084	$\langle 1\rangle$							411		2043	7315(3)	86Di01	
2109(1)*	3^-		77(10)	5.33				4855	2400	2067	7339(2)	76Bi0A	86Di01
2110	$\langle 1\rangle$							weak		2069	7340(3)	86Di01	
2113	3^+							incl	incl	2072	7343(3)	86Di01	
2114	$3^-,5^-$									2073	7344(3)	91Zh07	
2128	5^-							1829		2086	7358(3)	86Di01	
2134(1)*	3^-		340(50)	21.6						2092	7364(2)	76Bi0A	
2141	$3^+,5^-$							7669	2060	2099	7370(3)	86Di01	
2142	3^-							incl	incl	2100	7371(3)	86Di01	
2158(1)*	$1^-,3^-$		15(5)	0.86				weak		2116	7388(2)	76Bi0A	86Di01
2161								622	195	2119	7390(3)	86Di01	
2167	$3^-,5^-$							1243	600	2125	7396(3)	86Di01	91Zh07
2182	$[1^+]$									2139	7411(3)	86Di01	
2187	5^+							1803	890	2144	7416(3)	86Di01	
2187	3^-							incl	incl	2144	7416(3)	86Di01	
2199								624		2156	7427(3)	86Di01	

(continued) **$^{51}_{25}$Mn**(p)

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ^2_p [keV]	$\Gamma_{\mathrm{p}'}$ [eV]	$\gamma^2_{\mathrm{p}'}$ [keV]	Γ [eV]	Rel.int. γ_i	Rel.int. γ_j	E_cm [keV]	E^* [keV]	Ref.		
2201(1)*	1^+		60(10)	1.31				220		2158	7429(2)	76Bi0A	86Di01	
2220	3^-							1531	350	2176	7448(3)	86Di01		
2223	3^-							2365	540	2179	7451(3)	86Di01		
2232	$5^{\langle+\rangle}$							1021	860	2188	7460(3)	86Di01		
2235(1)*	1^-		380(50)	17.3				1680		2191	7462(2)	76Bi0A	86Di01	
2236	$\langle5,7\rangle$							510		2192	7464(3)	86Di01		
2240	1^-									2196	7468(3)	91Zh07	86Di01	
2250								weak		2206	7477(3)	86Di01		
2255								419		2211	7482(3)	86Di01		
2257								weak		2213	7484(3)	86Di01		
2275	5^+							274	901	2230	7502(3)	86Di01		
2288	5^-							899		2243	7515(3)	86Di01		
2293								440		2248	7520(3)	86Di01		
2296(1)*	1^+		130(20)	2.1				826		2251	7522(2)	76Bi0A	86Di01	
2299.5	3^-		50(10)	1.8	2	2.08		5152	2700	2254	7526(3)	85Mi0A	86Di01	
2303	3^-,5^-							incl	incl	2259	7530(3)	91Zh07	86Di01	
2321	5^-							1710	9000	2275	7547(3)	86Di01		
2321(2)*	1^-		300(30)	11				4820		2276	7547(2)	76Bi0A	86Di01	
2331.7	$3^-\langle5^-\rangle$		550(55)	18	25	21.6		6637	16500	2286	7558(3)	85Mi0A	86Di01	91Zh07
2342(2)*	1^+		650(100)	9.4						2296	7568(3)	76Bi0A		
2342(2)*	5^+,3^+		30(20)	4.7	30(10)	10.9		1130	26260	2296	7568(3)	76Bi0A	86Di01	
2342(2)*	1^+		600(100)	8.7						2297	7568(2)	76Bi0A		
2347	5^+									2302	7573	91Zh07		
2355								weak		2309	7580(3)	86Di01		
2357(2)*	1^-		50(10)	1.6				1063		2311	7583(2)	76Bi0A	86Di01	
2375	$\langle3\rangle$							580		2328	7600(3)	86Di01		
2390								weak		2343	7615(3)	86Di01		
2394	1							510		2347	7619(3)	86Di01		
2397	9^+							700		2350	7621(3)	86Di01		
2407	5^-							1795	1193	2360	7631(3)	86Di01		
2408	5^+							incl	incl	2361	7632(3)	86Di01		
2412	5^+							338	1276	2365	7636(3)	91Zh07	86Di01	
2416(2)*	1^-		80(20)	2.1				1133		2368	7640(2)	76Bi0A	86Di01	
2433								weak		2385	7657(3)	86Di01		
2446	$\langle5,7\rangle$							1607		2398	7670(3)	91Zh07	86Di01	
2455								weak		2407	7678(3)	86Di01		
2457.0	3^-		45(15)	1.1	30	13.1		934		2409	7680(3)	85Mi0A	86Di01	91Zh07
2465								1208		2417	7688(3)	86Di01		
2477	5^+							2189	5389	2428	7700(3)	91Zh07	86Di01	
2495.3	3^-		130(25)	2.8	25	8.98				2446	7718(3)	85Mi0A	88Di03	91Zh07
2496	$\langle1$–$5\rangle$									2447	7719(3)	91Zh07	88Di03	
2507	3^-									2458	7729	91Zh07	86Di01	
2509(3)*	5^+,3^+		20(10)	1.9	15(5)	2.27				2460	7731(3)	76Bi0A	88Di03	
2520	5^+									2471	7742(3)	88Di03		
2522(3)*	1^-		75(20)	1.51						2473	7744(3)	76Bi0A	88Di03	91Zh07

(continued) **$^{51}_{25}$Mn(p)**

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ^2_p [keV]	$\Gamma_{\mathrm{p}'}$ [eV]	$\gamma^2_{\mathrm{p}'}$ [keV]	Γ [eV]	Rel.int. γ_i	E_cm [keV]	E^* [keV]	Ref.		
2524(3)*	1^-		100(20)	2.00					2474	7746(3)	76Bi0A		
2541(3)*	1^+,5^+		300(50)	2.63					2491	7762(3)	76Bi0A	88Di03	
2542									2492	7764(3)	88Di03		
2553.1	3^-		20	0.37	15	4.08			2503	7775(3)	85Mi0A	88Di03	
2556									2506	7777(3)	88Di03		
2566	5^-								2516	7787(3)	91Zh07	88Di03	
2571	5								2521	7792(3)	91Zh07	88Di03	
2579(3)*	1^+		125(15)	1.00		doublt			2529	7800(3)	76Bi0A	88Di03	
2593									2542	7814(3)	88Di03		
2603									2552	7823(3)	88Di03		
2625.8(30)*	5^+,3^+		8(5)	0.55	8(5)	0.71			2574	7845(3)	76Bi0A	88Di03	91Zh07
2631.3(30)*	3^-		30(10)	0.46					2580	7851(3)	76Bi0A	88Di03	91Zh07
2635	5^-								2583	7855(3)	88Di03		
2657.1(30)*	1^+		1200(100)	8.12					2605	7877(3)	76Bi0A	88Di03	
2669	5^+								2617	7888(3)	91Zh07	88Di03	
2677.7(30)*	3^-		40(15)	0.55					2625	7897(3)	76Bi0A	88Di03	91Zh07
2681									2628	7900(3)	88Di03		
2691.4(30)*	5^+,3^+		30(10)	1.74	110(20)	7.39			2639	7910(3)	76Bi0A	88Di03	
2699.0	3^-		375(50)	4.88	25	3.59			2646	7918(3)	85Mi0A	88Di03	91Zh07
2701	3^-,7								2648	7920(3)	88Di03		
2715	3^-,5^-,7								2662	7933(3)	91Zh07	88Di03	
2719	1^-,5								2666	7937(3)	88Di03		
2728.2(40)*	3^-		10(5)	0.12					2675	7946(4)	76Bi0A	88Di03	91Zh07
2730.5(40)*	1^+		200(20)	1.16					2677	7948(4)	76Bi0A	88Di03	
2740	5^+								2686	7958(3)	88Di03		
2753.7	3^-		500(50)	5.77	50	5.76			2700	7971(3)	85Mi0A	88Di03	
2755	1,3^-								2701	7972(3)	88Di03		
2765	5^-								2711	7982(3)	88Di03		
2765.7(40)*	5^+,3^+		15(10)	0.72	15(10)	0.75			2712	7983(3)	76Bi0A	88Di03	
2770.9(40)*	5^+,3^+		15(10)	0.71	10(5)	0.49			2717	7988(4)	76Bi0A		
2775	3^-								2721	7992(3)	88Di03		
2785.2(40)*	1^-		1400(200)	15.2	75(25)	8.49			2731	8002(4)	76Bi0A	88Di03	
2797.0	3^-		75(15)	0.79	25	2.43			2742	8014(3)	85Mi0A	88Di03	
2798	9^+								2743	8015(3)	88Di03	91Zh07	
2809.6(40)*	5^+		40(10)	1.73	5(5)	0.21			2755	8026(4)	76Bi0A	88Di03	
2826.9(40)*	1^-		260(25)	2.58					2772	8043(3)	76Bi0A	88Di03	
2830	3^-								2775	8046(3)	88Di03	91Zh07	
2832.2(40)*	1^+		160(20)	0.76					2777	8048(4)	76Bi0A		
2836.1(40)*	5^+,3^+		7(5)	0.41					2781	8052(4)	76Bi0A		
2843									2787	8059(3)	88Di03		
2849	3^-								2793	8065(3)	88Di03	91Zh07	
2859.3(40)*	1^-		800(150)	7.44	200(50)	17.1			2803	8075(3)	76Bi0A		
2860.2	3^-		60	0.55	20	1.54			2804	8076(3)	85Mi0A	88Di03	
2863									2807	8078(3)	88Di03		
2867.7(40)*	5^+,3^+		27(15)	1.02	27(15)	0.94			2812	8083(3)	76Bi0A	88Di03	

(continued) **$^{51}_{25}$Mn**(p)

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ^2_p [keV]	$\Gamma_{p'}$ [eV]	$\gamma^2_{p'}$ [keV]	Γ [eV]	Rel.int. γ_i	E_{cm} [keV]	E^* [keV]	Ref.		
2887									2828	8100(3)	88Di03	91Zh07	
2889.9(40)*	5^+,3^+		30(10)	1.08	100(20)	3.21			2833	8105(3)	76Bi0A	88Di03	
2903	5^+								2846	8118(3)	88Di03		
2908									2851	8122(3)	88Di03		
2924									2867	8138(3)	88Di03		
2927.4(50)*	1^-		3500(200)	28.5					2870	8142(3)	76Bi0A		
2933.6(50)*	7^-		25(10)	0.81	10(5)	0.28			2876	8148(3)	76Bi0A	88Di03	91Zh07
2938.2	3^-		445(50)	3.52	150	8.83			2881	8152(3)	85Mi0A	88Di03	
2950									2892	8164(3)	88Di03		
2959.1(50)*	1^+		550(50)	2.10	50(15)	15.4			2901	8173(3)	76Bi0A	88Di03	91Zh07
2959.8(50)*	5^+,3^+		10(5)	0.31	7(5)	0.18			2902	8173(5)	76Bi0A	91Zh07	
2965.8	3^-		550(50)	4.13	75	4.03			2908	8179(3)	85Mi0A		
2976.8(50)*	5^+		50(15)	1.48	30(10)	0.73			2918	8190(3)	76Bi0A	88Di03	
2978									2920	8191(3)	88Di03		
2991.4	3^-		500(50)	3.58	150	7.41			2933	8204(3)	85Mi0A	88Di03	
2998									2939	8211(3)	88Di03		
3007									2948	8220(3)	88Di03		
3008.2	3^-		100(20)	0.69	21	0.98			2949	8221(3)	85Mi0A	88Di03	
3011	5^+								2952	8223(3)	88Di03		
3016									2957	8228(3)	88Di03		
3028.8	3^-		90	0.60	10	0.44			2969	8241(3)	85Mi0A	88Di03	
3034.2(50)*	1^-,3^-		1350(150)	8.99	250(50)	11.7			2975	8246(5)	76Bi0A	88Di03	
3042.0(50)*	1^+		140(15)	0.47		doublt			2982	8254(5)	76Bi0A	88Di03	
3048.1(50)*	5^+		30(10)	0.76	50(15)	0.97			2988	8260(3)	76Bi0A	88Di03	
3049	5^-,7^-								2989	8261(3)	88Di03		
3055	$\langle 3^-,7\rangle$								2995	8267(3)	88Di03		
3061.6(50)*	5^+,3^+		28(10)	0.69	9(5)	0.17			3002	8273(5)	76Bi0A	88Di03	
3065.8	3^-		1700	10.7	10	0.39			3006	8277(3)	85Mi0A	88Di03	
3071	3^-								3011	8282(3)	88Di03		
3073.4(50)*	1^+		75(20)	0.24					3013	8285(3)	76Bi0A		
3087									3026	8298(3)	88Di03		
3100.5(50)*	1^+		1700(200)	5.15					3040	8311(5)	76Bi0A	84Sz02	77Sa08
3101.3	3^-								3041	8312(3)	84Sz02		
3114.2	3^-		25	0.14	35	1.23			3053	8325(3)	85Mi0A	84Sz02	
3118.5(60)*	1^-3^-		75(20)	0.43	25(10)	0.90			3057	8329(3)	76Bi0A	84Sz02	
3128.7(60)*	5^+		400(75)	8.60	40(10)	0.61			3067	8339(3)	76Bi0A	84Sz02	
3138.2(60)*	5^+,3^+		20(10)	0.42	10(5)	0.15			3077	8348(6)	76Bi0A	84Sz02	
3140.3***	9^+								3079	8350(3)	84Sz02		
3147.1(60)*	5^+		225(50)	4.67	225(50)	3.29			3085	8357(3)	76Bi0A	84Sz02	
3152.7(60)*	5^+		1250(150)	25.7	550(100)	7.92			3091	8362(6)	76Bi0A	84Sz02	
3159.2	$\langle 1^+\rangle$		1560	4.4			1700		3097	8369(3)	83Ar10	76Bi0A	
3166.5***	$\langle 9^+\rangle$								3104	8376(3)	84Sz02		
3170.4	3^-		25	0.13	90	2.72			3108	8380(3)	85Mi0A	83Ar10	84Sz02
3172.3***	$\langle 9^+\rangle$								3110	8382(3)	84Sz02		
3173.8	3^-		700	3.65	27	0.81			3112	8383(3)	85Mi0A	83Ar10	

(continued) **$^{51}_{25}$Mn(p)**

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ^2_p [keV]	$\Gamma_{\mathrm{p}'}$ [eV]	$\gamma^2_{\mathrm{p}'}$ [keV]	Γ [eV]	Rel.int. γ_i	Rel.int. γ_j	E_cm [keV]	E^* [keV]	Ref.		
3174.7	5^+									3113	8384(3)	84Sz02		
3178.9***	9^+									3117	8388(3)	84Sz02		
3180.7(20)	$\langle 5^+ \rangle$		90	1.5			290			3118	8390(3)	83Ar10	84Sz02	
3182.8	5^-									3120	8392(3)	84Sz02		
3192.2***	9^+									3130	8401(3)	84Sz02		
3194.3	3^-		1625	8.20	9	0.26				3132	8403(3)	85Mi0A	83Ar10	84Sz02
3195.6(20)	5^+		60	1.1			180			3133	8404(3)	83Ar10		
3198.1	3^-									3135	8407(3)	84Sz02		
3198.4(20)	5^+		60	1.1			250			3136	8407(3)	83Ar10	77Sa08	
3215.0	3^-									3152	8423(3)	84Sz02		
3222.0	3^-		125	0.60	17	0.44				3159	8430(3)	85Mi0A	84Sz02	83Ar10
3232.0	3^-									3169	8440(3)	84Sz02		
3232.6***	$\langle 9^+ \rangle$									3169	8440(3)	84Sz02		
3234.4(20)	$\langle 1^+ \rangle$		700	1.7						3171	8443(3)	83Ar10	76Bi0A	84Sz02
3235.5***	$\langle 9^+ \rangle$									3172	8444(3)	84Sz02		
3244.4	$\langle 5^- \rangle$									3181	8452(3)	84Sz02		
3244.8(20)	9^+		20	10.9						3181	8453(3)	83Ar10	84Sz02	
3250.3	3^-									3187	8458(3)	84Sz02		
3252.3	1^+									3189	8460(3)	84Sz02		
3258.6***	9^+									3195	8466(3)	84Sz02		
3259.4	5^+		40	0.66	29	0.78				3196	8467(3)	85Mi0A	83Ar10	83Wh02
3263.7(20)	1^+		650	1.5	25	2.7				3200	8471(3)	77Sa08	83Ar10	76Bi0A
3264.8(20)	9^+		16	8.3						3201	8472(3)	83Ar10	84Sz02	
3269.1	3^-		50	0.22	53	1.20				3205	8477(3)	85Mi0A	83Ar10	77Sa08
3275.6***	9^+									3211	8483(3)	84Sz02		
3286.7	5^+		70	1.10	77	2.32				3222	8494(3)	85Mi0A	83Ar10	84Sz02
3290.4(20)	$[5^+]$		60	0.16			160			3226	8497(3)	83Ar10		
3292.3***	3^-,9^+		25	0.11	5	0.10				3228	8499(3)	85Mi0A	84Sz02	
3294.6	5^+		60	0.93	190	4.27				3230	8502(3)	85Mi0A	83Ar10	77Sa08
3298.0(20)	3^-		100	0.42						3233	8505(3)	83Ar10	77Sa08	
3306.5	3^+									3242	8513(3)	84Sz02		
3314.9	5^-		15	1.51	14	2.58				3250	8521(3)	85Mi0A	84Sz02	
3320.8(20)	1^+		800	1.8	80	7.2				3256	8527(3)	77Sa08	83Ar10	84Sz02
3332.3	5^-		20	1.93	10	1.07				3267	8538(3)	85Mi0A	84Sz02	
3336.2***	9^+									3271	8542(3)	84Sz02		
3345.4	3^-		200	0.79	42	0.77				3280	8551(3)	85Mi0A	83Ar10	77Sa08
3350.6***	9^+									3285	8556(3)	84Sz02		
3351.2***	9^+									3286	8557(3)	84Sz02		
3360.8(20)	1^-		800	3.1						3295	8566(3)	83Ar10		
3369.3	3^+		60	0.81	50	1.36**				3303	8575(3)	85Mi0A		
3374.5	3^+		23	0.30	5	0.14**				3308	8580(3)	85Mi0A	77Sa08	
3378.0(20)	1^+		1800	3.7	60	4.6				3312	8583(3)	83Ar10	77Sa08	
3409.5	3^-		45	0.16	7	0.11				3343	8614(3)	85Mi0A	83Ar10	
3414.9(20)	1^+		10	0.02						3348	8619(3)	83Ar10		
3417.7	5^+		160	1.99	400	7.37				3351	8622(3)	85Mi0A	77Sa08	83Wh02

(continued) $^{51}_{25}\mathbf{Mn}(\mathrm{p})$

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ^2_p [keV]	$\Gamma_{\mathrm{p}'}$ [eV]	$\gamma^2_{\mathrm{p}'}$ [keV]	Γ [eV]	Rel.int. γ_i	Rel.int. γ_j	E_cm [keV]	E^* [keV]	Ref.		
3418.9	1^-		300	1.1	30	0.47				3352	8623(3)		77Sa08	
3453.5	$[3^-]$		50	0.17						3386	8657(3)		77Sa08	
3453.7(20)	1^+		300	0.6	100	6.2				3386	8658(3)	83Ar10	77Sa08	
3454.9	5^+		350	4.09	205	4.30				3387	8659(3)	85Mi0A	83Ar10	77Sa08
3469.7	5^+		300	3.42	345	5.67				3402	8673(3)	85Mi0A	83Ar10	77Sa08
3473.3(20)	3^-		150	0.49						3405	8677(3)	83Ar10	77Sa08	
3476.7	3^+		30	0.34	17	0.22**				3409	8680(3)	85Mi0A	83Ar10	
3476.8(20)	1^+		30	0.05						3409	8680(3)	83Ar10		
3485.6(20)	$[5^+]$		20	0.22						3417	8689(3)	83Ar10	83Wh02	
3489.2	$[5^+]$		150	1.65	[1000]					3421	8692(3)		77Sa08	
3489.9(20)	1^+		6000	10.7	300	17.1				3421	8693(3)	83Ar10	77Sa08	
3507.4(20)	1^-		750	2.3	60	0.76				3439	8710(3)	83Ar10	77Sa08	
3515.0	$[3^+]$		23	0.24	37	0.43**				3446	8718(3)	85Mi0A		
3529.4(20)	1^+		2500	4.2	200	10.2				3460	8732(3)	83Ar10	77Sa08	
3538.6	$[3^-]$		30	0.09						3469	8741(3)	83Ar10		
3541.3	3^-		80	0.24	28	0.33				3472	8743(3)	85Mi0A	83Ar10	77Sa08
3546.0(20)	1^+		10000	16.7	1100	54.2				3476	8748(3)	83Ar10	77Sa08	
3551.8	5^-		15	0.94	13	1.87				3482	8754(3)	85Mi0A		
3553.8	3^-		150	0.44	58	0.66				3484	8756(3)	85Mi0A	83Ar10	77Sa08
3555.4	$[3^+]$		80	0.79	100	4.73**				3486	8757(3)	85Mi0A		
3565.7	3^+		200	1.95	1225	18.7**				3496	8767(3)	85Mi0A		
3577.9(20)	3^-		200	0.57						3508	8779(3)	83Ar10	77Sa08	
3585.0	$[5^+]$		8	0.08	81	1.65				3515	8786(3)	85Mi0A		
3593.5(20)	$[3^+]$		50	0.47						3523	8795(3)	83Ar10		
3595.8	5^+		50	0.47	36	0.57				3525	8797(3)	85Mi0A	83Ar10	83Wh02
3598.7(20)	1^-		400	1.1	400	4.14				3528	8800(3)	83Ar10	77Sa08	
3603.5(20)	1^+		100	0.16						3533	8804(3)	83Ar10		
3615.7	3^+		65	0.59	70	0.74**				3545	8816(3)	85Mi0A	83Ar10	77Sa08
3638.5(20)	1^-		750	2.0	20	0.19				3567	8839(3)	83Ar10	77Sa08	
3644.7	3^-		190	0.50						3573	8845(3)	85Mi0A	83Ar10	77Sa08
3645.9(20)	1^+		800	1.2	200	7.8				3574	8846(3)	83Ar10	77Sa08	
3647.2	5^+		180	1.55	84	0.79				3576	8847(3)	85Mi0A	83Ar10	83Wh02
3650.3	3^-		150	0.39	53	0.49				3579	8850(3)	85Mi0A	83Ar10	77Sa08
3653.2	3^+		105	0.89	150	2.82**				3582	8853(3)	85Mi0A		
3654.9	5^+		150	1.28	115	1.65				3583	8855(3)	85Mi0A	83Ar10	83Wh02
3664.2(20)	1^-		800	2.1	180	1.63				3592	8864(3)	83Ar10	77Sa08	
3664.2	3^-		400	1.03	92	0.83				3592	8864(3)	85Mi0A		
3670.1(20)	1^+		3500	5.1	400	14.7				3598	8870(3)	83Ar10	77Sa08	
3673.2	3^+		250	2.07	380	3.95**				3601	8873(3)	85Mi0A	83Ar10	77Sa08
3675.0	5^+		550	4.54	995	9.82				3603	8874(3)	85Mi0A	83Ar10	83Wh02
3682.3	5^+		30	0.24	42	0.60				3610	8882(3)	85Mi0A	83Wh02	
3694.7(20)	1^-		3500	8.7	100	0.85				3622	8894(3)	83Ar10	77Sa08	
3703.9	$[3^+]$		50	0.40						3631	8903(3)	83Ar10		
3707.4	5^+		380	2.99	315	1.85				3635	8906(3)	85Mi0A	77Sa08	83Wh02
3709.9	5^+		40	0.31	205	2.42				3637	8909(3)	85Mi0A	83Wh02	

(continued)

$^{51}_{25}$Mn(p)

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ^2_p [keV]	$\Gamma_{\mathrm{p}'}$ [eV]	$\gamma^2_{\mathrm{p}'}$ [keV]	Γ [eV]	Rel.int. γ_i	E_cm [keV]	E^* [keV]	Ref.			
3720.8(20)	1^+		17500	24.2	1000	32.7			3648	8919(3)	83Ar10	77Sa08		
3722.4	5^+		50	0.38	48	0.71			3649	8921(3)	85Mi0A	83Ar10	83Wh02	
3732.1	3^+		30	0.23	180	4.42**			3659	8930(3)	85Mi0A			
3739.9	3^-		150	0.35	105	0.81			3667	8938(3)	85Mi0A	83Ar10	77Sa08	
3744.0	5^+		50	0.37	290	3.64			3671	8942(3)	85Mi0A	83Ar10	83Wh02	
3750.9(20)	1^+		850	1.1	200	6.1			3677	8949(3)	83Ar10	77Sa08		
3752.8	5^+		20	0.15	9	0.12			3679	8951(3)	85Mi0A	83Wh02		
3754.0	5^+		20	0.15	1	0.02			3680	8952(3)	85Mi0A	83Wh02		
3757.8	3^+		60	0.44	23	0.52**			3684	8956(3)	85Mi0A			
3760.0	3^-		450	1.03	210	1.57			3686	8958(3)	85Mi0A	83Ar10	77Sa08	
3766.2	3^+		60	0.43	390	3.03**			3692	8964(3)	85Mi0A			
3774.0	5^-		70	2.92	32	1.24			3700	8971(3)	85Mi0A			
3776.3	3^-		550	1.24	210	1.53			3702	8974(3)	85Mi0A	77Sa08		
3780.1	3^-		80	0.18	220	1.59			3706	8978(3)	85Mi0A	77Sa08		
3787.6	3^+		30	0.21	23	0.46**			3713	8985(3)	85Mi0A			
3790.8(20)	1^+		1000	1.3	200	5.6			3717	8988(3)	83Ar10	77Sa08		
3796.0	3^+		300	2.07	635	4.75**			3722	8993(3)	85Mi0A			
3805.1	3^-		160	0.35	45	0.31			3731	9002(3)	85Mi0A	77Sa08		
3811.1	$[3^-]$		25(5)	0.05	39	0.26			3736	9008(3)	85Mi0A	77Sa08		
3813.5	5^+		60	0.40	535	4.95			3739	9010(3)	85Mi0A	83Ar10	83Wh02	
3823.3	5^-		10	0.38	16	0.74			3748	9020(3)	85Mi0A			
3830.2(20)	3^-		70	0.15					3755	9027(3)	83Ar10	77Sa08		
3831.4	5^+		150	0.99	100	1.50			3756	9028(3)	85Mi0A	83Ar10	83Wh02	
3835.8(20)	1^+		400	0.5	75	1.9			3761	9032(3)	83Ar10	77Sa08		
3833.6	5^+		75	0.49	80	0.88			3758	9030(3)	85Mi0A	83Ar10	83Wh02	
3839.9(20)	$[3^+]$		150	0.97					3765	9036(3)	83Ar10	77Sa08		
3842.5(20)	1		1300	2.7					3767	9039(3)	83Ar10	77Sa08		
3839.9	3^+		150	0.98	17	0.21**			3765	9036(3)	85Mi0A			
3860.6	5^+		75	0.47	69	0.61			3785	9056(3)	85Mi0A	83Ar10	83Wh02	
3863.5	5^+		130	0.82	43	0.63			3788	9059(3)	85Mi0A	83Ar10	83Wh02	
3869.0(20)	1^+		1500	1.8	70	1.7			3793	9065(3)	83Ar10	77Sa08		
3872.1(20)	1^+		10	0.01					3796	9068(3)	83Ar10			
3876.4	5^-		10	0.35	19	0.32			3800	9072(3)	85Mi0A			
3881.5	5^+		70	0.43	33	0.16			3805	9077(3)	85Mi0A	83Ar10	83Wh02	
3887.0(20)	$[3^-]$		50	0.10					3811	9082(3)	83Ar10			
3895.0(20)	1^+		400	0.5	50	1.1			3819	9090(3)	83Ar10	77Sa08		
3906.7	5^+		200	1.19	71	0.53			3830	9102(3)	85Mi0A	83Ar10	77Sa08	
3917.6	5^+		250	1.46	93	0.56			3841	9112(3)	85Mi0A	83Ar10		77Sa08
3921.4(20)	1^+		200	0.23					3845	9116(3)	83Ar10			
3924.0	3^-		850	1.63	415	2.32			3847	9119(3)	85Mi0A	77Sa08		
3929.8(20)	1^-		500	0.10					3853	9124(3)	83Ar10			
3932.9	3^-		50	0.09	515	2.83			3856	9127(3)	85Mi0A	77Sa08		
3950.0	5^+		300	1.68	100	0.86			3873	9144(3)	85Mi0A	83Ar10		77Sa08
3954.7(20)	1^+		4000	4.4					3877	9149(3)	83Ar10	77Sa08		
3962.2	3^+		75	0.41	240	2.40**			3885	9156(3)	85Mi0A	83Ar10		

(continued) $^{51}_{25}\mathbf{Mn}(\mathrm{p})$

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ^2_p [keV]	$\Gamma_{\mathrm{p}'}$ [eV]	$\gamma^2_{\mathrm{p}'}$ [keV]	Γ [eV]	Rel.int. γ_i	Rel.int. γ_j	E_cm [keV]	E^* [keV]	Ref.		
3967.7	5^+		120	0.66	62	0.44				3890	9161(3)	85Mi0A	83Ar10	77Sa08
3970.3	3^+		90	0.49	54	0.26**				3893	9164(3)	85Mi0A	83Ar10	77Sa08
3975.8	5^+		200	1.08	140	0.57				3898	9169(3)	85Mi0A	83Wh02	
3978.2(20)	1^-		100	0.18						3900	9172(3)	83Ar10		
3981.2	3^-		300	0.54	250	1.28				3903	9175(3)	85Mi0A		
3984.5(20)	1^+		900	1.0	30	0.6				3906	9178(3)	83Ar10	77Sa08	
3993.0	3^-		3000	5.27	260					3915	9186(3)		77Sa08	
3994.5(20)	1^+		1500	1.6						3916	9188(3)	83Ar10	77Sa08	
3998.4	3^+		150	0.79	61	0.55**				3920	9192(3)	85Mi0A		
4013.3	5^+		160	0.83	56	0.61				3935	9206(3)	85Mi0A	83Wh02	
4015.6	3^-		100	0.17	100	0.49				3937	9208(3)	85Mi0A		
4017.7	3^-		200	0.35	19	0.09				3939	9210(3)	85Mi0A		
4026.0	1^+		300	0.3						3947	9219(3)		77Sa08	
4033.8	5^+		200	1.01	130	0.43				3955	9226(3)	85Mi0A	83Wh02	
4047.1	1^-		2000	3.3	200	0.9				3968	9239(3)		77Sa08	
4061.3	3^+		150	0.73	89	0.91**				3982	9253(3)	85Mi0A		
4072.2	3^-		75	0.12	36	0.16				3992	9264(3)	85Mi0A	77Sa08	
4078.8	5^-		80	2.04	111	3.79				3999	9270(3)	85Mi0A		
4091.0	1^+		600	0.6						4011	9282(3)		77Sa08	
4092.8	1^-		1800	2.9	200	0.84				4013	9284(3)		77Sa08	
4094.8	3^-		600	0.95	600					4015	9286(3)		77Sa08	
4113.3	1^+		500	0.5	300	4.4				4033	9304(3)		77Sa08	
4114.3	3^-		80	0.13	80					4034	9305(3)		77Sa08	
4130.2	5^+		200	0.89	43	0.22				4049	9321(3)	85Mi0A	83Wh02	
4140.1	3^+		150	0.66	430	1.70**				4059	9330(3)	85Mi0A		
4161.9	5^+		150	0.65	63	0.64				4080	9352(3)	85Mi0A	83Wh02	
4180.0	5^+		200	0.83	120					4098	9370(3)		77Sa08	
4189.3	3^-		75	0.11	100	0.37				4107	9379(3)	85Mi0A	77Sa08	
4192.0	1^+		4500	4.1	200	2.5				4110	9381(3)		77Sa08	
4203.6	5^+		150	0.62	260	1.08				4121	9393(3)	85Mi0A	83Wh02	
4210.5	5^+		50	0.20	47	0.34				4128	9399(3)	85Mi0A	83Wh02	
4215.8	3^-		150	0.22	105	0.36				4133	9405(3)	85Mi0A	77Sa08	
4216.2	1^+		5000	4.5						4134	9405(3)		77Sa08	
4220.0	5^+		40	0.16	49	0.29				4137	9409(3)	85Mi0A	83Wh02	
4235.5	5^+		300	1.19	125	0.41				4153	9424(3)	85Mi0A	83Wh02	
4260.3	1^+		3200	2.8	200	2.2				4177	9448(3)		77Sa08	
4267.5	3^-		250	0.34	450					4184	9455(3)		77Sa08	
4274.4	1^+		200	0.2	150	1.6				4191	9462(3)		77Sa08	
4277.9	5^+		150	0.56	52	0.15				4194	9466(3)	85Mi0A	83Wh02	
4286.9	1^+		600	0.5	50	0.5				4203	9474(3)		77Sa08	
4295.3	3^-		150	0.20	185	0.59				4211	9483(3)	85Mi0A	77Sa08	
4303.8	1^-		3600	4.7	150	0.46				4219	9491(3)		77Sa08	
4329.6	1^-		15000	19.3	1000	2.99				4245	9516(3)		77Sa08	
6025	3^-		⟨10000⟩				20800			5907	11178	86Sh34		

(continued) $^{51}_{25}$**Mn**(p)

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ_p^2 [keV]	$\Gamma_{p'}$ [eV]	$\gamma_{p'}^2$ [keV]	Γ [eV]	Rel.int. γ_i	Rel.int. γ_j	E_{cm} [keV]	E^* [keV]	Ref.
6051	5^+		3500				8300			5932	11204	86Sh34
6070	1^+		⟨7500⟩				13500			5951	11222	86Sh34

Additional data on this isotope can be found in [97Zh09, 93Ca12, 91Zh07, 86Sh34, 86Zh02, 84Br26, 83Ar10, 77Di05, 75Di13, 74Sc17, 74Ne12, 69Ky01, 67Ab01, 67Er05, 66St10, 64Ar19].

* The upward shift by the value in parentheses was made to fit the energy scales in different measurements [76Bi0A, 85Mi0A]; this procedure was introduced to avoid the double counting of the resonances (see Introduction).

** For $J^\pi=3/2^+$ resonances the first of two possible values of inelastic reduced widths (given in [85Mi0A, 83Wh02]) is presented.

*** Estimated and measured partial widths Γ_p, Γ_{p_1}, Γ_{p_2}, γ_p^2, $\gamma_{p'}^2$, S_{pp_1}, S_{pp_2} of all resonances forming fragments of the $\gamma_{9/2}$ isobar analog resonance are given in [84Sz02].

Relative intensities of γ-yield measured in [86Di01] and [67Wa21] are given in the separate columns as γ_i and γ_j, respectively.

Ratios Γ_p/Γ are given in [83Ar10] for several resonances.

Parameters of inelastic proton scattering for resonances with $J^\pi=3/2^-$. $^{51}_{25}$**Mn**(p)

$E_\circ$ [keV]	$2J^\pi$	$\Gamma_{p'}$ [eV]	$\gamma_{p'}^2$ [keV]	γ_{s13}^2 [keV]	γ_{s15}^2 [keV]	$\gamma_{s13}\gamma_{s15}$ [keV]	E^* [keV]	Ref.	
2039.7	3^-	1	6.37	6.35	0.02	–0.38	7357.7(4)	85Mi0A	
2062.5	3^-	1	5.32	2.61	2.71	–2.66	7371.5(4)	85Mi0A	
2299.5	3^-	2	2.08	1.73	0.35	–0.78	7568.0(20)	85Mi0A	
2331.7	3^-	25	21.6	19.68	1.89	–6.10	7618.5(4)	85Mi0A	
2457.0	3^-	30	13.1	8.77	4.30	–6.14		85Mi0A	
2495.3	3^-	25	8.98	5.42	3.56	–4.39	7717.8(4)	85Mi0A	
2553.1	3^-	15	4.08	3.29	0.79	–1.61	7774.5(4)	85Mi0A	
2699.0	3^-	25	3.59	2.57	1.02	1.62	7917.5(4)	85Mi0A	
2753.7	3^-	50	5.76	3.12	2.64	2.87	7971.2(4)	85Mi0A	
2797.0	3^-	25	2.43	0.56	1.87	1.02	8013.6(4)	85Mi0A	
2860.2	3^-	20	1.54	0.36	1.18	0.65	8075.6(4)	85Mi0A	
2938.2	3^-	150	8.83	8.19	0.64	2.29	8152.1(4)	85Mi0A	
2965.8	3^-	75	4.03	3.25	0.78	1.59	8179.1(4)	85Mi0A	
2991.4	3^-	150	7.41	4.61	2.80	–3.59	8204.2(4)	85Mi0A	
3008.2	3^-	21	0.98	0.93	0.05	–0.22	8220.7(4)	85Mi0A	
3028.8	3^-	10	0.44	0.25	0.19	0.22	8240.9(4)	85Mi0A	
3065.8	3^-	10	0.39	0.29	0.10	0.17	8277.2(4)	85Mi0A	83Sh22
3114.2	3^-	35	1.23	0.55	0.68	–0.61	8324.6(4)	85Mi0A	83Sh22
3170.4	3^-	90	2.72	1.64	1.08	–1.33	8379.7(4)	85Mi0A	83Sh22
3173.8	3^-	27	0.81	0.30	0.51	0.39	8383.0(4)	85Mi0A	83Sh22
3194.3	3^-	9	0.26	0.10	0.16	0.13	8403.1(4)	85Mi0A	83Sh22
3222.0	3^-	17	0.44	0.18	0.26	0.22	8430.3(4)	85Mi0A	83Sh22

(continued) $^{51}_{25}$Mn(p)

$E_\circ$ [keV]	$2J^\pi$	$\Gamma_{p'}$ [eV]	$\gamma^2_{p'}$ [keV]	γ^2_{s13} [keV]	γ^2_{s15} [keV]	$\gamma_{s13}\gamma_{s15}$ [keV]	E^* [keV]	Ref.	
3269.1	3^-	53	1.20	1.16	0.05	0.24	8476.5(4)	85Mi0A	83Sh22
3292.3	3^-			0.00	0.10	0.01	8502.9(20)	85Mi0A	83Sh22
3345.4	3^-	42	0.77	0.37	0.40	–0.39	8551.3(4)	85Mi0A	83Sh22
3409.5	3^-	7	0.11	0.01	0.10	0.03	8614.1(4)	85Mi0A	83Sh22
3541.3	3^-	28	0.33	0.02	0.31	0.08	8743.3(4)	85Mi0A	83Sh22
3553.8	3^-	58	0.66	0.34	0.32	0.33	8755.6(4)	85Mi0A	83Sh22
3638.5	3^-			0.06	0.08	0.07	8838.6(4)	85Mi0A	83Sh22
3650.3	3^-	53	0.49	0.36	0.13	–0.22	8850.2(4)	85Mi0A	83Sh22
3664.2	3^-	92	0.83	0.58	0.25	0.38	8863.8(4)	85Mi0A	83Sh22
3739.9	3^-	105	0.81	0.51	0.30	0.39	8938.0(4)	85Mi0A	83Sh22
3760.0	3^-	210	1.57	0.48	1.09	0.72	8957.7(4)	85Mi0A	83Sh22
3776.3	3^-	210	1.53	0.78	0.76	0.77	8973.7(4)	85Mi0A	83Sh22
3780.1	3^-	220	1.59	1.44	0.15	0.46	8977.5(4)	85Mi0A	83Sh22
3805.1	3^-	45	0.31	0.23	0.08	0.14	9002.0(4)	85Mi0A	83Sh22
3811.1	3^-			0.03	0.24	0.08	9024.3(20)	85Mi0A	83Sh22
3924.0	3^-	415	2.32	1.46	0.87	–0.12	9118.5(4)	85Mi0A	83Sh22
3932.9	3^-	515	2.83	0.19	2.64	0.71	9127.3(4)	85Mi0A	83Sh22
3981.2	3^-	250	1.28	0.03	1.25	0.19	9174.6(4)	85Mi0A	83Sh22
4015.6	3^-	100	0.49	0.23	0.26	0.24	9208.3(4)	85Mi0A	83Sh22
4017.7	3^-	19	0.09	0.03	0.07	0.04	9210.4(4)	85Mi0A	83Sh22
4072.2	3^-	36	0.16	0.08	0.08	0.08	9263.8(4)	85Mi0A	83Sh22
4189.3	3^-	100	0.37	0.16	0.21	0.18	9378.6(4)	85Mi0A	83Sh22
4215.8	3^-	105	0.36	0.07	0.30	0.14	9404.6(4)	85Mi0A	83Sh22
4295.3	3^-	185	0.59	0.22	0.37	–0.28	9482.5(4)	85Mi0A	83Sh22
Average				1.82	0.83	–0.29		85Mi0A	

For notation see Table 3 in Introduction and [85Mi0A].

Parameters of inelastic proton scattering for resonances with $J^\pi=3/2^+$. $^{51}_{25}$Mn(p)

$E_\circ$ [keV]	$2J^\pi$	$\gamma^2_{p'}$ [keV]	γ^2_{s03} [keV]	γ^2_{s23} [keV]	γ^2_{s25} [keV]	$\gamma_{s03}\gamma_{s23}$ [keV]	$\gamma_{s03}\gamma_{s25}$ [keV]	$\gamma_{s23}\gamma_{s25}$ [keV]	E^* [keV]	Ref.
3369.3	3^+	1.36	0.30	0.98	0.08	0.54	0.16	0.29	8574.7(4)	85Mi0A
		1.36	0.27	1.16	0.17	0.56	–0.21	–0.44		85Mi0A
3374.5	3^+	0.14	0.02	0.09	0.02	0.05	0.02	0.04	8579.8(4)	85Mi0A
		0.14	0.02	0.12	0.03	0.05	–0.03	–0.06		85Mi0A
3476.7	3^+	0.22	0.09	0.09	0.04	0.09	0.06	0.06	8680.0(4)	85Mi0A
		0.22	0.09	0.11	0.07	0.10	–0.08	–0.09		85Mi0A
3515.0	$[3^+]$	0.43	0.19	0.22	0.02	0.20	0.06	0.07	8717.5(4)	85Mi0A
		0.43	0.18	0.25	0.06	0.21	–0.10	–0.12		85Mi0A
3555.4	$[3^+]$	4.73	0.03	4.15	0.55	–0.34	–0.12	1.51	8757.2(4)	85Mi0A
		4.73	0.00	2.69	2.21	0.11	0.10	2.44		85Mi0A

(continued) $^{51}_{25}$Mn(p)

$E_\circ$ [keV]	$2J^\pi$	$\gamma^2_{p'}$ [keV]	γ^2_{s03} [keV]	γ^2_{s23} [keV]	γ^2_{s25} [keV]	$\gamma_{s03}\gamma_{s23}$ [keV]	$\gamma_{s03}\gamma_{s25}$ [keV]	$\gamma_{s23}\gamma_{s25}$ [keV]	E^* [keV]	Ref.
3565.7	3^+	18.7	4.98	4.57	9.12	4.77	6.74	6.45	8767.3(4)	85Mi0A
		18.7	4.27	7.54	12.44	5.68	–7.29	–9.68		85Mi0A
3615.7	3^+	0.74	0.29	0.11	0.34	–0.18	–0.31	0.19	8816.3(4)	85Mi0A
		0.74	0.26	0.04	0.60	–0.10	0.40	–0.16		85Mi0A
3653.2	3^+	2.82	0.39	0.02	2.41	0.08	0.97	0.21	8853.0(4)	85Mi0A
		2.82	0.36	0.06	2.64	0.15	–0.97	–0.40		85Mi0A
3673.2	3^+	3.95	1.35	0.52	2.08	–0.84	–1.68	1.04	8872.6(4)	85Mi0A
		3.95	1.23	0.17	3.43	–0.45	2.06	–0.75		85Mi0A
3732.1	3^+	4.42	0.18	4.22	0.02	0.87	0.06	0.29	8930.4(4)	85Mi0A
		4.42	0.18	4.22	0.02	0.87	0.06	0.29		85Mi0A
3757.8	3^+	0.52	0.02	0.16	0.33	0.06	0.09	0.23	8955.6(4)	85Mi0A
		0.52	0.00	0.40	0.25	0.04	–0.03	–0.32		85Mi0A
3766.2	3^+	3.03	1.21	0.94	0.88	1.07	1.03	0.91	8963.8(4)	85Mi0A
		3.03	1.10	1.34	1.37	1.22	–1.23	–1.35		85Mi0A
3787.6	3^+	0.46	0.03	0.03	0.41	0.03	0.11	0.11	8984.8(4)	85Mi0A
		0.46	0.01	0.11	0.44	0.04	–0.08	–0.22		85Mi0A
3796.0	3^+	4.75	1.87	0.26	2.62	0.69	2.22	0.82	8993.0(4)	85Mi0A
		4.75	1.76	0.46	3.30	0.90	–2.41	–1.23		85Mi0A
3839.9	3^+	0.21	0.03	0.09	0.09	0.05	0.05	0.09	9036.1(4)	85Mi0A
		0.21	0.02	0.16	0.10	0.06	–0.05	–0.12		85Mi0A
3962.2	3^+	2.40	0.38	2.02	0.00	0.88	0.02	–0.04	9156.0(4)	85Mi0A
		2.40	0.38	2.02	0.00	0.88	–0.02	–0.04		85Mi0A
3970.3	3^+	0.26	0.13	0.04	0.10	–0.07	–0.11	0.06	9163.9(4)	85Mi0A
		0.26	0.12	0.01	0.18	–0.04	–0.15	–0.05		85Mi0A
3998.4	3^+	0.55	0.09	0.44	0.01	0.20	0.03	0.07	9191.5(4)	85Mi0A
		0.55	0.09	0.49	0.02	0.21	–0.04	–0.09		85Mi0A
4061.3	3^+	0.91	0.09	0.73	0.09	0.26	0.09	0.25	9253.1(4)	85Mi0A
		0.91	0.07	0.91	0.07	0.25	–0.07	–0.24		85Mi0A
4140.1	3^+	1.70	0.77	0.70	0.23	0.74	0.42	0.40	9330.4(4)	85Mi0A
		1.70	0.71	0.90	0.42	0.80	–0.55	–0.62		85Mi0A

For notation see Table 3 in Introduction and [85Mi0A].

Parameters of inelastic proton scattering for resonances with J^π=5/2$^+$. $^{51}_{25}$Mn(p)

$E_\circ$ [keV]	$2J^\pi$	$\gamma^2_{p'}$ [keV]	γ^2_{s05} [keV]	γ^2_{s23} [keV]	γ^2_{s25} [keV]	$\gamma_{s05}\gamma_{s23}$ [keV]	$\gamma_{s05}\gamma_{s25}$ [keV]	$\gamma_{s23}\gamma_{s25}$ [keV]	E^* [keV]	Ref.	
3259.4	5^+	40	0.26	0.25	0.28	0.25	0.27	0.26	8466.4	85Mi0A	83Wh02
3286.7	5^+	70	0.58	0.77	0.96	0.67	0.75	0.86	8493.2	85Mi0A	
3294.6	5^+	60	1.57	1.47	1.22	1.52	1.39	1.34	8500.9	85Mi0A	
3417.7	5^+	160	2.39	2.33	2.65	2.36	2.52	2.48	8621.6	85Mi0A	
3454.9	5^+	350	1.03	1.31	1.95	1.16	1.42	1.60	8658.0	85Mi0A	

(continued) $^{51}_{25}\mathbf{Mn}(\mathrm{p})$

$E_\circ$ [keV]	$2J^\pi$	$\gamma^2_{\mathrm{p}'}$ [keV]	$\gamma^2_{\mathrm{s}05}$ [keV]	$\gamma^2_{\mathrm{s}23}$ [keV]	$\gamma^2_{\mathrm{s}25}$ [keV]	$\gamma_{\mathrm{s}05}\gamma_{\mathrm{s}23}$ [keV]	$\gamma_{\mathrm{s}05}\gamma_{\mathrm{s}25}$ [keV]	$\gamma_{\mathrm{s}23}\gamma_{\mathrm{s}25}$ [keV]	E^* [keV]	Ref.
3469.7	5^+	300	1.81	1.26	2.60	1.51	2.17	1.81	8672.5	85Mi0A
3585.0	$[5^+]$	8	0.26	0.35	1.04	–0.30	0.52	–0.60	8785.6	85Mi0A
3595.8	5^+	50	0.13	0.12	0.31	–0.13	0.20	–0.20	8796.1	85Mi0A
3647.2	5^+	180	0.33	0.29	0.17	0.31	0.23	0.22	8846.5	85Mi0A
3654.9	5^+	150	0.38	0.78	0.50	0.54	0.43	0.62	8854.1	85Mi0A
3675.0	5^+	550	3.57	6.20	0.05	4.71	0.42	0.55	8873.8	85Mi0A
3682.3	5^+	30	0.12	0.17	0.31	0.14	–0.20	–0.23	8880.9	85Mi0A
3707.4	5^+	380	1.21	0.26	0.37	0.56	0.67	0.31	8905.5	85Mi0A
3709.9	5^+	40	0.61	0.74	1.08	0.67	–0.81	–0.89	8908.0	85Mi0A
3722.4	5^+	50	0.12	0.59	0.00	0.26	–0.02	–0.05	8920.2	85Mi0A
3744.0	5^+	50	0.77	1.45	1.42	1.06	1.04	1.43	8941.4	85Mi0A
3752.8	5^+	20	0.02	0.08	0.02	–0.04	–0.02	0.04	8950.0	85Mi0A
3754.0	5^+	20	0.00	0.02	0.00	–0.01	0.00	0.00	8951.2	85Mi0A
3813.5	5^+	60	1.37	2.39	1.19	–1.81	–1.28	1.69	9009.5	85Mi0A
3831.4	5^+	150	0.16	1.20	0.15	–0.44	–0.15	0.42	9027.1	85Mi0A
3833.6	5^+	75	0.17	0.26	0.44	0.21	0.28	0.34	9029.2	85Mi0A
3860.6	5^+	75	0.16	0.38	0.06	0.25	–0.10	–0.16	9055.7	85Mi0A
3863.5	5^+	130	0.06	0.12	0.44	0.09	0.17	0.23	9058.6	85Mi0A
3881.5	5^+	70	0.09	0.01	0.06	–0.03	0.08	–0.03	9076.2	85Mi0A
3906.7	5^+	200	0.16	0.21	0.16	–0.18	0.16	–0.19	9100.9	85Mi0A
3917.6	5^+	250	0.22	0.04	0.29	0.09	0.26	0.11	9111.6	85Mi0A
3950.0	5^+	300	0.19	0.04	0.63	0.08	0.35	0.15	9143.3	85Mi0A
3967.7	5^+	120	0.12	0.07	0.24	–0.10	–0.17	0.13	9160.7	85Mi0A
3975.8	5^+	200	0.35	0.17	0.05	–0.24	0.14	–0.10	9168.6	85Mi0A
4013.3	5^+	160	0.06	0.28	0.27	0.13	0.13	0.27	9205.4	85Mi0A
4033.8	5^+	200	0.31	0.03	0.09	0.10	0.17	0.05	9225.5	85Mi0A
4130.2	5^+	200	0.07	0.01	0.13	0.03	–0.10	–0.04	9320.0	85Mi0A
4161.9	5^+	150	0.04	0.25	0.34	–0.10	0.12	–0.29	9351.1	85Mi0A
4203.6	5^+	150	0.40	0.18	0.50	0.27	0.45	0.30	9391.9	85Mi0A
4210.5	5^+	50	0.05	0.19	0.11	–0.09	0.07	–0.14	9398.7	85Mi0A
4220.0	5^+	40	0.06	0.22	0.01	–0.11	0.02	–0.05	9408.0	85Mi0A
4235.5	5^+	300	0.20	0.21	0.00	0.20	–0.03	–0.03	9423.2	85Mi0A
4277.9	5^+	150	0.08	0.02	0.05	0.04	0.06	0.03	9464.8	85Mi0A
Average	5^+		0.51	0.65	0.53	0.36	0.30	0.32		85Mi0A

For notation see Table 3 in Introduction and [85Mi0A].

Parameters of inelastic proton scattering for resonances with $J^\pi=5/2^-$. $^{51}_{25}\mathbf{Mn}(\mathrm{p})$

$E_\circ$ [keV]	$2J^\pi$	$\gamma^2_{p'}$ [keV]	γ^2_{s13} [keV]	γ^2_{s15} [keV]	γ^2_{s33} [keV]	γ^2_{s35} [keV]	$\gamma_{s13}\gamma_{s15}$ [keV]	$\gamma_{s15}\gamma_{s33}$ [keV]	$\gamma_{s13}\gamma_{s35}$ [keV]	E^* [keV]	Ref.
3314.9	5^-	2.58	0.03	0.19	0.00	2.35	–0.08	0.00	–0.28	8521.4(4)	85Mi0A
3332.3	5^-	1.07	0.12	0.05	0.39	0.51	0.08	0.22	0.25	8538.4(4)	85Mi0A
3551.8	5^-	1.87	0.00	0.09	1.75	0.03	0.02	0.08	0.01	8753.6(4)	85Mi0A
3774.0	5^-	1.24	0.10	0.10	0.18	0.86	0.10	0.13	0.29	8971.5(4)	85Mi0A
3823.3	5^-	0.74	0.08	0.01	0.00	0.66	0.02	0.01	0.23	9019.8(4)	85Mi0A
3876.4	5^-	0.32	0.03	0.08	0.90	0.21	0.05	0.01	0.08	9071.9(4)	85Mi0A
4078.8	5^-	3.79	0.26	0.08	0.02	3.42	0.15	0.08	0.95	9270.3(4)	85Mi0A
Average			0.09	0.09	0.33	1.15	0.07	0.02	0.04		85Mi0A

For notation see Table 3 in Introduction and [85Mi0A].

Branching ratios of γ-transitions [86Di01, 72Fo25]. Part 1 $^{51}_{25}\mathbf{Mn}(\mathrm{p})$

E^* [keV]	$2J^\pi$	$E_\circ$ [keV]	Branching ratios Percentage											Ref.
E^*			0.0	237	1140	1488	1817	1825	1959	2140	2256	2276	2310	
$2J^\pi_f$			5^-	7^-	$\langle 9^-\rangle$	11^-	3	X^-	1^-	3^-	$\langle 5^-\rangle$	1^+	$\langle 5^-\rangle$	
237.3(2)	7^-		100											86Di01
1139.8(3)	$\langle 9\rangle^-$		15	85										86Di01
1488(2)	$\langle 11\rangle^-$		<2	64	36									86Di01
1817.1(2)	3		97	3										86Di01
1824.6(1)	3^-–7^-		100											86Di01
1959.1(6)	1^-		100	<2										86Di01
2140.4(2)	3^-		98	2										86Di01
2255.7(1)	$\langle 5^-\rangle$		27	73										86Di01
2275.9(2)	1^+		2				61	11	12	14				86Di01
2310.0(5)	$5^{\langle -\rangle}$		11	79			10							86Di01
2415.9(3)	$\langle 7\rangle^-$		<5	57	43									86Di01
2665(5)	1^-,3^-													
2701.6(5)	$3^{\langle -\rangle}$		$\langle 2\rangle$				19	7	28	4		4	38	86Di01
2841.4(2)	1^-							45	55					86Di01
2893.0(4)	$5^{\langle -\rangle}$		36	6	35		20	3						86Di01
2914	3^-		100											86Di01
2956.9(8)	$\langle 13^-\rangle$													
2983.5(5)	5^+		29	71										86Di01
3029	$\langle 7\rangle$		37	63										86Di01
3048.6(10)	$\langle 3^-\rangle$			46	28		26				***			86Di01
3058.1(10)	5^-,7^-													
3091.5(10)	1^-,3^-													
3130.5(10)	3–5						56	15		19			10	86Di01
3250.2(9)	$\langle 15^-\rangle$													

(continued) $^{51}_{25}$**Mn**(p)

E^*	$2J^\pi$	$E_\circ$	Branching ratios											Ref.
[keV]		[keV]	Percentage											
E^*			0.0	237	1140	1488	1817	1825	1959	2140	2256	2276	2310	
$2J_f^\pi$			5^-	7^-	$\langle 9^- \rangle$	11^-	3	X^-	1^-	3^-	$\langle 5^- \rangle$	1^+	$\langle 5^- \rangle$	
3281	$\langle 1,3 \rangle$													
3292.3(6)	$5^-,7^-$		27	60						3	10			86Di01
3423.3(10)	1^-–7^-		100						***					86Di01
3543.5(14)	$1^-,3^-$													
3554.1(10)	3^-		100											86Di01
3657.9(14)														
3679.9(11)	$\langle 17^- \rangle$													
3694.5(5)	$1^-,3^-$		38					37		25				86Di01
3826	7		59	12	29									86Di01
3835	$\langle 7 \rangle$				25						45			86Di01
3877	$\langle 3,5 \rangle$								50					86Di01
3893.2(10)	$1^-,3^-$		>97											86Di01
3931.8(3)	$3,5^-$													
3955	$\langle 7,9 \rangle$				28									86Di01
4005.9(5)	$3^-,5^-$			68								32		86Di01
4017(3)	$1,3^-$													
4046			100											86Di01
4052														
4091.2(10)	$5^-,7^-$													
4138.9(15)	$\langle 19^- \rangle$													
4153	$\langle 5^+ \rangle$							67		33				86Di01
4200*							60					40		86Di01
4206.1(1)	$\langle 5 \rangle$		27	43			15	15						86Di01
4352.4(10)	$1^-,3^-$		100						***					86Di01
4451(2)	7^-						36	***			34			86Di01
4463														86Di01
4488.1(7)	$1,3^{\langle -\rangle}$			63							37			86Di01
4493(3)	$5^-,7^-$													
4523(3)	$1^-,3^-$													
4540*					***				50					86Di01
4532														
4601(5)														
4701(5)														
4723	$\langle 1,3 \rangle$		***											86Di01
4731(5)	$3^+,5^+$													
4739														
4776														
4883(2)	$1,3^-$								50	50				86Di01
4925	1^-–7^-												55	86Di01
5067	$\langle 3 \rangle$													
5073	$1,3^-$								40		60			86Di01
5129	$1^-,3^-$						23	15			40		22	86Di01

(continued) $^{51}_{25}\mathbf{Mn}(\mathrm{p})$

E^*	$2J^\pi$	$E_\circ$	Branching ratios											Ref.
[keV]		[keV]	Percentage											
E^*			0.0	237	1140	1488	1817	1825	1959	2140	2256	2276	2310	
$2J_f^\pi$			5^-	7^-	$\langle 9^- \rangle$	11^-	3	X^-	1^-	3^-	$\langle 5^- \rangle$	1^+	$\langle 5^- \rangle$	
5174	$\langle 1\text{–}7 \rangle$							48	52					86Di01
5192(5)	$3^+,5^+$													
5203														
5212														
5230(5)														
5454(5)	$1^-,3^-$													
5517(5)	$1^-,3^-$													
5585														
5596(5)	$1^-,3^-$													
5639	$\langle 21^- \rangle$													
5692(5)	$1^-,3^-$													
5729(5)														
5787(5)														
5867(5)														
5899(5)														
5944(5)														
5975(5)														
6012(5)														
6047(5)														
6072(5)														
6118(5)														
6299(5)														
6304	3^-													
6309**		1059	3	1				31	32	3	11	1		72Fo25
6320**		1071	38				8	8	1	2			4	72Fo25
6359**		1110	11				42		8	6	3	8	12	72Fo25
6372**		1123	18				29	<1	16	2	2		12	72Fo25
6412**		1164						81	9	2			2	72Fo25
6451	3^-	1204	30	38			18				2		3	72Fo25
6466**		1220	1				1	33	2		3	2		72Fo25
6469	$\langle 23^- \rangle$													
6472(5)														
6682**		1440	25						35			5		72Fo25
6694**		1451	10	51			8				<1		2	72Fo25
6702**		1460	76				5		6		1	6	3	72Fo25
6722**		1481	5				6	6	2	23	3	14		72Fo25
6742(5)														
6754	5^-	1513	12	43			8	16				1	2	72Fo25
6785**		1545	2					31	11	13				72Fo25
6800**		1560	10				12	24		3		4	4	72Fo25
6803**		1563	64				2		5	12			3	72Fo25
6820**		1580	5				35				5	13	9	72Fo25

(continued) $^{51}_{25}\mathbf{Mn}(\mathrm{p})$

E^* [keV]	$2J^\pi$	$E_\circ$ [keV]	Branching ratios Percentage											Ref.
E^*			0.0	237	1140	1488	1817	1825	1959	2140	2256	2276	2310	
$2J_f^\pi$			5^-	7^-	$\langle 9^- \rangle$	11^-	3	X^-	1^-	3^-	$\langle 5^- \rangle$	1^+	$\langle 5^- \rangle$	
6840**		1600	16					41		24		1		72Fo25
6849**		1609	31				33		2	4			10	72Fo25
6916**		1678	29				7			5	3	<1	4	72Fo25
7034*	$[3^-]$	1798	17					15	40	6				86Di01
7045	$[1^+]$	1810					15			20		65		86Di01
7065*	$[3^-]$	1830	41					36						86Di01
7106	$5^-,7^-$	1872	11	18			10						39	86Di01
7129*	$[1^-]$	1895						9	69	18				86Di01
7141*	$[5^-]$	1908	3	42	7						19			86Di01
7146*	$[3^-]$	1913	7	7			10		46					86Di01
7162*	$[1^-]$	1929	64					3	3	3	5		6	86Di01
7169*	$[1^-]$	1936	2					4	44	11				86Di01
7170*	$[5^-]$	1937	7	41				11		30				86Di01
7174	$\langle 27^- \rangle$													
7175*	[5]	1942	29	24								18	5	86Di01
7176	1^+	1943					18			10				86Di01
7190*	$[3^-]$	1958	20	2				11	4	20				86Di01
7210*	[5]	1978						20		30				86Di01
7213*	[1,3]	1981					17					30		86Di01
7222*	$[5^-]$	1990	65											86Di01
7240*	$[5^+]$	2009	24	18			4	6				2		86Di01
7261*	[1,5]	2030	1	7			17	6	10	12		1	3	86Di01
7273*	[5]	2042		76									20	86Di01
7274	3^-	2043	23					10	10	12	5			86Di01
7296	3^-	2066	10				1	6	34	3	22			86Di01
7310*	$[5^+]$	2080		6			31				5		13	86Di01
7314	$\langle 1,3 \rangle$	2084						18	20	15				86Di01
7339	$\langle 1,3 \rangle$	2110					18					82		86Di01
7343	3^-	2114	20					16	2	4	2			86Di01
7357	5^-	2128	4				6			2	7		6	86Di01
7370	[3,5]	2141						26					23	86Di01
7371	$[3^-]$	2142	19					17		13		6		86Di01
7395	$3^-,5^-$	2167	38											86Di01
7415	5^+	2187	8	7			10	6	15	6			21	86Di01
7415	$[3^-]$	2187	incl	incl			incl	incl	incl	incl			incl	86Di01
7447	3^-	2220	6				41					25	18	86Di01
7450	3^-	2223	10	2				15		53	3		3	86Di01
7459	5^+	2232	8	5				14			3		6	86Di01
7463*	[5,7]	2236	53	47										86Di01
7467	1^-	2240	10				31		4	4		4		86Di01
7514*	$[5^-]$	2288		44			5			20			16	86Di01
7529*	[3,5]	2303	18	2				11		11	19		5	86Di01

(continued) **$^{51}_{25}$Mn(p)**

E^*	$2J^\pi$	$E_\circ$	Branching ratios											Ref.
[keV]		[keV]	Percentage											
E^*			0.0	237	1140	1488	1817	1825	1959	2140	2256	2276	2310	
$2J_f^\pi$			5^-	7^-	$\langle 9^- \rangle$	11^-	3	X^-	1^-	3^-	$\langle 5^- \rangle$	1^+	$\langle 5^- \rangle$	
7546*	[5]	2321	39	53									6	86Di01
7550*	[1^-]	2325	1					16	4	27				86Di01
7560	3^-,5^-	2335	7	9				4	2	27	14			86Di01
7572*	[5^+]	2347	2	13				16		8		19		86Di01
7586	1,3	2362						13		7				86Di01
7599*	[3]	2375	14					58	28					86Di01
7618*	[1]	2394					70		10			20		86Di01
7621*	[9^+]	2397		23	45	8							11	86Di01
7631*	[5]	2407	11	31			3			10			9	86Di01
7636*	[5^+]	2412	32	16										86Di01
7643*	[1^-]	2420						25	21	20				86Di01
7669	$\langle 5,7 \rangle$	2446	38	62										86Di01
7684*	[3^-]	2461	11						13	19				86Di01
7699*	[5^+]	2477	48	27			11				3		8	86Di01
7715	3^-	2493	13						60					88Di03
7718	1^-–5^-	2496												88Di03
7722*	[3^-]	2500	9					15	43					86Di01
7741*	[1,5]	2520	2	1				23	21	21			3	88Di03
7787	5^-	2566	22	32				30						88Di03
7792	5^-	2571	44	21						6	6			88Di03
7844*	[5^+]	2625	11	6				20					11	88Di03
7849*	[3^-]	2630	28					15		6	9		3	88Di03
7887*	[5^+]	2669	56					7						88Di03
7895*		2676	21					45	9					88Di03
7914*	[3^-]	2696	12	8					17	25	16			88Di03
7933*	[X^-]	2715	21				36						11	88Di03
7944*	[3^-]	2726	15					68		6	3			88Di03
7967*	[3^-]	2751	71					29						88Di03
8013*	[9^+]	2798		50	6	27								88Di03
8023*	[5^+]	2807	46	28										88Di03
8045*	[3^-]	2830	25					20		23		32		88Di03
8064*	[3^-]	2849	5					17	20	10	6		2	88Di03
8102*	[5^+]	2887	61	4						2	4			88Di03
8143*	[7^-]	2930	19		30								10	88Di03
8147*	[X^-]	2934	56					7						88Di03
8167	1^+													
8169*	[3]	2956	40	42									9	88Di03
8174*	[3^-]	2962	46				20			5				88Di03
8187*	[5^+]	2974	19	10			20			7			26	88Di03
8199	$\langle 3^- \rangle$	2987		2			7		19			7		88Di03
8216	$\langle 3^- \rangle$	3004	7	7					17	31				88Di03
8256*	[3,5]	3045	7						8				76	88Di03

(continued) $^{51}_{25}$**Mn**(p)

E^* [keV]	$2J^\pi$	$E_\circ$ [keV]	Branching ratios Percentage										Ref.
E^*			0.0	237	1140	1488	1817	1825	1959	2140	2256	2276	2310	
$2J_f^\pi$			5^-	7^-	$\langle 9^- \rangle$	11^-	3	X^-	1^-	3^-	$\langle 5^- \rangle$	1^+	$\langle 5^- \rangle$	
8260*	$[X^-]$	3049		57										88Di03
8266*		3055		46										88Di03
8269*	$[5^-]$	3058	48	16			12			6	1			88Di03
8281	5^+													
8307	5^+	3097	20				11		11	5			7	88Di03
8335	5^+													
8352	5^+													
8358	5^+													
8379	5^+													
8384	3^+													
8384	9^+	3172		14		29								84Sz02
8386	5^-													
8399**	9^+	3192		36	17	26								84Sz02
8398	1													
8403	5^+													
8453**	9^+	3246		9	8	23								84Sz02
8459	9^+	3259		12	11	8								84Sz02
8472**	9^+	3266		43	6	13								84Sz02
8497**	9^+	3293		33		47								84Sz02
8499	5^+													
8521	5^+													
8554**	9^+	3350		15	51	17								84Sz02
8555**	9^+	3351		8	60	15								84Sz02
8747	1^+													
8892	1^-													
8915	1^+													
9186	3^-													
9515	1^-													

* levels introduced in [86Di01] and [88Di03]
** levels introduced in [84Sz02] and [72Fo25]
*** Different branching ratios to that given here [86Di01] can be found in [72Fo25, 75Di10].

The states at E^*=4532 keV in [02Nu0A] and at E^*=4540 keV in [86Di01] are considered as a single level; the same for the levels at E^*=4362 keV in [88Di03] and at E^*=4358 keV in [86Di01] which are not included in [02Nu0A].

The level at E^*=3939 keV introduced in [88Di03] due to the observation of one weak (1%) transition from the state at E^*=8269 keV is omitted.

Branching ratios of γ-transitions [86Di01, 72Fo25]. Part 2. $^{51}_{25}\mathbf{Mn}(\mathrm{p})$

E^*	$2J^\pi$	$E_\circ$	Branching ratios															
[keV]		[keV]	Percentage															
E^*			2416	2702	2841	2893	2914	2984	3029	3049	3058	3092	3131	3281	3292	3423	3554	3694
$2J_f^\pi$			$\langle 7^-\rangle$	$\langle 3^-\rangle$	1^-	$\langle 5^-\rangle$	3^-	5^+		$\langle 3^-\rangle$			3-5		X$^-$	X$^-$	3^-	X$^-$
4451(2)	7^-												30					
4540				50														
4723	$\langle 1,3\rangle$			100														
4925	1^-–7^-						*											
5129	1^-,3^-							*										
6309		1059			9		7	2									3	12
6320		1071													7		4	2
6359		1110											2				4	
6372		1123					2	3							8			
6412		1164		1	5													
6451	3^-	1204		<1		1										4		
6466		1220		13	9		16											13
6682		1440			9		14						2				5	5
6694		1451	13	1		<1	1			4			9					
6702		1460						3										
6722		1481					27										4	
6754	5^-	1513	13	3									2					
6785		1545					9										9	
6800		1560			2		19										7	
6803		1563			<1		4										3	3
6820		1580		7	4								17					
6840		1600					2	2		1					3		3	
6849		1609		4	3	4		9										
6916		1678		15		11						5	20					
7034	[3^-]	1798					6										4	
7065	[3^-]	1830											5		4		2	4
7106	5^-,7^-	1872		5		10	7											
7129	[1^-]	1895					3											
7141	[5^-]	1908	8													9		
7146	[3^-]	1913					12											
7162	[1^-]	1929			3		2										5	
7169	[1^-]	1936			3		16										4	
7170	[5^-]	1937															11	
7175	[5]	1942	5	8			33						1					
7176	1^+	1943				22												
7190	[3^-]	1958		4										10				
7210	[5]	1978	30															
7213	[1,3]	1981					16											
7222	[5^-]	1990						35										
7240	[5^+]	2009	2				4								18	8		
7261	[1,5]	2030	1	19		3	1						9					
7274	3^-	2043		4	6			18										2

(continued) **$^{51}_{25}$Mn**(p)

E^*	$2J^\pi$	$E_\circ$	Branching ratios															
[keV]		[keV]	Percentage															
E^*			2416	2702	2841	2893	2914	2984	3029	3049	3058	3092	3131	3281	3292	3423	3554	3694
$2J_f^\pi$			$\langle 7^- \rangle$	$\langle 3^- \rangle$	1^-	$\langle 5^- \rangle$	3^-	5^+		$\langle 3^- \rangle$			3-5		X^-	X^-	3^-	X^-
7296	3^-	2066						7									3	
7310	$[5^+]$	2080	4				8	14										
7314	$\langle 1,3 \rangle$	2084			16													11
7343	3^-	2114			4		20	20							4			4
7357	5^-	2128		69		3										3		
7370	[3,5]	2141						43		8								
7371	$[3^-]$	2142					20	23							9			
7395	3^-,5^-	2167													62			
7415	5^+	2187	9	4		2	2										1	
7415	$[3^-]$	2187																
7447	3^-	2220											10					
7450	3^-	2223			5			3										
7459	5^+	2232	11	27		16							10					
7467	1^-	2240					38											6
7514	$[5^-]$	2288								8								
7529	[3,5]	2303		3	9		3								6		7	
7546	[5]	2321													2			
7550	$[1^-]$	2325		3			40										3	3
7560	3^-,5^-	2335		1	2								1		18			
7572	$[5^+]$	2347		22														
7586	1,3	2362			37		31											
7621	$[9^+]$	2397							6									
7631	[5]	2407	7							15			8			2		
7636	$[5^+]$	2412	15										37					
7643	$[1^-]$	2420						15										
7669	$\langle 5,7 \rangle$	2446																
7684	$[3^-]$	2461			19			18							8		12	
7699	$[5^+]$	2477		3														
7715	3^-	2493			11													
7718	1^-–5^-	2496		100														
7722	$[3^-]$	2500		16	5			6										
7741	[1,5]	2520		6			4										3	5
7787	5^-	2566						16										
7792	5^-	2571	15					6					2					
7844	$[5^+]$	2625		22									30					
7849	$[3^-]$	2630						12							6		5	
7887	$[5^+]$	2669																8
7895		2676					5						5		3	9		
7914	$[3^-]$	2696														8		5
7933	$[X^-]$	2715		21										11				
7944	$[3^-]$	2726						2					3					
7967	$[3^-]$	2751																

(continued) $^{51}_{25}\mathbf{Mn}(\mathrm{p})$

E^*	$2J^\pi$	$E_\circ$	Branching ratios															
[keV]		[keV]	Percentage															
E^*			2416	2702	2841	2893	2914	2984	3029	3049	3058	3092	3131	3281	3292	3423	3554	3694
$2J_f^\pi$			$\langle 7^- \rangle$	$\langle 3^- \rangle$	1^-	$\langle 5^- \rangle$	3^-	5^+		$\langle 3^- \rangle$			3-5		X^-	X^-	3^-	X^-
8013	$[9^+]$	2798				2												
8023	$[5^+]$	2807		26														
8045	$[3^-]$	2830																
8064	$[3^-]$	2849		2												3	6	
8102	$[5^+]$	2887		13		8							8					
8143	$[7^-]$	2930			12								9	11	9			
8147	$[X^-]$	2934																8
8169	[3]	2956	9															
8174	$[3^-]$	2962													4			4
8187	$[5^+]$	2974	3	10	3													
8199	$\langle 3^- \rangle$	2987			8		4	23										11
8216	$\langle 3^- \rangle$	3004			10		9						3				3	
8256	[3,5]	3045											9					
8260	$[X^-]$	3049			7									10				
8266		3055							8	6				19				
8269	$[5^-]$	3058	3				2			5						2	2	
8281	5^+																	
8307	5^+	3097			12								10				5	
8399	9^+	3192				21												
8453	9^+	3246	12			9												
8459	9^+	3259	14			14												
8472	9^+	3266	5			6												
8554	9^+	3350	17															
8555	9^+	3351	9			8												

* Different branching ratios to that given here [86Di01] can be found in [72Fo25, 75Di10].

Branching ratios of γ-transitions. Part 3. $^{51}_{25}\mathbf{Mn}(\mathrm{p})$

E^*	$2J^\pi$	$E_\circ$	Branching ratios															
[keV]		[keV]	Percentage															
E^*			3730	3825	3835	3893	3955	4000	4013	4046	4091	4153	4200	4205	4352	4362	4451	4463
$2J_f^\pi$																		
6320**		1071				13									1			
6359**		1110													2			
6372**		1123				4												
6466**		1220									2							
6722**		1481				6												

(continued) $^{51}_{25}\mathbf{Mn}(\mathrm{p})$

E^*	$2J^\pi$	$E_\circ$	Branching ratios															
[keV]		[keV]	Percentage															
E^*			3730	3825	3835	3893	3955	4000	4013	4046	4091	4153	4200	4205	4352	4362	4451	4463
$2J_f^\pi$																		
6785**		1545				22												
6803**		1563												4				
6820**		1580															5	
6840**		1600												3	4			
6849**		1609																
6916**		1678													1			
7034*	$[3^-]$	1798				11										1		
7065*	$[3^-]$	1830				8												
7129*	$[1^-]$	1895														1		
7141*	$[5^-]$	1908				5						2				5		
7146*	$[3^-]$	1913												13		5		
7162*	$[1^-]$	1929											3					
7169*	$[1^-]$	1936				8							3			5		
7175*	[5]	1942		4														
7176	1^+	1943								5		9					9	
7213*	[1,3]	1981											25			12		
7240*	$[5^+]$	2009				7		7										
7261*	[1,5]	2030								5							3	
7274	3^-	2043				5								5				
7310*	$[5^+]$	2080	10									9						
7343	3^-	2114				4												
7371	$[3^-]$	2142				5								2		2		
7415	5^+	2187		7		1												
7415	$[3^-]$	2187		incl		incl												
7450	3^-	2223														2		
7467	1^-	2240				2												
7514*	$[5^-]$	2288	6					1										
7529*	[3,5]	2303				2										2		
7550*	$[1^-]$	2325				3												
7560	3^-,5^-	2335				3		7						2				
7572*	$[5^+]$	2347		7													5	
7586	1,3	2362				9								3				
7621*	$[9^+]$	2397			5		2											
7631*	[5]	2407		2		2												
7715	3^-	2493										4	8					
7722*	$[3^-]$	2500												4				
7741*	[1,5]	2520				2						6						
7849*	$[3^-]$	2630				2								4	4			
7944*	$[3^-]$	2726												3				
8013*	$[9^+]$	2798	2		4			3										3
8064*	$[3^-]$	2849												2	2	3		
8174*	$[3^-]$	2962		4		2										4		

(continued) $^{51}_{25}$**Mn**(p)

E^* [keV]	$2J^\pi$	$E_\circ$ [keV]	Branching ratios Percentage															
E^* $2J_f^\pi$			3730	3825	3835	3893	3955	4000	4013	4046	4091	4153	4200	4205	4352	4362	4451	4463
8187*	[5$^+$]	2974										2						
8216	$\langle$3$^-\rangle$	3004				3						3						
8260*	[X$^-$]	3049		20														
8266*		3055							21									
8269*	[5$^-$]	3058			1				1									
8307	5$^+$	3097										3				4		
8384	9$^+$	3172										19						
8453**	9$^+$	3246										8						
8459	9$^+$	3259										14						
8472**	9$^+$	3266										7						

* levels introduced in [86Di01] and [88Di03]
** levels introduced in [84Sz02] and [72Fo25]

Branching ratios of γ-transitions. Part 4. $^{51}_{25}$**Mn**(p)

E^* [keV]	$2J^\pi$	$E_\circ$ [keV]	Branching ratios Percentage															
E^* $2J_f^\pi$			4488	4523	4540	4601	4723	4739	4739	4883	4927	5064	5074	5129	5174	5212	5223	5585
6320**		1071	3															
6451	3$^-$	1204			1											3		
6466**		1220								5								
6722**		1481								3								1
6785**		1545															2	1
6800**		1560	15															
7162*	[1$^-$]	1929					1				2							
7190*	[3$^-$]	1958			7								11	15	3			
7210*	[5]	1978			1													
7261*	[1,5]	2030			2													
7273*	[5]	2042			4													
7296	3$^-$	2066	6							6			2					
7371	[3$^-$]	2142					1						2					
7415	5$^+$	2187			1													
7415	[3$^-$]	2187			incl													
7450	3$^-$	2223	4															
7467	1$^-$	2240								1								
7529*	[3,5]	2303												2				

(continued) $^{51}_{25}\mathbf{Mn}(\mathrm{p})$

E^*	$2J^\pi$	$E_\circ$	Branching ratios															
[keV]		[keV]	Percentage															
E^*			4488	4523	4540	4601	4723	4739	4739	4883	4927	5064	5074	5129	5174	5212	5223	5585
$2J_f^\pi$																		
7560	3^-,5^-	2335	3															
7572*	$[5^+]$	2347												8				
7636*	$[5^+]$	2412													19			
7715	3^-	2493	4															
7722*	$[3^-]$	2500	2															
7741*	[1,5]	2520													3			
7849*	$[3^-]$	2630										6						
7887*	$[5^+]$	2669		4		4				13		4		4				
7895*		2676								3								
7914*	$[3^-]$	2696									4			5				
8013*	$[9^+]$	2798						3										
8064*	$[3^-]$	2849									4		3	15				
8147*	$[X^-]$	2934		4		4				13			4		4			
8174*	$[3^-]$	2962								9					2			
8199	$\langle 3^- \rangle$	2987									5				14			
8216	$\langle 3^- \rangle$	3004		4										3				
8260*	$[X^-]$	3049		6														
8307	5^+	3097												7	5			
8384	9^+	3172			20				18									
8453**	9^+	3246			15				16									
8459	9^+	3259			11				16									
8472**	9^+	3266			6				14									

* levels introduced in [86Di01] and [88Di03]
** levels introduced in [84Sz02] and [72Fo25]

Target isotope: $^{52}_{24}$Cr $I^{\pi}_{\circ} = 0^+$ *Abundance:* 83.789(18) % $S_{\mathrm{p}} = 6559.80(43)$ keV

$^{53}_{25}$Mn(p)

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_{p} [eV]	γ^2_{p} [keV]	$\Gamma_{\mathrm{p}}\Gamma_{\gamma_\circ}/\Gamma$ [eV]	$S_{\mathrm{p}\gamma}$ [eV]	$\Gamma_{\mathrm{p}}/\Gamma$	$\alpha^2_{s\ell i}$	Rel.int. γ_i	E_{cm} [keV]	E^* [keV]	Ref.		
954(1)										936	7496(1)	62Ar03		
987(1)										968	7528(1)	62Ar03	73Be0A	
1006(1)	$\langle 1^- \rangle$									987	7547(1)	62Ar03	66St10	70Ma25
1110(1)										1089	7649(1)	62Ar03		
1142(1)										1120	7680(1)	62Ar03		
1157(1)										1135	7695(1)	62Ar03		
1161(1)										1139	7699(1)	62Ar03		
1166(1)										1144	7704(1)	62Ar03		
1207(1)										1184	7744(1)	62Ar03		
1223(1)										1200	7760(1)	62Ar03		
1247(1)										1223	7783(1)	62Ar03	66St10	
1256(1)										1232	7792(1)	62Ar03		
1263(1)										1239	7799(1)	62Ar03		
1287(1)										1263	7823(1)	62Ar03		
1332(1)										1307	7867(1)	62Ar03		
1367.5(14)						0.43(22)				1341	7902(3)	62Ar03	66Vu01	
1374.4(14)						0.03(2)				1348	7908(3)	66Vu01		
1382.2(14)						0.07(4)			1.62	1356	7916(3)	66Vu01	90Al22	62Ar03
1387.5(14)	5^-					1.2(6)			7.77	1361	7921(3)	66Vu01	90Al22	66St10
1394.8(14)	5^-					0.8(4)			5.02	1368	7928(3)	66Vu01	90Al22	62Ar03
1405.2(14)						0.32(16)			3.48	1378	7939(3)	66Vu01	90Al22	62Ar03
1428(3)									0.21	1401	7961(3)		90Al22	
1431.5(14)						0.28(14)			2.31	1404	7964(3)	66Vu01	90Al22	62Ar03
1437(1)										1410	7970(3)		62Ar03	
1442.9(14)	3^-					0.70(35)			6.57	1415	7976(3)	66Vu01	90Al22	62Ar03
1444.9(14)						0.03(1)				1417	7977(3)	66Vu01		
1448.4(14)						0.04(2)				1421	7981(3)	66Vu01		
1460.9(14)						0.09(5)			0.94	1433	7993(3)	66Vu01	90Al22	
1472.7(14)						0.09(5)				1444	8005(3)	66Vu01		
1473.5(14)	5^-					0.70(35)			6.93	1445	8006(3)	66Vu01	90Al22	
1479.0(14)						0.12(6)			1.54	1451	8011(3)	66Vu01	90Al22	
1483.5(14)						0.10(5)			1.20	1455	8015(3)	66Vu01	90Al22	
1493.2(14)	5					0.26(13)			3.57	1465	8025(3)	66Vu01	90Al22	
1493.9(14)						0.20(10)				1465	8026(3)	66Vu01		
1496.8(14)	3^-,5					0.30(15)			7.01	1468	8028(3)	66Vu01	90Al22	
1498.5(14)						0.10(5)				1470	8030(3)	66Vu01		
1506.1(15)	3^-,5^-					0.24(12)			4.09	1477	8038(3)	66Vu01	90Al22	
1508.6(15)						0.03(1)				1480	8040(3)	66Vu01		
1514.5(15)						0.12(6)				1485	8046(3)	66Vu01		
1521.2(15)	5^-					0.60(30)			5.90	1492	8052(3)	66Vu01	90Al22	
1525.0(15)	5^-					0.42(21)			3.66	1496	8056(3)	66Vu01	90Al22	
1528.2(15)						0.02(1)				1499	8059(3)	66Vu01		
1532.9(15)						0.04(2)			weak	1504	8064(3)	66Vu01	90Al22	
1539.5(15)						0.29(15)			1.44	1510	8070(3)	66Vu01	90Al22	
1544.1(15)						0.21(11)			2.65	1515	8075(3)	66Vu01	90Al22	

(continued)

$^{53}_{25}$Mn(p)

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ^2_p [keV]	$\Gamma_\mathrm{p}\Gamma_{\gamma_\circ}/\Gamma$ [eV]	$S_{\mathrm{p}\gamma}$ [eV]	Γ_p/Γ	$\alpha^2_{s\ell i}$	Rel.int. γ_i	E_cm [keV]	E^* [keV]	Ref.		
1550.0(15)	5^-					0.38(19)			4.13	1521	8081(3)	66Vu01	90Al22	
1554.3(15)	5^-					0.13(7)				1525	8085(3)	66Vu01		
1555.9(15)	3^-,5^-,7^-					0.60(30)			5.93	1526	8086(3)	66Vu01	90Al22	doublt
1563.3(15)						0.70(35)			3.76	1533	8094(3)	66Vu01	90Al22	
1568.0(15)						0.12(6)			0.65	1538	8098(3)	66Vu01	90Al22	
1569.8(15)						0.06(3)				1540	8100(3)	66Vu01		
1577.3(15)						0.12(6)				1547	8107(3)	66Vu01	90Al22	
1587.4(15)						0.15(8)			4.33	1557	8117(3)	66Vu01	90Al22	
1590.1(15)						0.32(16)			4.33	1560	8120(3)	66Vu01	90Al22	
1600.5(16)						0.29(15)				1570	8130(3)	66Vu01		
1602.2(16)						0.23(12)			9.78	1572	8132(3)	66Vu01	90Al22	
1603.6(16)	3^-					0.60(30)			9.78	1573	8133(3)	66Vu01	90Al22	
1608.5(16)	3^-					1.2(6)			8.20	1578	8138(3)	66Vu01	90Al22	
1626.7(16)	5^+					0.70(35)			4.65	1596	8156(3)	66Vu01	90Al22	
1632.8(16)						0.04(2)				1602	8162(3)	66Vu01		
1643.5(16)						0.05(3)				1612	8172(3)	66Vu01		
1646.6(16)	3^-,5^-					0.70(35)			5.57	1615	8175(3)	66Vu01	90Al22	
1650.7(16)						0.03(1)				1619	8179(3)	66Vu01		
1653.4(16)						0.14(7)			1.17	1622	8182(3)	66Vu01	90Al22	
1657.2(16)						0.04(2)				1625	8186(3)	66Vu01		
1661.0(16)						0.06(3)				1630	8189(3)	66Vu01		
1662.3(16)						0.34(17)				1630	8191(3)	66Vu01	91Di07	
1664.0(16)						0.70(35)				1633	8192(3)	66Vu01	91Di07	
1666.1(16)						0.50(25)				1634	8195(3)	66Vu01	91Di07	
1667.8(16)						0.29(15)				1636	8196(3)	66Vu01		
1672.8(16)						0.11(6)				1641	8201(3)	66Vu01		
1689.5(16)						0.60(30)				1657	8217(3)	66Vu01	91Di07	
1695.1(16)						0.43(21)				1663	8223(3)	66Vu01	91Di07	
1705.1(17)						0.06(3)				1672	8233(3)	66Vu01	91Di07	
1706.9(17)						0.05(3)				1674	8235(3)	66Vu01		
1717.7(17)						0.30(15)				1685	8245(3)	66Vu01	91Di07	
1723.6(17)	3^-,5^-					2.2(11)				1691	8251(3)	66Vu01	91Di07	
1726.9(17)						0.14(7)				1694	8254(3)	66Vu01		
1729.5(17)						0.40(20)				1696	8257(3)	66Vu01	91Di07	
1735.7(17)						0.60(30)				1703	8263(3)	66Vu01	91Di07	
1743.9(17)	$\langle 3^-,5^-\rangle$					0.60(30)				1711	8271(3)	66Vu01	91Di07	
1747.9(17)						0.38(20)				1714	8275(3)	66Vu01	91Di07	
1749.4(17)						0.22(11)				1716	8276(3)	66Vu01	91Di07	
1755.2(17)						0.05(2)				1722	8282(3)	66Vu01		
1761.5(17)						0.09(4)				1728	8288(3)	66Vu01		
1767.2(17)	$\langle 3^-,5^-\rangle$					1.0(5)				1733	8294(3)	66Vu01	91Di07	
1769.1(17)	$\langle 3^-,5^-\rangle$					0.48(24)				1735	8296(3)	66Vu01	91Di07	
1770.2(17)						0.08(4)				1736	8297(3)	66Vu01		
1771.8(17)						0.06(3)				1738	8298(3)	66Vu01		
1778.6(17)	5^-					1.1(5)				1745	8305(3)	66Vu01	91Di07	

(continued) **$^{53}_{25}$Mn(p)**

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ_p^2 [keV]	$\Gamma_p\Gamma_{\gamma\circ}/\Gamma$ [eV]	$S_{p\gamma}$ [eV]	Γ_p/Γ	$\alpha^2_{s\ell i}$	$\alpha^2_{s\ell j}$	$\alpha^2_{s\ell k}$	Rel.int. γ_i	E_{cm} [keV]	E^* [keV]	Ref.	
1780.6(17)						0.49(25)						1747	8307(3)	66Vu01	
1784.9(17)						0.05(2)						1751	8311(3)	66Vu01	
1788.2(17)						0.70(35)						1754	8314(3)	66Vu01	91Di07
1796.4(17)						0.14(7)						1762	8322(3)	66Vu01	
1797.6(17)						0.26(13)						1763	8324(3)	66Vu01	91Di07
1803.1(18)	3^-,5^-					1.2(6)						1769	8329(3)	66Vu01	91Di07
1806.3(18)						0.05(2)						1772	8332(3)	66Vu01	
1811.3(18)						0.29(15)						1777	8337(3)	66Vu01	
1813.0(18)	3^-					0.60(30)						1779	8339(3)	66Vu01	91Di07
1824.5(18)						0.50(25)						1790	8350(3)	66Vu01	91Di07
1825.7(18)						0.10(5)						1791	8351(3)	66Vu01	
1827.8(18)						0.17(9)						1793	8353(3)	66Vu01	91Di07
1829.2(18)						0.8(4)						1794	8355(3)	66Vu01	91Di07
1833.3(18)						0.30(15)						1798	8359(3)	66Vu01	91Di07
1834.3(18)						0.03(1)						1799	8360(3)	66Vu01	
1836.1(18)						0.33(17)						1801	8361(3)	66Vu01	91Di07
1841.9(18)						0.03(1)						1807	8367(3)	66Vu01	
1846.8(18)						0.02(1)						1812	8372(3)	66Vu01	
1851.9(18)						0.27(14)						1817	8377(3)	66Vu01	
1853.5(18)						0.41(21)						1818	8378(3)	66Vu01	91Di07
1857.4(18)						0.07(3)						1822	8382(3)	66Vu01	
1858.5(18)						0.22(11)						1823	8383(3)	66Vu01	91Di07
1873.8(18)						0.30(15)						1838	8398(3)	66Vu01	91Di07
1877.4(18)	$\langle 3^-,5^-\rangle$					1.1(6)						1842	8402(3)	66Vu01	91Di07
1879.5(18)						0.70(35)						1844	8404(3)	66Vu01	
1881.6(18)	3^-					0.60(30)						1846	8406(3)	66Vu01	91Di07
1885.5(18)						0.33(17)						1849	8410(3)	66Vu01	91Di07
1897.3(18)						0.08(4)						1861	8421(3)	66Vu01	
1901.1(19)	3^-					3.5(17)						1865	8425(3)	66Vu01	91Di07
1914.1(19)						0.13(7)						1878	8438(3)	66Vu01	91Di07
1924.4(19)						0.60(30)						1888	8448(3)	66Vu01	91Di07
1929.9(19)						0.33(17)						1893	8453(3)	66Vu01	91Di07
1933.3(19)	$5^{\langle+\rangle}$					0.60(30)						1896	8457(3)	66Vu01	91Di07
1940.3(19)						0.07(3)						1903	8464(3)	66Vu01	91Di07
1947.0(19)						0.60(30)						1910	8470(3)	66Vu01	91Di07
1957.9(19)						0.25(12)						1921	8481(3)	66Vu01	91Di07
1964.5(19)	$3^{\langle-\rangle}$					1.0(5)						1927	8487(3)	66Vu01	91Di07
1969.8(19)						0.38(19)						1932	8492(3)	66Vu01	91Di07
1973.8(19)						0.11(5)						1936	8496(3)	66Vu01	
1975.3(19)	$5,7^{\langle-\rangle}$					1.9(10)						1938	8498(3)	66Vu01	91Di07
1982.8(19)	$\langle 3^-,5^-\rangle$					0.90(45)						1945	8505(3)	66Vu01	91Di07
1985.8(19)						0.31(16)						1948	8508(3)	66Vu01	
1987.3(19)	$\langle 3^-,5,7^-\rangle$					0.70(35)						1949	8510(3)	66Vu01	91Di07
1992.8(19)	3^-,5^-					1.4(7)						1955	8515(3)	66Vu01	91Di07
1994.0(19)						0.80(40)						1956	8516(3)	66Vu01	

(continued) **$^{53}_{25}$Mn(p)**

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ_p^2 [keV]	$\Gamma_p\Gamma_{\gamma_\circ}/\Gamma$ [eV]	$S_{p\gamma}$ [eV]	Γ_p/Γ	$\alpha^2_{s\ell i}$	$\alpha^2_{s\ell j}$	E_{cm} [keV]	E^* [keV]	Ref.		
1995.2(19)	7^-					3.4(17)				1957	8517(3)	66Vu01	91Di07	
1996.4(19)						0.6(3)				1958	8518(3)	66Vu01		
2000.4(20)						0.70(35)				1962	8522(3)	66Vu01	91Di07	
2003.7(20)						0.09(4)				1965	8525(3)	66Vu01		
2016.1(20)						0.70(35)				1978	8537(3)	66Vu01	91Di07	
2019.1(20)						0.17(8)				1981	8540(3)	66Vu01	91Di07	
2024.0(20)	$\langle 1$–$9\rangle$					0.70(35)				1986	8546(3)	66Vu01	91Di07	
2028.4(20)						0.15(7)				1990	8549(3)	66Vu01		
2029.5(20)						1.9(9)				1991	8551(3)	66Vu01	91Di07	
2032.6(20)						0.44(22)				1994	8554(3)	66Vu01	91Di07	
2037.1(20)						0.30(15)				1998	8558(3)	66Vu01		
2039.9(20)	$\langle 3^-,5^-\rangle$					0.80(40)				2001	8561(3)	66Vu01	91Di07	
2043.2(20)	$\langle 3^-,5,7^-\rangle$					1.4(7)				2004	8564(3)	66Vu01	91Di07	
2047.6(20)						1.2(6)				2009	8568(3)	66Vu01		
2055.4(20)						0.06(3)				2016	8576(3)	66Vu01		
2056.5(20)						0.23(12)				2017	8577(3)	66Vu01	91Di07	
2058.0(20)						0.47(24)				2019	8579(3)	66Vu01		
2063.0(20)						0.50(25)				2024	8584(3)	66Vu01	91Di07	
2065.3(20)						0.14(7)				2026	8586(3)	66Vu01		
2076.8(20)						0.33(17)				2037	8597(3)	66Vu01	91Di07	
2078.3(20)						0.60(30)				2039	8598(3)	66Vu01	91Di07	
2080.2(20)						0.37(19)				2041	8600(3)	66Vu01		
2081.4(20)						1.2(6)				2042	8601(3)	66Vu01		
2091.0(20)						0.38(19)				2052	8611(3)	66Vu01		
2092.1(20)	3^-5^-					2.2(11)				2052	8612(3)	66Vu01	91Di07	
2094.7(20)						0.90(45)				2055	8615(3)	66Vu01	91Di07	
2097.0(20)	$\langle 3^-,5,7^-\rangle$					1.0(5)				2057	8617(3)	66Vu01	91Di07	
2099.4(20)						0.70(35)				2059	8619(3)	66Vu01		
2107.7(20)						0.60(30)				2067	8627(3)	66Vu01	91Di07	
2110.2(20)						0.36(18)				2070	8630(3)	66Vu01		
2114.1(20)						0.11(6)				2074	8634(3)	66Vu01		
2117.6(20)						0.60(30)				2077	8637(3)	66Vu01	91Di07	
2118.3(20)						0.10(5)				2078	8638(3)	66Vu01		
2118.8*	1^-		25(5)	1.56		0.32(16)				2078	8638(3)	66Vu01	76Bi0A	91Di07
2121.1(20)						1.1(5)				2081	8640(3)	66Vu01		
2122.6(20)						1.2(6)				2082	8642(3)	66Vu01	91Di07	
2126.9(20)						0.03(1)				2086	8646(3)	66Vu01		
2130.2(20)						1.1(6)				2090	8649(3)	66Vu01	91Di07	
2134.8*	1^+		110(15)	2.78		1.7(8)				2094	8654(3)	66Vu01	76Bi0A	
2134.9(20)	$\langle 3^-\rangle$					0.80(40)				2094	8654(3)	66Vu01	91Di07	
2138.7(20)						0.60(30)				2098	8658(3)	66Vu01		
2147.9*	1^+		37(5)	0.90		1.6(8)				2107	8667(3)	66Vu01	76Bi0A	91Di07
2148.8(20)						0.13(7)				2108	8668(3)	66Vu01		
2152.1(20)						0.34(17)				2111	8671(3)	66Vu01		
2154.5*	1^+		400(50)	9.50		0.8(4)				2113	8673(3)	66Vu01	76Bi0A	

(continued) $^{53}_{25}\mathbf{Mn}(\mathrm{p})$

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ^2_p [keV]	$\Gamma_\mathrm{p}\Gamma_{\gamma_\circ}/\Gamma$ [eV]	$S_{\mathrm{p}\gamma}$ [eV]	Γ_p/Γ	$\alpha^2_{s\ell i}$	$\alpha^2_{s\ell j}$	$\alpha^2_{s\ell k}$	E_cm [keV]	E^* [keV]	Ref.	
2155.3(20)						0.80(40)					2114	8674(3)	66Vu01	
2159.4(20)	$\langle 3^- \rangle$					5.1(26)					2118	8678(3)	66Vu01	91Di07
2160.2(20)						1.1(6)					2119	8679(3)	66Vu01	91Di07
2164.5(20)						0.06(3)					2123	8683(3)	66Vu01	
2169.8(20)						0.09(5)					2128	8688(3)	66Vu01	
2170.8(20)						0.31(16)					2129	8689(3)	66Vu01	
2174.1(20)						0.40(20)					2133	8692(3)	66Vu01	91Di07
2178.0(20)						0.30(15)					2137	8697(3)	66Vu01	
2179.2(20)	$\langle 3^-,5,7^- \rangle$					1.6(8)					2138	8697(3)	66Vu01	91Di07
2182.7(20)						0.25(12)					2141	8701(3)	66Vu01	
2184.5(20)						0.05(2)					2143	8703(3)	66Vu01	
2189.2(20)						1.0(5)					2147	8707(3)	66Vu01	91Di07
2190.0(20)	$\langle 3^-,5,7^- \rangle$					1.6(8)					2149	8708(3)	66Vu01	91Di07
2193.9(20)						0.50(25)					2152	8712(3)	66Vu01	
2194.9(20)						0.08(4)					2153	8713(3)	66Vu01	
2199.4(20)	$\langle 3^-,5,7^- \rangle$					0.90(45)					2157	8717(3)	66Vu01	91Di07
2201.0(20)						0.40(20)					2159	8719(3)	66Vu01	
2207.6(20)						0.50(25)					2165	8725(3)	66Vu01	
2208.9(20)						0.46(23)					2167	8727(3)	66Vu01	91Di07
2214.8(20)						0.60(30)					2173	8732(3)	66Vu01	91Di07
2214.8*	1^+		100(10)	1.97		1.1(6)					2173	8732(3)	66Vu01	76Bi0A
2217.3(20)						0.24(12)					2175	8735(3)	66Vu01	
2218.9(20)	5^-					2.9(15)					2177	8736(3)	66Vu01	91Di07
2221.2(20)*	1^-		110(20)	4.13		0.60(30)					2179	8739(3)	66Vu01	76Bi0A
2230.0(20)						0.48(24)					2188	8748(3)	66Vu01	
2232.5(20)	$\langle 3^-,5,7^- \rangle$					2.4(12)					2190	8750(3)	66Vu01	91Di07
2237.8(20)						0.07(4)					2195	8755(3)	66Vu01	
2240.0(20)						2.0(10)					2198	8758(3)	66Vu01	91Di07
2241.3(20)						0.70(35)					2199	8758(3)	66Vu01	
2243.8(20)						1.0(5)					2201	8761(3)	66Vu01	91Di07
2248.6(20)						1.3(7)					2206	8766(3)	66Vu01	
2250.5(20)						0.29(15)					2208	8767(3)	66Vu01	
2253.6(20)						0.12(6)					2211	8770(3)	66Vu01	
2255.5(20)						0.50(25)					2212	8772(3)	66Vu01	
2257.1(20)						1.2(6)					2214	8774(3)	66Vu01	
2260.1(20)						0.34(17)					2217	8777(3)	66Vu01	
2267(3)	$\langle 3^-,5,7^- \rangle$										2224	8784(3)	91Di07	
2273(3)											2230	8790(3)	91Di07	
2279(3)											2236	8796(3)	91Di07	
2286(3)											2243	8803(3)	91Di07	
2291(3)	$\langle 3^-,5,7^- \rangle$										2248	8808(3)	91Di07	
2296(3)											2253	8812(3)	91Di07	
2300(3)	5										2257	8816(3)	91Di07	
2305(3)											2262	8821(3)	91Di07	
2308(3)											2264	8824(3)	91Di07	

(continued) **$^{53}_{25}$Mn(p)**

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ_p^2 [keV]	$\Gamma_p\Gamma_{\gamma\circ}/\Gamma$ [eV]	$S_{p\gamma}$ [eV]	Γ_p/Γ	$\alpha^2_{s\ell i}$	$\alpha^2_{s\ell j}$	$\alpha^2_{s\ell k}$	Rel.int. γ_i	E_{cm} [keV]	E^* [keV]	Ref.	
2312.6*	$\langle 1^-\rangle$		10(5)	0.32								2269	8828(3)	76Bi0A	91Di07
2318(3)												2274	8834(3)		91Di07
2321(3)	5											2277	8837(3)		91Di07
2323.1*	1^-		32(5)	1.01								2279	8839(3)	76Bi0A	
2330.1*	$\langle 3^-,5^+\rangle$		4(4)	0.58								2286	8845(3)	76Bi0A	91Di07
2335(3)												2291	8851(3)		91Di07
2344(3)	$\langle 3^-,5^+\rangle$											2300	8860(3)		91Di07
2347.4*	1^+		45(10)	0.59								2303	8862(3)	76Bi0A	
2348(3)	5											2304	8863(3)		91Di07
2348.4*	$\langle 3^+\rangle$		15(5)	2.07								2304	8863(3)	76Bi0A	
2350.9*	$\langle 1^-\rangle$		10(5)	0.29								2306	8866(3)	76Bi0A	91Di07
2364.4*	$\langle 5^+\rangle$		5(5)	0.65								2319	8879(3)	76Bi0A	91Di07
2367.0*	1^-		50(15)	1.38								2322	8882(3)	76Bi0A	
2372.2*	5^+		35(5)	4.47								2327	8887(3)	76Bi0A	91Di07
2374.0*	1^+		70(10)	0.85								2329	8889(3)	76Bi0A	71Mo28
2379(3)												2334	8894(3)		91Di07
2383(3)												2338	8898(3)		91Di07
2386(3)	$\langle 3^-,5,7^-\rangle$											2341	8901(3)		91Di07
2387.3*	1^-		50(5)	1.31								2342	8902(3)	76Bi0A	
2397.5*	1^-		20(5)	0.51								2352	8912(3)	76Bi0A	91Di07
2404(3)	$\langle 3^-,5^+\rangle$											2359	8918(3)		91Di07
2407(3)	$\langle 3^-,5,7^-\rangle$											2362	8921(3)		91Di07
2409(3)	7^-											2364	8923(3)		91Di07
2409.3*	1^+		25(10)	0.29								2363	8923(3)	76Bi0A	71Mo28
2410(3)	$5^-,7^-$											2365	8924(3)		91Di07
2419.2*	1^-		20(10)	0.49								2373	8933(3)	76Bi0A	
2422(3)	5^-											2376	8936(3)		91Di07
2422.3*	$\langle 5^+\rangle$		5(5)	0.57								2376	8936(3)	76Bi0A	91Di07
2423.5*	1^-		75(10)	1.82								2377	8937(3)	76Bi0A	
2431(3)	$5,7^-$											2385	8945(3)		91Di07
2439(3)	$\langle 5^-7^-\rangle$											2393	8953(3)		91Di07
2440.1*	1^-		40(10)	0.93								2394	8953(3)	76Bi0A	91Di07
2445.4*	1^-		100(15)	2.29								2399	8959(3)	76Bi0A	
2451.5*	3^-		30(5)	0.68								2405	8965(3)	76Bi0A	91Di07
2459(3)	$\langle 3^-,5,7^-\rangle$											2413	8972(3)		91Di07
2464(3)	$\langle 3^-,5,7^-\rangle$											2418	8977(3)		91Di07
2468(3)	$\langle 3^-,5,7\rangle$											2421	8981(3)		91Di07
2470.7*	5^+		30(5)	2.95								2424	8983(3)	76Bi0A	91Di07
2480(3)	$3^-,5$											2433	8993(3)		91Di07
2483(3)	$\langle 5^-,7\rangle$											2436	8996(3)		91Di07
2490(3)	$\langle 3^-,5,7^-\rangle$											2443	9003(3)		91Di07
2499.1*	1^-		105(10)	2.09								2451	9011(3)	76Bi0A	91Di07
2503(3)												2456	9016(3)		91Di07
2508(3)												2461	9020(3)		91Di07
2510.8*	1^-		30(5)	0.58								2463	9023(3)	76Bi0A	91Di07

(continued) **$^{53}_{25}$Mn(p)**

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ_p^2 [keV]	$\Gamma_p\Gamma_{\gamma\circ}/\Gamma$ [eV]	$S_{p\gamma}$ [eV]	Γ_p/Γ	$\alpha^2_{s\ell i}$	$\alpha^2_{s\ell j}$	$\alpha^2_{s\ell k}$	Rel.int. γ_i	E_{cm} [keV]	E^* [keV]	Ref.	
2514.2*	5^+		30(5)	2.59								2466	9026(3)	76Bi0A	91Di07
2517.8*	1^-		50(10)	0.95								2470	9030(3)	76Bi0A	91Di07
2522.7*	1^+		20(5)	0.17								2475	9034(3)	76Bi0A	71Mo28
2529(3)												2481	9041(3)		91Di07
2532(3)												2484	9044(3)		91Di07
2538(3)												2490	9050(3)		91Di07
2541(3)												2493	9053(3)		91Di07
2543.8*	1^+		95(10)	0.78								2495	9055(3)	76Bi0A	71Mo28
2552(3)												2504	9064(3)		91Di07
2555(3)												2507	9067(3)		91Di07
2556.9*	1^+		75(10)	0.60								2508	9068(3)	76Bi0A	71Mo28
2559(3)	$3^{\langle-\rangle}$											2511	9071(3)		91Di07
2571(3)												2522	9082(3)		91Di07
2582.7*	3^-		40(5)	0.64								2534	9093(3)	76Bi0A	91Di07
2583.7*	$\langle 3^+\rangle$		10(5)	0.71								2535	9094(3)	76Bi0A	91Di07
2584.5*	3^-		60(10)	0.96								2535	9095(3)	76Bi0A	91Di07
2589.0*	1^+		60(10)	0.44								2540	9100(3)	76Bi0A	71Mo28
2595.3*	1^+		300(30)	2.19								2546	9106(3)	76Bi0A	71Mo28
2596.9*	1^-		50(15)	0.78								2547	9107(3)	76Bi0A	91Di07
2598.6*	5^+		55(10)	3.75								2549	9109(3)	76Bi0A	91Di07
2610(3)	$\langle 3^-,5^-\rangle$											2561	9121(3)		91Di07
2616.1*	3^-		70(10)	1.04								2566	9127	76Bi0A	91Di07
2623.6*	1^+		50(5)	0.34								2574	9133(3)	76Bi0A	71Mo28
2629(3)	$\langle 3^-,5^+\rangle$											2579	9139(3)		91Di07
2636.7*	1^-		50(10)	0.71								2587	9146(3)	76Bi0A	91Di07
2642.5*	1^+		300(30)	1.98								2592	9152(3)	76Bi0A	71Mo28
2643(3)	$\langle 3^-,5^+\rangle$											2593	9153(3)		91Di07
2646(3)												2596	9156(3)		91Di07
2650(3)												2600	9160(3)		91Di07
2654.8*	$\langle 5^+\rangle$		10(5)	0.59								2604	9164(3)	76Bi0A	91Di07
2662.7*	1^+		275(30)	1.73								2612	9172(3)	76Bi0A	71Mo28
2664.2*	5^+		15(5)	0.86								2613	9173(3)	76Bi0A	91Di07
2669.1*	$\langle 1^-\rangle$		15(7)	0.20								2618	9178(3)	76Bi0A	91Di07
2670(3)	5^-											2620	9179(3)		91Di07
2677.4*	1^+		100(15)	0.61								2626	9186(3)	76Bi0A	71Mo28
2679.2*	$\langle 5^+\rangle$		10(5)	0.55								2628	9188(3)	76Bi0A	91Di07
2684(3)	9^+											2633	9193(3)	85Di09	91Di07
2688(3)	$\langle 3^-,5,7^-\rangle$											2637	9197(3)		91Di07
2688.5*	1^-		25(5)	0.31								2637	9197(3)	76Bi0A	
2690.4*	3^-		50(5)	0.62								2639	9199(3)	76Bi0A	91Di07
2695(3)	9^+											2644	9204(3)	85Di09	91Di07
2699(3)	5^-											2648	9208(3)		91Di07
2700.2*	1^-		125(15)	1.53								2649	9209(3)	76Bi0A	91Di07
2705.4*	3^-		75(10)	0.91								2654	9214(3)	76Bi0A	91Di07
2708.0*	1^+		75(10)	0.43								2657	9217(3)	76Bi0A	71Mo28

(continued) **$^{53}_{25}$Mn(p)**

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ_p^2 [keV]	$\Gamma_\mathrm{p}\Gamma_{\gamma_\circ}/\Gamma$ [eV]	$S_{\mathrm{p}\gamma}$ [eV]	Γ_p/Γ	$\alpha^2_{s\ell i}$	$\alpha^2_{s\ell j}$	$\alpha^2_{s\ell k}$	Rel.int. γ_i	E_cm [keV]	E^* [keV]	Ref.	
2715.7*	3^-		50(10)	0.59								2664	9224(3)	76Bi0A	91Di07
2719.5*	3^+		25(5)	1.24								2668	9228(3)	76Bi0A	
2721(3)	5^-											2670	9229(3)		91Di07
2722.7*	5^+		50(5)	2.47								2671	9231(3)	76Bi0A	91Di07
2734.7*	$\langle 5^+ \rangle$		40(10)	1.92								2683	9242(3)	76Bi0A	91Di07
2735.3*	1^-		200(50)	2.30								2683	9243(3)	76Bi0A	71Wy03
2739.6*	1^+		500(100)	2.69								2687	9247(3)	76Bi0A	71Mo28
2740.8*	5^+		120(30)	5.66								2689	9248(3)	76Bi0A	91Di07
2743.3*	3^-		125(15)	1.39								2691	9251(3)	76Bi0A	91Di07
2755(3)												2703	9263(3)		91Di07
2756.9*	1^-		75(10)	0.81								2704	9264(3)	76Bi0A	91Di07
2765.9*	3^-		30(5)	0.32								2713	9273(3)	76Bi0A	
2768.6*	$\langle 5^+ \rangle$		40(15)	1.76								2716	9276(3)	76Bi0A	
2768.9*	1^+		700(150)	3.56								2716	9276(3)	76Bi0A	71Mo28
2769.1*	3^-		800(200)	8.40								2716	9276(3)	76Bi0A	
2770(3)	5^-											2718	9278(3)		91Di07
2773.4*	3^-		600(150)	6.24								2721	9280(3)	76Bi0A	71Mo28
2773.7*	3^-		300(75)	3.11								2721	9281(3)	76Bi0A	91Di07
2783(3)												2730	9290(3)		91Di07
2786.8*	3^-		400(75)	4.04								2734	9294(3)	76Bi0A	91Di07
2797.9*	3^-		25(5)	0.25								2745	9304(3)	76Bi0A	91Di07
2800(3)	7^-											2747	9307(3)		91Di07
2803.6*	1^+		70(15)	0.33								2750	9310(3)	76Bi0A	71Mo28
2805.0*	$\langle 5^+ \rangle$		5(5)	0.20								2752	9312(3)	76Bi0A	91Di07
2807(3)	5^-											2754	9314(3)		91Di07
2812(3)	3^-											2759	9319(3)		91Di07
2816.5*	1^+		175(20)	0.81								2763	9323(3)	76Bi0A	71Mo28
2820(3)												2767	9327(3)		91Di07
2827.9*	1^-		250(25)	2.32								2774	9334(3)	76Bi0A	91Di07
2835.2*	$\langle 5^+ \rangle$		10(5)	0.37								2781	9341(3)	76Bi0A	91Di07
2835.6*	1^-		90(30)	0.82								2782	9341(3)	76Bi0A	71Mo28
2837(3)	3^-											2783	9343(3)		91Di07
2840(3)	$\langle 3^-,5,7^- \rangle$											2786	9346(3)		91Di07
2846(3)												2792	9352(3)		91Di07
2852.0*	$\langle 5^+ \rangle$		5(5)	0.18								2798	9358(3)	76Bi0A	91Di07
2858.9*	1^+		200(50)	0.86								2805	9364(3)	76Bi0A	71Mo28
2860.7*	5^+		20(5)	0.71								2806	9366(3)	76Bi0A	91Di07
2864.8*	5^+		20(10)	0.70								2810	9370(3)	76Bi0A	91Di07
2872(3)												2818	9378(3)		91Di07
2875(3)												2821	9381(3)		91Di07
2877.0*	$\langle 1^- \rangle$		20(5)	0.17								2823	9383(3)	76Bi0A	71Mo28
2878.4*	1^-		125(20)	1.05								2824	9383(3)	76Bi0A	91Di07
2879.5*	1^+		40(5)	0.17								2825	9385(3)	76Bi0A	71Mo28
2894(3)												2839	9399(3)		91Di07
2898(3)												2843	9403(3)		91Di07

(continued) $^{53}_{25}$**Mn**(p)

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ_p^2 [keV]	$\Gamma_\mathrm{p}\Gamma_{\gamma_\circ}/\Gamma$ [eV]	$S_{\mathrm{p}\gamma}$ [eV]	Γ_p/Γ	$\alpha^2_{s\ell i}$	$\alpha^2_{s\ell j}$	$\alpha^2_{s\ell k}$	Rel.int. γ_i	E_cm [keV]	E^* [keV]	Ref.	
2901(3)												2846	9406(3)		91Di07
2904.7*	$\langle 3^+\rangle$		5(5)	0.16								2849	9409(3)	76Bi0A	91Di07
2906.4*	1^-		60(10)	0.47								2851	9411(3)	76Bi0A	71Mo28
2911(3)	$\langle 3^-\rangle$											2856	9416(3)		91Di07
2914.6*	5^+		10(5)	0.31								2859	9419(3)	76Bi0A	71Mo28
2919.9*	5^+		15(5)	0.46								2864	9424(3)	76Bi0A	71Mo28
2930.1*	1^-		110(15)	0.83								2874	9434(3)	76Bi0A	71Mo28
2938.4*	5^+		20(5)	0.59								2883	9442(3)	76Bi0A	71Mo28
2940.0*	1^+		600(125)	2.23								2885	9444(3)	76Bi0A	71Mo28
2940.5*	$\langle 1^-\rangle$		300(100)	2.22								2885	9444(3)	76Bi0A	71Mo28
2946.6*	1^+		1000(100)	3.67								2891	9450(3)	76Bi0A	71Mo28
2955.5*	1^-		115(25)	0.83								2899	9459(3)	76Bi0A	71Mo28
2956.6*	5^+		60(15)	1.71								2900	9460(3)	76Bi0A	71Mo28
2959.2*	3^-		35(5)	0.25								2903	9463(3)	76Bi0A	71Mo28
2961.2*	$\langle 1^-\rangle$		10(5)	0.07								2905	9465(3)	76Bi0A	71Mo28
2964.9*	3^-		30(5)	0.21								2909	9468(3)	76Bi0A	71Mo28
2966.5*	1^+		800(100)	2.84								2910	9470(3)	76Bi0A	71Mo28
2968.4*	1^-		175(30)	1.23								2912	9472(3)	76Bi0A	71Mo28
2970.6*	$\langle 1^-\rangle$		10(5)	0.07								2914	9474(3)	76Bi0A	71Mo28
2973.8*	$\langle 3^+\rangle$		5(5)	0.14								2917	9477(3)	76Bi0A	71Mo28
2982.5*	1^-		15(5)	0.10								2926	9486(3)	76Bi0A	71Mo28
2992.0*	5^+		10(5)	0.26								2936	9495(3)	76Bi0A	71Mo28
3003.8*	1^-		110(10)	0.72								2947	9506(3)	76Bi0A	71Mo28
3011.3*	3^-		25(12)	0.16								2954	9514(3)	76Bi0A	71Mo28
3014.7*	1^+		450(50)	1.48								2957	9517(3)	76Bi0A	71Mo28
3047.8*	1^-		90(10)	0.55								2990	9550(3)	76Bi0A	71Mo28
3050.4*	1^-		100(10)	0.60								2992	9552(3)	76Bi0A	71Mo28
3058.2*	$\langle 1^-\rangle$		50(25)	0.30								3000	9560(3)	76Bi0A	71Mo28
3058.8*	5^+		25(5)	0.57								3001	9560(3)	76Bi0A	71Mo28
3063.0*	1^-		75(10)	0.44								3005	9565(3)	76Bi0A	71Mo28
3064.3*	3^+		20(5)	0.45								3006	9566(3)	76Bi0A	71Mo28
3070.2*	$\langle 3^+\rangle$		5(5)	0.11								3012	9572(3)	76Bi0A	71Mo28
3070.8*	5^+		20(5)	0.45								3012	9572(3)	76Bi0A	71Mo28
3074.1*	5^+		10(5)	0.22								3016	9575(3)	76Bi0A	71Mo28
3085.5*	5^+		75(15)	1.62								3027	9587(3)	76Bi0A	71Mo28
3086.1*	$\langle 5^+\rangle$		5(5)	0.11								3027	9587(3)	76Bi0A	71Mo28
3102.4*	1^+		40(10)	0.11								3043	9603(3)	76Bi0A	71Mo28
3104.2*	1^+		15(5)	0.04								3045	9605(3)	76Bi0A	71Mo28
3109.0*	1^+		1300(150)	3.68								3050	9610(3)	76Bi0A	71Mo28
3111.0*	3^+		115(20)	2.36								3052	9612(3)	76Bi0A	71Mo28
3121.0*	1^-		100(10)	0.53								3062	9622(3)	76Bi0A	71Mo28
3125.1*	1^+		800(100)	2.21								3066	9625(3)	76Bi0A	71Mo28
3126.8*	1^-		250(50)	1.32								3067	9627(3)	76Bi0A	71Mo28
3128.5*	5^+		100(15)	1.98								3069	9629(3)	76Bi0A	71Mo28
3130.2*	$\langle 5^+\rangle$		10(5)	0.20								3071	9630(3)	76Bi0A	71Mo28

(continued) $^{53}_{25}\mathbf{Mn}(\mathrm{p})$

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ_p^2 [keV]	$\Gamma_\mathrm{p}\Gamma_{\gamma_\circ}/\Gamma$ [eV]	$S_{\mathrm{p}\gamma}$ [eV]	Γ_p/Γ	$\alpha^2_{s\ell i}$	$\alpha^2_{s\ell j}$	$\alpha^2_{s\ell k}$	Rel.int. γ_i	E_cm [keV]	E^* [keV]	Ref.	
3132.0*	$\langle 3^+\rangle$		10(5)	0.20								3073	9633(3)	76Bi0A	71Mo28
3133.9*	1^-		1000(100)	5.22								3074	9634(3)	76Bi0A	71Mo28
3137.2*	1^+		1000(100)	2.71								3078	9637(3)	76Bi0A	71Mo28
3139.9*	$\langle 5^+\rangle$		20(5)	0.39								3080	9640(3)	76Bi0A	71Mo28
3144.7*	$\langle 5^-\rangle$		4(4)	0.53								3085	9645(3)	76Bi0A	71Mo28
3150.7*	$\langle 3^+\rangle$		10(5)	0.19								3091	9651(3)	76Bi0A	71Mo28
3152.1*	3^-		60(5)	0.30								3092	9652(3)	76Bi0A	71Mo28
3157.4*	1^-		80(15)	0.40								3097	9657(3)	76Bi0A	71Mo28
3159.4*	5^+		20(5)	0.37								3099	9659(3)	76Bi0A	71Mo28
3162.9*	5^+		35(5)	0.65								3103	9663(3)	76Bi0A	71Mo28
3164.9*	1^-		175(20)	0.87								3105	9665(3)	76Bi0A	71Mo28
3171.3*	1^+		4000(200)	10.3								3111	9671(3)	76Bi0A	71Mo28
3181.4*	1^+		300(30)	0.76								3121	9681(3)	76Bi0A	71Mo28
3200.0(30)	5^+		120(12)	2.1			1.0					3140	9699(3)	76Bi0A	85Oz01
3207.9(30)	1^+		2000(200)	4.9			1.0					3147	9707(3)	85Oz01	
3215.6(30)	3^+		150(15)	2.5			1.0					3154	9714(3)	85Oz01	
3217.5(30)	1^+		300(30)	0.72			1.0					3156	9716(3)	85Oz01	
3221.9*	1^+		20(5)	0.05								3161	9720(3)	76Bi0A	71Mo28
3222.9(30)	3^-		60(10)	0.27			0.86	0.4	0.6			3162	9721(3)	85Oz01	
3226.0(30)	1^+		150(15)	0.36			1.0					3165	9725(3)	85Oz01	
3244.3(30)	3^+		40(10)	0.63			1.0					3183	9742(3)	85Oz01	
3248.7(30)	3^+		40(10)	0.63			1.0					3187	9747(3)	85Oz01	
3250.4(30)	1^+		1400(140)	3.2			1.0					3189	9748(3)	85Oz01	
3266.1(30)	5^+		60(10)	0.91			1.0					3204	9764(3)	85Oz01	
3272.2(30)	5^+		90(10)	1.4			0.86	0.7	0.0	+0.3		3210	9770(3)	85Oz01	
3274.9(30)	1^-		60(10)	0.25			1.0					3213	9772(3)	85Oz01	
3282.7(30)	5^+		60(10)	0.89			1.0					3220	9780(3)	85Oz01	
3288.1(30)	3^+		60(10)	0.88			0.86	–0.4				3226	9785(3)	85Oz01	
3291.6(30)	1^+		60(10)	0.13			1.0					3229	9789(3)	85Oz01	
3293.5(30)	5^+		25(10)	0.36			1.0					3231	9791(3)	85Oz01	
3293.7(30)	3^-		50(10)	0.20			1.0					3231	9791(3)	85Oz01	
3311.3(30)	5^+		20(10)	1.3			1.0					3248	9808(3)	85Oz01	
3315.5(30)	5^+		50(10)	0.70			0.91	0.1	0.6	+0.3		3252	9812(3)	85Oz01	
3318.5(30)	1^+		1300(130)	2.7			1.0					3255	9815(3)	85Oz01	
3320.7(30)	5^+		80(10)	1.1			0.89	0.4	0.5	–0.1		3258	9817(3)	85Oz01	
3323.2(30)	3^+		30(10)	0.41			1.0					3260	9820(3)	85Oz01	
3324.6(30)	1^+		200(20)	0.42			1.0					3261	9821(3)	85Oz01	
3332.8(30)	3^+		100(10)	1.4			1.0					3269	9829(3)	85Oz01	
3336.0(30)	3^+		60(10)	0.81			1.0					3273	9833(3)	85Oz01	
3339.2(30)	3^+		50(10)	0.67			1.0					3276	9836(3)	85Oz01	
3348.5(30)	5^+		180(21)	2.6			0.95	0.7	0.2	–0.1		3285	9845(3)	85Oz01	
3350.7(30)	3^+		20(10)	0.26			1.0					3287	9847(3)	85Oz01	
3352.7(30)	3^+		50(10)	0.65			1.0					3289	9849(3)	85Oz01	
3355.8(30)	5^+		30(10)	0.39			1.0					3292	9852(3)	85Oz01	
3360.2(30)	1^+		450(45)	0.89			1.0					3296	9856(3)	85Oz01	

(continued) $^{53}_{25}\mathbf{Mn}(\mathrm{p})$

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ^2_p [keV]	$\Gamma_\mathrm{p}\Gamma_{\gamma_\circ}/\Gamma$ [eV]	$S_{\mathrm{p}\gamma}$ [eV]	Γ_p/Γ	$\alpha^2_{s\ell i}$	$\alpha^2_{s\ell j}$	$\alpha^2_{s\ell k}$	Rel.int. γ_i	E_cm [keV]	E^* [keV]	Ref.
3368.8(30)	1^+		700(70)	1.4			1.0					3305	9865(3)	85Oz01
3372.9(30)	3^-		90(10)	0.32			1.0					3309	9869(3)	85Oz01
3379.4(30)	5^+		40(10)	0.50			1.0					3315	9875(3)	85Oz01
3381.7(30)	3^-		90(10)	0.32			1.0					3317	9877(3)	85Oz01
3384.2(30)	1^-		70(10)	0.25			1.0					3320	9880(3)	85Oz01
3391.1(30)	1^+		1000(100)	1.8			1.0					3327	9886(3)	85Oz01
3394.4(30)	3^+		15(10)	0.18			1.0					3330	9890(3)	85Oz01
3395.6(30)	1^+		3000(300)	5.7			1.0					3331	9891(3)	85Oz01
3399.0(30)	5^+		40(10)	0.48			1.0					3335	9895(3)	85Oz01
3410.8(30)	5^+		80(10)	0.94			1.0					3346	9906(3)	85Oz01
3414.1(30)	3^-		80(10)	0.27			1.0					3349	9909(3)	85Oz01
3418.1(30)	1^+		60(10)	0.11			1.0					3353	9913(3)	85Oz01
3423.8(30)	1^-		100(10)	0.33			1.0					3359	9919(3)	85Oz01
3430.4(30)	1^+		1500(150)	2.4			1.0					3365	9925(3)	85Oz01
3438.6(30)	5^+		50(10)	0.56			0.83	1.0				3373	9933(3)	85Oz01
3449.9(30)	5^+		30(10)	0.33			0.60		0.5	0.5		3384	9944(3)	85Oz01
3450.8(30)	1^+		400(40)	0.71			1.0					3385	9945(3)	85Oz01
3456.5(30)	3^+		60(10)	0.65			0.75	–0.2				3391	9951(3)	85Oz01
3457.4(30)	3^-		80(10)	0.25			0.80	1.0				3392	9952(3)	85Oz01
3459.7(30)	1^-		200(20)	0.63			1.0					3394	9954(3)	85Oz01
3465.1(30)	1^-		100(10)	0.31			1.0					3399	9959(3)	85Oz01
3471.3(30)	1^+		300(30)	0.79			1.0					3405	9965(3)	85Oz01
3471.6(30)	1^-		60(10)	0.19			1.0					3406	9965(3)	85Oz01
3474.0(30)	3^+		30(10)	0.32			1.0					3408	9968(3)	85Oz01
3479.2(30)	1^+		1000(100)	1.7			1.0					3413	9973(3)	85Oz01
3482.3(30)	3^+		30(10)	0.31			0.67	0.2				3416	9976(3)	85Oz01
3488.6(30)	3^-		200(21)	0.61			0.95	0.2	0.8			3422	9982(3)	85Oz01
3491.1(30)	1^+		300(30)	0.50			1.0					3425	9985(3)	85Oz01
3494.9(30)	1^-		40(10)	0.12			1.0					3429	9988(3)	85Oz01
3504.0(30)	1^+		130(13)	0.22			1.0					3438	9998(3)	85Oz01
3508.9(30)	5^+		30(10)	0.30			1.0					3442	10002(3)	85Oz01
3513.9(30)	3^+		20(10)	0.20			1.0					3447	10007(3)	85Oz01
3515.2(30)	3^-		80(10)	0.24			0.89	0.1	0.9			3448	10008(3)	85Oz01
3516.9(30)	1^+		400(40)	0.66			1.0					3450	10010(3)	85Oz01
3518.8(30)	5^+		30(10)	0.29			0.75	0.2	0.2	+0.6		3452	10012(3)	85Oz01
3522.5(30)	1^+		70(10)	0.14			1.0					3456	10015(3)	85Oz01
3522.9(30)	1^-		80(10)	0.23			1.0					3456	10016(3)	85Oz01
3530.4(30)	1^+		500(50)	0.81			1.0					3463	10023(3)	85Oz01
3536.6(30)	1^+		130(13)	0.21			1.0					3469	10029(3)	85Oz01
3540.2(30)	3^-		50(10)	0.14			1.0					3473	10033(3)	85Oz01
3551.6(30)	1^+		80(10)	0.13			1.0					3484	10044(3)	85Oz01
3561.9(30)	5^+		40(10)	0.37			1.0					3494	10054(3)	85Oz01
3563.6(30)	1^-		70(10)	0.19			1.0					3496	10056(3)	85Oz01
3567.7(30)	3^+		30(10)	0.27			0.60	0.2				3500	10060(3)	85Oz01
3572.5(30)	5^+		40(10)	0.36			0.50	0.8	0.15	–0.05		3505	10064(3)	85Oz01

(continued) $^{53}_{25}\mathbf{Mn}(\mathrm{p})$

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ^2_p [keV]	$\Gamma_\mathrm{p}\Gamma_{\gamma\circ}/\Gamma$ [eV]	$S_{\mathrm{p}\gamma}$ [eV]	Γ_p/Γ	$\alpha^2_{s\ell i}$	$\alpha^2_{s\ell j}$	$\alpha^2_{s\ell k}$	Rel.int. γ_i	E_cm [keV]	E^* [keV]	Ref.
3573.1(30)	3^+		100(10)	0.90			1.0					3505	10065(3)	85Oz01
3579.2(30)	1^+		800(80)	1.2			1.0					3511	10071(3)	85Oz01
3590.2(30)	1^+		2000(200)	3.0			1.0					3522	10082(3)	85Oz01
3601.4(30)	3^-		60(10)	0.16			1.0					3533	10093(3)	85Oz01
3605.6(30)	1^+		200(20)	0.30			1.0					3537	10097(3)	85Oz01
3611.5(30)	5^+		30(10)	0.25			1.0					3543	10103(3)	85Oz01
3613.7(30)	3^+		30(10)	0.25			1.0					3545	10105(3)	85Oz01
3616.2(30)	1^-		600(60)	1.6			1.0					3548	10107(3)	85Oz01
3618.7(30)	1^-		200(20)	0.52			1.0					3550	10110(3)	85Oz01
3622.7(30)	1^+		300(30)	0.44			1.0					3554	10114(3)	85Oz01
3624.3(30)	3^-		40(10)	0.10			1.0					3555	10115(3)	85Oz01
3630.5(30)	3^+		20(10)	0.17			1.0					3562	10121(3)	85Oz01
3633.9(30)	1^-		200(20)	0.51			1.0					3565	10125(3)	85Oz01
3634.8(30)	5^+		50(10)	0.41			0.63	0.05	0.4	+0.55		3566	10126(3)	85Oz01
3636.6(30)	3^+		80(16)	0.65			0.50	0.1				3568	10127(3)	85Oz01
3638.6(30)	1^+		150(15)	0.22			1.0					3569	10129(3)	85Oz01
3638.9(30)	3^-		60(10)	0.15			1.0					3570	10130(3)	85Oz01
3648.8(30)	5^+		150(16)	1.2			0.94	0.5	0.2	+0.3		3580	10139(3)	85Oz01
3651.3(30)	1^+		70(10)	0.10			1.0					3582	10142(3)	85Oz01
3652.2(30)	1^+		400(40)	0.57			1.0					3583	10143(3)	85Oz01
3654.9(30)	3^+		20(10)	0.16			1.0					3585	10145(3)	85Oz01
3655.9(30)	3^-		40(10)	0.10			0.67	0.5	0.5			3586	10146(3)	85Oz01
3658.7(30)	5^+		60(10)	0.47			0.86	0.1	0.1	–0.8		3589	10149(3)	85Oz01
3660.8(30)	1^-		300(30)	0.73			1.0					3591	10151(3)	85Oz01
3663.5(30)	1^-		300(30)	0.73			1.0					3594	10154(3)	85Oz01
3665.9(30)	3^+		20(10)	0.16			0.67	0.4				3596	10156(3)	85Oz01
3667.7(30)	3^-		40(10)	0.10			0.67	0.8	0.2			3598	10158(3)	85Oz01
3668.6(30)	1^+		2000(200)	2.8			1.0					3599	10159(3)	85Oz01
3669.7(30)	1^+		100(10)	0.14			1.0					3600	10160(3)	85Oz01
3673.1(30)	3^-		150(15)	0.36			1.0					3603	10163(3)	85Oz01
3678.8(30)	3^+		100(14)	0.77			0.71	0.2				3609	10169(3)	85Oz01
3684.9(30)	3^-		300(48)	0.71			0.63	0.6	0.4			3615	10175(3)	85Oz01
3686.8(30)	1^+		40(10)	0.05			1.0					3617	10177(3)	85Oz01
3688.8(30)	3^-		60(10)	0.14			1.0					3619	10179(3)	85Oz01
3691.6(30)	3^-		150(24)	0.35			0.63	0.6	0.4			3621	10181(3)	85Oz01
3694.4(30)	5^+		110(15)	0.83			0.73		0.4	0.6		3624	10184(3)	85Oz01
3696.3(30)	5^+		30(10)	0.22			1.0					3626	10186(3)	85Oz01
3698.4(30)	1^+		200(20)	0.27			1.0					3628	10188(3)	85Oz01
3701.1(30)	5^+		25(10)	0.19			0.50	0.6	0.3	+0.1		3631	10191(3)	85Oz01
3704.1(30)	1^+		400(40)	0.54			1.0					3634	10194(3)	85Oz01
3706.2(30)	1^-		150(15)	0.35			1.0					3636	10196(3)	85Oz01
3708.3(30)	1^-		70(10)	0.16			1.0					3638	10198(3)	85Oz01
3712.3(30)	1^+		60(10)	0.08			1.0					3642	10202(3)	85Oz01
3712.9(30)	1^+		5000(500)	6.7			1.0					3642	10202(3)	85Oz01
3715.7(30)	5^+		60(10)	0.44			0.63	0.15	0.3	+0.55		3645	10205(3)	85Oz01

(continued) $^{53}_{25}\mathbf{Mn}(\mathrm{p})$

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ^2_p [keV]	$\Gamma_\mathrm{p}\Gamma_{\gamma_\circ}/\Gamma$ [eV]	$S_{\mathrm{p}\gamma}$ [eV]	Γ_p/Γ	$\alpha^2_{s\ell i}$	$\alpha^2_{s\ell j}$	$\alpha^2_{s\ell k}$	Rel.int. γ_i	E_cm [keV]	E^* [keV]	Ref.
3716.8(30)	5^+		15(10)	0.11			0.50	0.1	0.3	+0.6		3646	10206(3)	85Oz01
3719.1(30)	3^-		200(23)	0.46			0.87		1.0			3648	10208(3)	85Oz01
3720.0(30)	3^+		50(10)	0.36			0.71	0.2				3650	10210(3)	85Oz01
3723.1(30)	1^-		1000(100)	2.3			1.0					3652	10212(3)	85Oz01
3725.7(30)	3^+		50(10)	0.36			0.50	–0.4				3655	10215(3)	85Oz01
3729.2(30)	5^+		45(10)	0.29			0.57	0.05	0.4	+0.55		3658	10218(3)	85Oz01
3729.4(30)	3^-		50(10)	0.26			1.0					3659	10218(3)	85Oz01
3730.7(30)	5^+		18(10)	0.14			0.50	1.0				3660	10220(3)	85Oz01
3732.3(30)	3^-		100(12)	0.23			0.83	0.1	0.9			3661	10221(3)	85Oz01
3734.7(30)	1^-		60(10)	0.13			1.0					3664	10224(3)	85Oz01
3741.0(30)	5^+		15(10)	0.11			0.50		0.3	0.7		3670	10230(3)	85Oz01
3743.3(30)	1^+		250(25)	0.33			1.0					3672	10232(3)	85Oz01
3746.3(30)	3^+		15(10)	0.10			1.0					3675	10235(3)	85Oz01
3748.4(30)	3^-		200(20)	0.44			1.0					3677	10237(3)	85Oz01
3752.7(30)	1^-		40(10)	0.09			1.0					3681	10241(3)	85Oz01
3756.8(30)	3^+		30(10)	0.21			0.50	0.3				3685	10245(3)	85Oz01
3761.8(30)	3^+		80(14)	0.55			0.57	–0.1				3690	10250(3)	85Oz01
3762.2(30)	3^+		150(19)	1.0			0.79	–0.3				3691	10251(3)	85Oz01
3765.0(30)	1^-		400(40)	0.87			1.0					3694	10254(3)	85Oz01
3772.2(30)	3^-		100(13)	0.22			0.80	0.5	0.5			3701	10260(3)	85Oz01
3774.2(30)	3^+		80(10)	0.54			1.0					3703	10262(3)	85Oz01
3778.3(30)	1^+		1200(120)	1.5			1.0					3707	10266(3)	85Oz01
3781.8(30)	5^+		150(17)	1.0			0.88	0.25	0.15	+0.6		3710	10270(3)	85Oz01
3783.3(30)	1^-		300(30)	0.64			1.0					3711	10271(3)	85Oz01
3787.8(30)	3^+		50(10)	0.33			1.0					3716	10276(3)	85Oz01
3790.2(30)	5^+		150(16)	0.98			0.94	0.3	0.5	+0.2		3718	10278(3)	85Oz01
3793.1(30)	3^+		60(10)	0.39			0.60	–0.1				3721	10281(3)	85Oz01
3796.3(30)	3^+		300(30)	2.0			1.0					3724	10284(3)	85Oz01
3800.1(30)	3^+		30(10)	0.19			1.0					3728	10288(3)	85Oz01
3801.7(30)	1^-		70(14)	0.15			0.50	1.0				3730	10289(3)	85Oz01
3805.3(30)	1^+		900(90)	1.1			1.0					3733	10293(3)	85Oz01
3808.9(30)	5^+		30(10)	0.19			0.67		0.2	0.8		3737	10296(3)	85Oz01
3813.8(30)	3^+		120(21)	0.74			0.57	0.0				3741	10301(3)	85Oz01
3817.3(30)	1^+		1000(100)	1.2			1.0					3745	10305(3)	85Oz01
3821.7(30)	5^+		20(10)	0.13			0.50		0.5	0.5		3749	10309(3)	85Oz01
3822.3(30)	1^+		300(30)	0.36			1.0					3750	10310(3)	85Oz01
3826.4(30)	3^+		150(17)	0.94			0.88	–0.3				3754	10314(3)	85Oz01
3829.6(30)	1^-		80(10)	0.16			1.0					3757	10317(3)	85Oz01
3837.5(30)	3^+		80(10)	0.49			1.0					3765	10324(3)	85Oz01
3840.0(30)	1^+		1300(130)	1.5			1.0					3768	10327(3)	85Oz01
3841.4(30)	3^+		30(10)	0.18			0.50	–0.4				3768	10328(3)	85Oz01
3853.5(30)	1^+		200(20)	0.23			1.0					3780	10340(3)	85Oz01
3855.7(30)	1^+		200(20)	0.23			1.0					3783	10342(3)	85Oz01
3860.9(30)	3^+		80(10)	0.48			1.0					3788	10347(3)	85Oz01
3864.1(30)	5^+		25(10)	0.14			1.0					3791	10351(3)	85Oz01

(continued) $^{53}_{25}\mathbf{Mn}(\mathrm{p})$

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ^2_p [keV]	$\Gamma_\mathrm{p}\Gamma_{\gamma_\circ}/\Gamma$ [eV]	$S_{\mathrm{p}\gamma}$ [eV]	Γ_p/Γ	$\alpha^2_{s\ell i}$	$\alpha^2_{s\ell j}$	$\alpha^2_{s\ell k}$	Rel.int. γ_i	E_cm [keV]	E^* [keV]	Ref.
3871.1(30)	1^+		200(20)	0.23			1.0					3798	10357(3)	85Oz01
3873.8(30)	3^+		40(10)	0.23			0.50	0.2				3800	10360(3)	85Oz01
3875.5(30)	1^+		3000(300)	3.5			1.0					3802	10362(3)	85Oz01
3879.2(30)	3^+		60(12)	0.35			0.50	0.0				3806	10365(3)	85Oz01
3880.4(30)	1^-		600(63)	1.2			0.95	1.0				3807	10367(3)	85Oz01
3882.9(30)	5^+		40(10)	0.23			1.0					3809	10369(3)	85Oz01
3884.3(30)	1^+		450(90)	0.51			0.50	1.0				3811	10370(3)	85Oz01
3894.9(30)	1^-		500(50)	1.4			1.0					3821	10381(3)	85Oz01
3903.1(30)	3^+		50(10)	0.28			1.0					3829	10389(3)	85Oz01
3909.0(30)	5^+		70(10)	0.39			0.82	0.8	0.2			3835	10395(3)	85Oz01
3911.2(30)	1^+		700(70)	0.78			1.0					3837	10397(3)	85Oz01
3912.2(30)	5^+		40(10)	0.22			1.0					3838	10398(3)	85Oz01
3914.2(30)	3^+		20(10)	0.11			1.0					3840	10400(3)	85Oz01
3915.7(30)	1^+		150(15)	0.17			1.0					3841	10401(3)	85Oz01
3919.7(30)	3^+		30(10)	0.17			1.0					3845	10405(3)	85Oz01
3920.4(30)	3^+		50(10)	027			0.50	–0.2				3846	10406(3)	85Oz01
3921.6(30)	1^-		200(10)	0.37			1.0					3847	10407(3)	85Oz01
3925.3(30)	3^+		40(10)	0.22			0.50	0.4				3851	10411(3)	85Oz01
3927.8(30)	1^+		1700(170)	1.9			1.0					3853	10413(3)	85Oz01
3933.0(30)	1^-		200(20)	0.36			1.0					3859	10419(3)	85Oz01
3933.1(30)	3^-		105(11)	0.11			0.57		1.0			3858	10418(3)	85Oz01
3935.4(30)	5^+		60(10)	0.32			0.67	0.9		+0.1		3861	10420(3)	85Oz01
3938.8(30)	5^+		50(10)	0.27			1.0					3864	10424(3)	85Oz01
3940.2(30)	1^+		750(75)	0.81			1.0					3865	10425(3)	85Oz01
3945.1(30)	1^-		1300(130)	2.3			1.0					3870	10430(3)	85Oz01
3947.3(30)	3^+		150(15)	0.80			1.0					3872	10432(3)	85Oz01
3949.6(30)	3^+		30(10)	0.16			1.0					3875	10434(3)	85Oz01
3951.6(30)	1^-		150(15)	0.27			1.0					3877	10436(3)	85Oz01
3954.3(30)	1^+		500(50)	0.54			1.0					3879	10439(3)	85Oz01
3955.0(30)	3^-		110(22)	0.19			0.50	0.3	0.7			3880	10440(3)	85Oz01
3956.3(30)	3^-		150(18)	0.27			0.83	0.2	0.8			3881	10441(3)	85Oz01
3962.9(30)	1^+		300(30)	0.32			1.0					3888	10447(3)	85Oz01
3968.4(30)	3^+		100(15)	0.52			0.67	0.3				3893	10453(3)	85Oz01
3970.1(30)	3^+		500(68)	2.6			0.74	0.4				3895	10455(3)	85Oz01
3975.2(30)	5^+		30(10)	0.15			0.67	0.1	0.2	+0.7		3900	10460(3)	85Oz01
3977.4(30)	5^+		300(32)	1.5			0.94	0.6	0.2	+0.2		3902	10462(3)	85Oz01
3982.2(30)	1^+		3000(300)	3.1			1.0					3907	10466(3)	85Oz01
3984.9(30)	1^-		100(10)	0.17			1.0					3909	10469(3)	85Oz01
3986.2(30)	1^-		300(30)	0.52			1.0					3911	10470(3)	85Oz01
3988.4(30)	5^+		400(44)	2.0			0.91	0.05	0.4	+0.55		3913	10472(3)	85Oz01
3989.8(30)	3^+		400(40)	2.0			1.0					3914	10474(3)	85Oz01
3991.9(30)	3^+		30(10)	0.15			1.0					3916	10476(3)	85Oz01
3992.6(30)	5^+		200(20)	1.0			1.0					3917	10477(3)	85Oz01
3995.1(30)	3^-		300(48)	0.51			0.63		1.0			3919	10479(3)	85Oz01
3997.5(30)	1^+		500(50)	0.52			1.0					3922	10481(3)	85Oz01

(continued) **$^{53}_{25}$Mn(p)**

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ_p^2 [keV]	$\Gamma_\mathrm{p}\Gamma_{\gamma_\circ}/\Gamma$ [eV]	$S_{\mathrm{p}\gamma}$ [eV]	Γ_p/Γ	$\alpha^2_{s\ell i}$	$\alpha^2_{s\ell j}$	$\alpha^2_{s\ell k}$	Rel.int. γ_i	E_cm [keV]	E^* [keV]	Ref.
4001.9(30)	3^+		80(12)	0.40			0.67	0.5				3926	10486(3)	85Oz01
4003.0(30)	3^+		150(18)	0.74			0.83	0.5				3927	10487(3)	85Oz01
4008.5(30)	5^+		50(10)	0.25			0.77	0.2	0.3	+0.5		3932	10492(3)	85Oz01
4009.8(30)	3^-		60(10)	0.10			1.0					3934	10493(3)	85Oz01
4016.0(30)	5^+		50(10)	0.24			0.67	0.85	0.05	–0.1		3940	10500(3)	85Oz01
4017.3(30)	1^-		200(30)	0.33			0.67	1.0				3941	10501(3)	85Oz01
4019.2(30)	3^+		80(16)	0.39			0.50	0.1				3943	10503(3)	85Oz01
4020.8(30)	1^+		1300(130)	1.3			1.0					3944	10504(3)	85Oz01
4021.8(30)	5^+		60(10)	0.29			1.0					3945	10505(3)	85Oz01
4022.1(30)	3^-		210(45)	0.35			0.47	0.1	0.9			3946	10506(3)	85Oz01
4026.6(30)	5^+		80(17)	0.38			0.47	0.1	0.3	+0.6		3950	10510(3)	85Oz01
4027.3(30)	5^+		80(10)	0.38			1.0					3951	10511(3)	85Oz01
4028.3(30)	3^-		90(19)	0.15			0.47	0.2	0.8			3952	10512(3)	85Oz01
4033.0(30)	1^-		3000(300)	4.9			1.0					3957	10517(3)	85Oz01
4036.4(30)	1^+		1500(150)	1.5			1.0					3960	10520(3)	85Oz01
4038.7(30)	3^-		500(57)	0.82			0.88	0.1	0.9			3962	10522(3)	85Oz01
4041.2(30)	3^+		100(10)	0.47			1.0					3965	10524(3)	85Oz01
4044.1(30)	5^+		60(10)	0.28			0.75	1.0				3967	10527(3)	85Oz01
4047.5(30)	3^+		300(32)	1.4			0.94	0.1				3971	10530(3)	85Oz01
4050.6(30)	5^+		30(10)	0.14			0.50	0.6	0.15	+0.3		3974	10534(3)	85Oz01
4053.0(30)	1^+		5500(550)	5.4			1.0					3977	10536(3)	85Oz01
4058.9(30)	5^+		200(30)	0.91			0.67	0.7	0.15	+0.2		3982	10542(3)	85Oz01
4060.4(30)	5^+		30(10)	0.14			0.60	0.4	0.4	+0.2		3983	10543(3)	85Oz01
4064.6(30)	3^+		100(20)	0.45			0.50	0.2				3987	10547(3)	85Oz01
4066.0(30)	5^+		300(35)	1.4			0.86	0.7	0.05	+0.3		3989	10549(3)	85Oz01
4068.6(30)	1^-		1000(100)	1.6			1.0					3991	10551(3)	85Oz01
4070.1(30)	1^+		1000(100)	0.97			1.0					3993	10553(3)	85Oz01
4075.2(30)	3^+		80(16)	0.36			0.50	0.0				3998	10558(3)	85Oz01
4079.6(30)	5^+		100(10)	0.45			1.0					4002	10562(3)	85Oz01
4080.5(30)	3^+		80(16)	0.36			0.50	0.0				4003	10563(3)	85Oz01
4082.6(30)	3^+		60(12)	0.27			0.50	0.3				4005	10565(3)	85Oz01
4084.8(30)	5^+		30(10)	0.13			1.0					4007	10567(3)	85Oz01
4086.1(30)	3^-		300(30)	0.46			1.0					4009	10568(3)	85Oz01
4086.6(30)	1^-		$10(1)\cdot10^3$	15.5			1.0					4009	10569(3)	85Oz01
4093.7(30)	3^+		400(40)	1.8			1.0					4016	10576(3)	85Oz01
4097.8(30)	1^+		150(19)	0.14			0.79	1.0				4020	10580(3)	85Oz01
4100.2(30)	5^+		100(15)	0.44			0.67	0.9	0.1			4022	10582(3)	85Oz01
4102.6(30)	3^-		200(20)	0.31			1.0					4025	10585(3)	85Oz01
4103.8(30)	3^-		100(10)	0.15			1.0					4026	10586(3)	85Oz01
4106.4(30)	3^+		100(14)	0.43			0.71	0.1				4028	10588(3)	85Oz01
4110.9(30)	3^+		300(30)	1.3			1.0					4033	10593(3)	85Oz01
4111.9(30)	3^+		120(29)	0.52			0.41	–0.1				4034	10594(3)	85Oz01
4115	9^+				1.9	3.3						4037	10597(3)	79Fo12
4116.8(30)	1^+		1300(130)	1.2			1.0					4039	10598(3)	85Oz01
4125.6(30)	3^+		180(25)	0.56			0.72	–0.3				4047	10607(3)	85Oz01

(continued) **$^{53}_{25}$Mn(p)**

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ_p^2 [keV]	$\Gamma_p\Gamma_{\gamma_\circ}/\Gamma$ [eV]	$S_{p\gamma}$ [eV]	Γ_p/Γ	$\alpha^2_{s\ell i}$	$\alpha^2_{s\ell j}$	$\alpha^2_{s\ell k}$	Rel.int. γ_i	E_{cm} [keV]	E^* [keV]	Ref.
4128.8(30)	3^+		60(10)	0.25			1.0					4050	10610(3)	85Oz01
4130.2(30)	3^+		60(10)	0.25			1.0					4052	10612(3)	85Oz01
4130.7(30)	1^-		200(20)	0.30			1.0					4052	10612(3)	85Oz01
4133.4(30)	3^+		90(24)	0.38			0.38	–0.1				4055	10615(3)	85Oz01
4134	$\langle 9^+ \rangle$				0.4	0.7						4056	10616(3)	79Fo12
4136.2(30)	1^+		1700(170)	1.6			1.0					4058	10618(3)	85Oz01
4136.5(30)	3^-		110(20)	0.16			0.55	0.5	0.5			4058	10618(3)	85Oz01
4138.6(30)	1^+		500(50)	0.46			1.0					4060	10620(3)	85Oz01
4140	$\langle 9^+ \rangle$				0.4	0.7						4062	10622(3)	79Fo12
4140.1(30)	5^+		60(10)	0.25			1.0					4062	10621(3)	85Oz01
4142.2(30)	5^+		30(10)	0.12			1.0					4064	10623(3)	85Oz01
4147.1(30)	3^-		30(10)	0.04			0.50	0.6	0.4			4068	10628(3)	85Oz01
4150.6(30)	1^+		150(15)	0.14			1.0					4072	10632(3)	85Oz01
4151.8(30)	3^-		100(13)	0.15			0.77	0.3	0.7			4073	10633(3)	85Oz01
4154.6(30)	5^+		400(70)	0.61			0.57	0.75	0.2	+0.1		4076	10636(3)	85Oz01
4156.6(30)	3^+		150(15)	0.61			1.0					4078	10638(3)	85Oz01
4157	9^+				1.1	1.9						4079	10638(3)	79Fo12
4157.6(30)	3^+		250(25)	1.0			1.0					4079	10639(3)	85Oz01
4160.3(30)	5^+		20(10)	0.08			0.33	0.6	0.3	–0.1		4081	10641(3)	85Oz01
4162.6(30)	3^+		60(10)	0.24			1.0					4084	10643(3)	85Oz01
4162.8(30)	9^+		40(10)	7.3	3.1	5.3	0.62					4084	10644(3)	79Fo12
4169.9(30)	1^+		600(75)	0.54			0.80	1.0				4091	10651(3)	85Oz01
4171.0(30)	5^+		200(47)	0.80			0.43	0.7		+0.3		4092	10652(3)	85Oz01
4172.0(30)	1^+		300(55)	0.27			0.55	1.0				4093	10653(3)	85Oz01
4176	9^+				2.0	3.5						4097	10657(3)	79Fo12
4176.6(30)	3^+		200(20)	0.80			1.0					4097	10657(3)	85Oz01
4178.4(30)	3^+		100(14)	0.40			0.71	0.2				4099	10659(3)	85Oz01
4179.3(30)	5^+		100(13)	0.40			0.77	0.2	0.3	+0.5		4100	10660(3)	85Oz01
4180.9(30)	3^+		160(40)	0.64			0.40	–0.1				4102	10661(3)	85Oz01
4182	9^+				2.0	3.5						4103	10663(3)	79Fo12
4183.7(30)	3^+		300(30)	1.2			1.0					4104	10664(3)	85Oz01
4185.3(30)	1^+		3000(300)	2.7			1.0					4106	10666(3)	85Oz01
4185.7(30)	5^+		100(24)	0.40			0.42	0.1	0.4	+0.5		4106	10666(3)	85Oz01
4188	$\langle 9^+ \rangle$				0.5	0.9						4109	10669(3)	79Fo12
4188.3(30)	3^+		45(10)	0.18			0.50	0.1				4109	10669(3)	85Oz01
4193.8(30)	1^+		3000(300)	2.7			1.0					4114	10674(3)	85Oz01
4197	$\langle 9^+ \rangle$				0.5	0.9						4118	10678(3)	79Fo12
4198.1(30)	3^+		60(11)	0.23			0.55	–0.1				4118	10678(3)	85Oz01
4201.3(30)	5^+		100(10)	0.39			1.0					4122	10681(3)	85Oz01
4201.4(30)	5^+		150(15)	0.58								4122	10681(3)	85Oz01
4204.2(30)	1^+		3200(320)	2.8								4124	10684(3)	85Oz01
4210.2(30)	3^+		60(10)	0.23								4130	10690(3)	85Oz01
4212.0(30)	5^+		100(10)	0.38								4133	10692(3)	85Oz01
4213.5(30)	5^+		80(10)	0.31								4134	10693(3)	85Oz01
4216.3(30)	1^+		1000(100)	0.87								4136	10696(3)	85Oz01

(continued)

$^{53}_{25}$Mn(p)

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ_p^2 [keV]	$\Gamma_\mathrm{p}\Gamma_{\gamma_\circ}/\Gamma$ [eV]	$S_{\mathrm{p}\gamma}$ [eV]	Γ_p/Γ	$\alpha^2_{s\ell i}$	$\alpha^2_{s\ell j}$	$\alpha^2_{s\ell k}$	Rel.int. γ_i	E_cm [keV]	E^* [keV]	Ref.
4216.8(30)	3^+		30(10)	0.11								4137	10697(3)	85Oz01
4220.2(30)	3^+		60(10)	0.23								4140	10700(3)	85Oz01
4220.6(30)	3^-		100(10)	0.14								4141	10700(3)	85Oz01
4222.1(30)	3^+		30(10)	0.11								4142	10702(3)	85Oz01
4224.3(30)	5^+		30(10)	0.11								4144	10704(3)	85Oz01
4230.0(30)	1^+		1800(180)	1.6								4150	10710(3)	85Oz01
4234.8(30)	1^-		80(10)	0.11								4154	10714(3)	85Oz01
4240.4(30)	1^+		1000(100)	0.86								4160	10720(3)	85Oz01
4243.0(30)	5^+		100(10)	0.37								4163	10723(3)	85Oz01
4245.3(30)	3^-		200(20)	0.27								4165	10725(3)	85Oz01
4247.3(30)	3^+		80(10)	0.29								4167	10727(3)	85Oz01
4250.6(30)	3^+		300(30)	1.1								4170	10730(3)	85Oz01
4253.2(30)	3^+		20(10)	0.07								4173	10732(3)	85Oz01
4259.6(30)	3^+		300(30)	1.1								4179	10739(3)	85Oz01
4263.0(30)	3^+		180(18)	0.65								4183	10742(3)	85Oz01
4265.9(30)	5^+		20(10)	0.07								4185	10745(3)	85Oz01
4271.2(30)	3^+		60(10)	0.22								4190	10750(3)	85Oz01
4276.2(30)	5^+		200(20)	0.71								4195	10755(3)	85Oz01
4279.2(30)	3^+		200(20)	0.71								4198	10758(3)	85Oz01
4280.8(30)	1^+		1000(100)	0.83								4200	10759(3)	85Oz01
4282.9(30)	1^+		600(60)	0.50								4202	10761(3)	85Oz01
4285.4(30)	3^+		200(20)	0.71								4204	10764(3)	85Oz01
4288.2(30)	5^+		250(25)	0.88								4207	10767(3)	85Oz01
4296.1(30)	1^+		8000(800)	6.6								4215	10774(3)	85Oz01
4294.7(30)	3^-		50(10)	0.06								4213	10773(3)	85Oz01
4300.3(30)	3^-		120(12)	0.15								4219	10779(3)	85Oz01
4302.8(30)	3^+		150(15)	0.52								4221	10781(3)	85Oz01
4305.5(30)	3^-		70(10)	0.09								4224	10784(3)	85Oz01
4307.1(30)	5^+		60(10)	0.21								4225	10785(3)	85Oz01
4309.7(30)	3^+		200(20)	0.69								4228	10788(3)	85Oz01
4312.4(30)	1^-		200(20)	0.25								4231	10790(3)	85Oz01
4314.7(30)	5^+		20(10)	0.07								4233	10793(3)	85Oz01
4315.1(30)	1^-		60(10)	0.08								4233	10793(3)	85Oz01
4319.3(30)	1^+		400(40)	0.32								4237	10797(3)	85Oz01
4319.8(30)	5^+		200(20)	0.68								4238	10798(3)	85Oz01
4320.9(30)	3^-		200(20)	0.25								4239	10799(3)	85Oz01
4321.5(30)	3^+		100(10)	0.34								4240	10799(3)	85Oz01
4322.5(30)	1^-		80(10)	0.10								4240	10800(3)	85Oz01
4324.0(30)	3^+		30(10)	0.10								4242	10802(3)	85Oz01
4328.4(30)	5^+		100(10)	0.34								4246	10806(3)	85Oz01
4329.5(30)	3^+		150(15)	0.50								4247	10807(3)	85Oz01
4334.0(30)	5^+		170(17)	0.57								4252	10812(3)	85Oz01
4336.2(30)	5^+		100(10)	0.33								4254	10814(3)	85Oz01
4338.2(30)	5^+		60(10)	0.20								4256	10816(3)	85Oz01
4338.6(30)	1^+		2000(200)	1.6								4256	10816(3)	85Oz01

(continued) $^{53}_{25}\mathbf{Mn}(\mathrm{p})$

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ_p^2 [keV]	$\Gamma_\mathrm{p}\Gamma_{\gamma_\circ}/\Gamma$ [eV]	$S_{\mathrm{p}\gamma}$ [eV]	Γ_p/Γ	$\alpha^2_{s\ell i}$	$\alpha^2_{s\ell j}$	$\alpha^2_{s\ell k}$	Rel.int. γ_i	E_cm [keV]	E^* [keV]	Ref.
4339.5(30)	3^+		100(10)	0.33								4257	10817(3)	85Oz01
4340.9(30)	1^+		2500(250)	2.0								4259	10818(3)	85Oz01
4343.0(30)	1^-		100(10)	0.12								4261	10821(3)	85Oz01
4345.5(30)	3^-		60(10)	0.07								4263	10823(3)	85Oz01
4346.8(30)	3^-		100(10)	0.12								4264	10824(3)	85Oz01
4348.4(30)	3^+		80(10)	0.26								4266	10826(3)	85Oz01
4349.0(30)	3^+		80(10)	0.26								4267	10827(3)	85Oz01
4351.6(30)	3^-		30(10)	0.04								4269	10829(3)	85Oz01
4354.3(30)	5^-		20(10)	0.32								4272	10831(3)	85Oz01
4355.2(30)	3^+		30(10)	0.10								4273	10832(3)	85Oz01
4356.0(30)	1^-		100(10)	0.12								4274	10834(3)	85Oz01
4357.6(30)	3^+		30(10)	0.10								4275	10835(3)	85Oz01
4359.3(30)	1^-		200(20)	0.24								4277	10836(3)	85Oz01
4363.0(30)	1^+		30(10)	0.02								4281	10840(3)	85Oz01
4365.9(30)	9^+		50(10)	5.5								4283	10843(3)	85Oz01
4366.3(30)	1^+		300(30)	0.24								4283	10843(3)	85Oz01
4366.9(30)	5^+		100(10)	0.32								4284	10844(3)	85Oz01
4369.1(30)	3^+		200(20)	0.64								4286	10846(3)	85Oz01
4370.7(30)	3^-		60(10)	0.07								4288	10848(3)	85Oz01
4372.5(30)	3^+		100(10)	0.32								4290	10849(3)	85Oz01
4373.3(30)	3^+		50(10)	0.16								4290	10850(3)	85Oz01
4376.0(30)	1^+		500(50)	0.39								4293	10853(3)	85Oz01
4377.7(30)	1^+		500(50)	0.39								4295	10854(3)	85Oz01
4381.0(30)	3^+		30(10)	0.10								4298	10858(3)	85Oz01
4382.7(30)	3^+		250(25)	0.79								4300	10859(3)	85Oz01
4386.0(30)	5^+		200(20)	0.63								4303	10863(3)	85Oz01
4387.8(30)	3^-		50(10)	0.06								4305	10864(3)	85Oz01
4388.8(30)	5^+		30(10)	0.09								4306	10865(3)	85Oz01
4390.4(30)	1^+		200(20)	0.15								4307	10867(3)	85Oz01
4395.1(30)	3^+		100(10)	0.31								4312	10872(3)	85Oz01
4397.2(30)	5^+		100(10)	0.31								4314	10874(3)	85Oz01
4399.8(30)	1^-		200(20)	0.24								4316	10876(3)	85Oz01
4401.9(30)	3^+		20(10)	0.06								4318	10878(3)	85Oz01
4403.0(30)	1^+		100(10)	0.08								4320	10880(3)	85Oz01
4404.3(30)	1^-		100(10)	0.12								4321	10881(3)	85Oz01
4406.6(30)	3^+		200(20)	0.62								4323	10883(3)	85Oz01
4408.0(30)	1^-		500(50)	0.59								4325	10885(3)	85Oz01
4409.3(30)	1^+		200(20)	0.15								4326	10885(3)	85Oz01
4412.2(30)	3^+		600(60)	1.9								4329	10888(3)	85Oz01
4415.0(30)	3^-		70(10)	0.08								4332	10891(3)	85Oz01
4416.1(30)	5^+		40(10)	0.12								4332	10892(3)	85Oz01
4416.8(30)	1^+		250(25)	0.19								4333	10893(3)	85Oz01
4416.8(30)	3^+		80(10)	0.24								4333	10893(3)	85Oz01
4419.8(30)	3^-		30(10)	0.03								4336	10896(3)	85Oz01
4424.2(30)	5^+		30(10)	0.09								4340	10900(3)	85Oz01

(continued) $^{53}_{25}\mathbf{Mn}(\mathrm{p})$

$E_\circ$	$2J^\pi$	$2T$	Γ_p	γ^2_p	$\Gamma_\mathrm{p}\Gamma_{\gamma\circ}/\Gamma$	$S_{\mathrm{p}\gamma}$	Γ_p/Γ	$\alpha^2_{s\ell i}$	$\alpha^2_{s\ell j}$	$\alpha^2_{s\ell k}$	Rel.int.	E_cm	E^*	Ref.
[keV]			[eV]	[keV]	[eV]	[eV]					γ_i	[keV]	[keV]	
4426.2(30)	1^-		300(30)	0.35								4342	10902(3)	85Oz01
4431.3(30)	1^+		100(10)	0.08								4347	10907(3)	85Oz01
4432.2(30)	5^+		80(10)	0.24								4348	10908(3)	85Oz01
4434.2(30)	3^+		60(10)	0.18								4350	10910(3)	85Oz01
4435.5(30)	3^+		150(15)	0.45								4351	10911(3)	85Oz01
4439.7(30)	3^+		700(70)	2.1								4355	10915(3)	85Oz01
4442.1(30)	1^-		200(20)	0.23								4358	10918(3)	85Oz01
4443.1(30)	5^+		50(10)	0.15								4359	10919(3)	85Oz01
4444.7(30)	3^+		80(10)	0.24								4360	10920(3)	85Oz01
4446.5(30)	1^+		5000(500)	3.7								4362	10922(3)	85Oz01
4448.8(30)	3^-		60(10)	0.07			0.75		1.0			4364	10924(3)	85Oz01
4452.5(30)	5^+		100(20)	0.29			0.50	0.6	0.1	+0.3		4368	10928(3)	85Oz01
4453.6(30)	5^+		200(40)	0.59			0.50	0.25	0.3	+0.45		4369	10929(3)	85Oz01
4454.5(30)	3^+		50(11)	0.15			0.45	0.4				4370	10930(3)	85Oz01
4459.3(30)	5^+		60(12)	0.17			0.50	0.65	0.05	+0.3		4375	10935(3)	85Oz01
4461.3(30)	1^+		1500(150)	3.7			1.0					4377	10936(3)	85Oz01
4462.1(30)	5^+		120(24)	0.35			0.50	0.05	0.4	+0.55		4377	10937(3)	85Oz01
4463.9(30)	3^+		60(12)	0.17			0.50	0.1				4379	10939(3)	85Oz01
4466.2(30)	3^-		100(16)	0.11			0.63		1.0			4381	10941(3)	85Oz01
4466.6(30)	1^+		2500(250)	1.1			1.0					4382	10942(3)	85Oz01
4467.4(30)	5^+		100(12)	0.29			0.83	0.8	0.1	–0.1		4383	10942(3)	85Oz01
4468.6(30)	3^+		150(18)	0.43			0.83	–0.7				4384	10944(3)	85Oz01
4470.0(30)	5^+		150(20)	0.43			0.75	0.95		–0.05		4386	10945(3)	85Oz01
4471.4(30)	1^+		2000(200)	1.8			1.0					4387	10946(3)	85Oz01
4473.8(30)	3^-		100(20)	0.11			0.50		1.0			4389	10949(3)	85Oz01
4477.6(30)	5^+		400(40)	1.1			1.0					4393	10952(3)	85Oz01
4479.1(30)	5^+		600(120)	1.7			0.50	0.3	0.25	+0.45		4394	10954(3)	85Oz01
4482.1(30)	3^+		300(30)	0.85			1.0					4397	10957(3)	85Oz01
4485.2(30)	5^+		250(50)	0.71			0.50	0.1	0.3	+0.6		4400	10960(3)	85Oz01
4486.3(30)	5^+		200(20)	0.57			1.0					4401	10961(3)	85Oz01
4487.3(30)	3^-		100(18)	0.11			0.56	0.6	0.4			4402	10962(3)	85Oz01
4487.7(30)	1^+		4000(400)	1.5			1.0					4403	10962(3)	85Oz01
4491.4(30)	1^-		500(50)	0.55			1.0					4406	10966(3)	85Oz01
4492.9(30)	3^-		130(26)	0.14			0.50	0.2	0.8			4408	10967(3)	85Oz01
4494.0(30)	5^+		70(14)	0.20			0.50	0.45	0.1	+0.45		4409	10969(3)	85Oz01
4495.4(30)	3^+		100(22)	0.34			0.55	0.4				4410	10970(3)	85Oz01
4499.5(30)	3^+		1200(240)	3.4			0.50	0.4				4414	10974(3)	85Oz01
4499.9(30)	1^+		4000(400)	2.9			1.0					4415	10974(3)	85Oz01
4501.0(30)	3^+		80(16)	0.22			0.50	0.4				4416	10976(3)	85Oz01
4501.5(30)	3^-		300(50)	0.33			0.60		1.0			4416	10976(3)	85Oz01
4504.3(30)	3^+		40(10)	0.11			0.50	0.4				4419	10979(3)	85Oz01
4505.5(30)	3^-		100(10)	0.11			1.0					4420	10980(3)	85Oz01
4508.0(30)	1^-		60(11)	0.07			0.55	1.0				4423	10983(3)	85Oz01
4508.5(30)	1^-		60(10)	0.07			0.60	1.0				4423	10983(3)	85Oz01
4510.0(30)	3^+		60(12)	0.17			0.50	0.1				4425	10985(3)	85Oz01

(continued) $^{53}_{25}\mathbf{Mn}(\mathrm{p})$

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ^2_p [keV]	$\Gamma_\mathrm{p}\Gamma_{\gamma\circ}/\Gamma$ [eV]	$S_{\mathrm{p}\gamma}$ [eV]	Γ_p/Γ	$\alpha^2_{s\ell i}$	$\alpha^2_{s\ell j}$	$\alpha^2_{s\ell k}$	Rel.int. γ_i	E_cm [keV]	E^* [keV]	Ref.
4514.2(30)	3^-		60(11)	0.06			0.55	0.8	0.2			4429	10988(3)	85Oz01
4519.3(30)	5^+		600(69)	1.6			0.87	0.7		+0.3		4434	10993(3)	85Oz01
4523.2(30)	5^+		300(30)	0.82			1.0					4437	10997(3)	85Oz01
4523.7(30)	5^+		300(52)	0.82			0.58		0.35	0.65		4438	10998(3)	85Oz01
4525.3(30)	3^+		520(70)	1.6			0.86	–0.1				4439	10999(3)	85Oz01
4529.1(30)	3^+		50(15)	0.14			0.33	0.3				4443	11003(3)	85Oz01
4531.4(30)	3^-		100(20)	0.11			0.50		1.0			4445	11005(3)	85Oz01
4531.9(30)	3^-		50(10)	0.05			0.50		1.0			4446	11006(3)	85Oz01
4532.9(30)	3^+		400(40)	1.1			1.0					4447	11007(3)	85Oz01
4536.6(30)	5^+		150(30)	0.40			0.50	0.05	0.45	+0.5		4451	11010(3)	85Oz01
4541.6(30)	5^+		400(52)	1.1			0.77	0.25	0.2	+0.55		4455	11015(3)	85Oz01
4544.5(30)	3^-		200(40)	0.21			0.50		1.0			4458	11018(3)	85Oz01
4545.5(30)	5^+		100(20)	0.27			0.50	0.6	0.15	+0.25		4459	11019(3)	85Oz01
4545.8(30)	1^+		300(30)	2.9			1.0					4460	11019(3)	85Oz01
4547.4(30)	3^+		150(30)	0.40			0.50	0.1				4461	11021(3)	85Oz01
4550.9(30)	5^+		300(50)	0.80			0.60	0.55	0.2	+0.25		4465	11024(3)	85Oz01
4553.7(30)	3^+		1000(140)	2.6			0.71	0.4				4467	11027(3)	85Oz01
4554.9(30)	3^+		330(70)	1.1			0.57	0.3				4469	11028(3)	85Oz01
4556.0(30)	1^+		400(40)	0.21			1.0					4470	11030(3)	85Oz01
4558.1(30)	3^+		250(50)	0.66			0.50	–0.1				4472	11031(3)	85Oz01
4561.4(30)	3^-		60(12)	0.06			0.50	0.8	0.2			4475	11035(3)	85Oz01
4561.6(30)	1^+		3000(300)	0.28			1.0					4475	11035(3)	85Oz01
4562.5(30)	5^+		600(70)	1.6			0.86	0.9	0.05	+0.05		4476	11036(3)	85Oz01
4563.2(30)	3^-		100(20)	0.10			0.50	0.3	0.7			4477	11036(3)	85Oz01
4564.9(30)	5^+		1000(100)	2.6			1.0					4478	11038(3)	85Oz01
4565.1(30)	3^+		100(20)	0.26			0.50	0.1				4479	11038(3)	85Oz01
4565.7(30)	5^+		60(12)	0.16			0.50	0.65	0.0	+0.35		4479	11039(3)	85Oz01
4567.8(30)	3^+		30(10)	0.08			0.50	0.4				4481	11041(3)	85Oz01
4570.5(30)	5^+		250(45)	0.65			0.56	0.0	0.4	0.6		4484	11044(3)	85Oz01
4573.3(30)	3^+		500(100)	1.3			0.50	0.3				4487	11046(3)	85Oz01
4577.9(30)	1^-		100(12)	0.10			0.83	1.0				4491	11051(3)	85Oz01
4580.5(30)	1^+		300(30)	2.1			1.0					4494	11053(3)	85Oz01
4582.7(30)	5^+		500(100)	1.3			0.50	0.6	0.15	+0.25		4496	11056(3)	85Oz01
4585.2(30)	1^-		100(12)	0.10			0.83	1.0				4498	11058(3)	85Oz01
4586.9(30)	5^+		50(10)	0.13			0.71	0.05	0.35	+0.6		4500	11060(3)	85Oz01
4590.1(30)	5^+		1500(250)	3.8			0.60	0.1	0.4	+0.5		4503	11063(3)	83Kl03
4590.9(30)	5^+		600(120)	1.5			0.50		0.4	0.6		4504	11064(3)	85Oz01
4591.4(30)	1^-		500(50)	0.55			1.0					4504	11064(3)	85Oz01
4595.5(30)	5^+		600(80)	1.5			0.75	0.1	0.35	+0.55		4508	11068(3)	85Oz01
4598.4(30)	3^+		200(40)	0.51			0.50	0.1				4511	11071(3)	85Oz01
4602.5(30)	1^+		1000(100)	0.21			1.0					4515	11075(3)	85Oz01
4604.0(30)	5^+		1570(160)	3.8			0.98	0.1	0.4	+0.5		4517	11077(3)	85Oz01
4607.5(30)	3^-		60(12)	0.06			0.50		1.0			4520	11080(3)	85Oz01
4607.9(30)	3^+		700(78)	1.8			0.90	0.4				4521	11080(3)	85Oz01
4613.2(30)	5^+		100(11)	0.25			0.91	0.25	0.1	+0.65		4526	11086(3)	85Oz01

(continued) $^{53}_{25}\mathbf{Mn}(\mathrm{p})$

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ^2_p [keV]	$\Gamma_\mathrm{p}\Gamma_{\gamma\circ}/\Gamma$ [eV]	$S_{\mathrm{p}\gamma}$ [eV]	Γ_p/Γ	$\alpha^2_{s\ell i}$	$\alpha^2_{s\ell j}$	$\alpha^2_{s\ell k}$	Rel.int. γ_i	E_cm [keV]	E^* [keV]	Ref.
4613.3(30)	1^+		2000(250)	0.68			0.80	1.0				4526	11086(3)	85Oz01
4615.6(30)	3^-		100(10)	0.10			1.0					4528	11088(3)	85Oz01
4618.5(30)	5^+		400(52)	1.0			0.77	0.2	0.25	+0.55		4531	11091(3)	85Oz01
4621.2(30)	3^+		200(20)	0.50			1.0					4534	11093(3)	85Oz01
4621.9(30)	3^-		100(20)	0.10			0.50	0.4	0.6			4534	11094(3)	85Oz01
4624.4(30)	3^+		300(42)	0.75			0.71	–0.3				4537	11096(3)	85Oz01
4627.6(30)	5^+		120(17)	0.30			0.71	0.3	0.15	+0.55		4540	11100(3)	85Oz01
4629.7(30)	3^+		380(76)	0.94			0.50	0.2				4542	11102(3)	85Oz01
4632.7(30)	1^+		1500(150)	1.3			1.0					4545	11105(3)	85Oz01
4633.7(30)	5^+		60(10)	0.15			0.60	0.3	0.15	+0.55		4546	11106(3)	85Oz01
4639.8(30)	1^+		800(120)	0.1			0.67	1.0				4552	11112(3)	85Oz01
4643.2(30)	1^-		200(40)	0.20			0.50	1.0				4555	11115(3)	85Oz01
4645.0(30)	5^+		60(12)	0.15			0.50	0.3	0.2	+0.5		4557	11117(3)	85Oz01
4646.5(30)	5^+		70(14)	0.17			0.50	0.2	0.15	+0.65		4558	11118(3)	85Oz01
4647.7(30)	5^+		130(26)	0.32			0.50	0.65	0.05	+0.3		4560	11119(3)	85Oz01
4648.0(30)	1^+		600(60)	0.53			1.0					4560	11120(3)	85Oz01
4650.5(30)	3^+		1000(130)	2.4			0.77	–0.1				4562	11122(3)	85Oz01
4651.7(30)	3^-		200(20)	0.20			1.0					4563	11123(3)	85Oz01
4653.4(30)	1^+		200(20)	0.40			1.0					4565	11125(3)	85Oz01
4654.5(30)	5^+		80(16)	0.19			0.50	0.65	0.25	+0.1		4566	11126(3)	85Oz01
4655.3(30)	3^-		350(70)	0.34			0.50	0.2	0.8			4567	11127(3)	85Oz01
4658.2(30)	3^-		150(22)	0.15			0.68		1.0			4570	11130(3)	85Oz01
4660.1(30)	1^+		1500(150)	0.13			1.0					4572	11132(3)	85Oz01
4662.7(30)	3^+		1000(110)	2.4			0.91	0.2				4574	11134(3)	85Oz01
4665.6(30)	5^+		60(10)	0.14			1.0					4577	11137(3)	85Oz01
4666.7(30)	3^-		100(10)	0.10			1.0					4578	11138(3)	85Oz01
4667.4(30)	3^-		100(10)	0.10			1.0					4579	11139(3)	85Oz01
4672.1(30)	1^+		150(23)	0.98			0.65	1.0				4583	11143(3)	85Oz01
4676.4(30)	3^+		400(45)	0.95			0.89	0.3				4588	11148(3)	85Oz01
4679.4(30)	5^+		600(100)	1.4			0.60	0.15	0.25	+0.6		4591	11150(3)	83Kl03
4682.1(30)	3^+		200(30)	0.47			0.67	0.0				4593	11153(3)	85Oz01
4682.9(30)	3^+		200(30)	0.47			0.67	0.0				4594	11154(3)	85Oz01
4684.8(30)	5^+		200(40)	0.47			0.50	0.3	0.1	+0.6		4596	11156(3)	85Oz01
4686.7(30)	3^-		120(24)	0.11			0.50	0.3	0.7			4598	11158(3)	85Oz01
4688.2(30)	3^+		100(20)	0.23			0.50	0.2				4599	11159(3)	85Oz01
4691.0(30)	1^+		150(23)	0.10			0.65	1.0				4602	11162(3)	85Oz01
4695.4(30)	1^-		150(30)	0.14			0.50	1.0				4606	11166(3)	85Oz01
4697.7(30)	5^+		120(24)	0.28			0.50	0.65	0.1	+0.25		4609	11168(3)	85Oz01
4698.6(30)	3^+		60(10)	0.14			1.0					4609	11169(3)	85Oz01
4702.9(30)	3^+		150(15)	0.35			1.0					4614	11174(3)	85Oz01
4706.7(30)	1^+		450(90)	0.29			0.50	1.0				4617	11177(3)	85Oz01
4707.6(30)	3^+		60(12)	0.14			0.50	0.0				4618	11178(3)	85Oz01
4709.1(30)	5^+		150(20)	0.34			0.75	0.1	0.1	+0.8		4620	11180(3)	85Oz01
4710.7(30)	3^-		100(17)	0.09			0.59	0.6	0.4			4621	11181(3)	85Oz01
4712.7(30)	5^+		100(18)	0.23			0.56	0.65	0.1	+0.25		4623	11183(3)	85Oz01

(continued) $^{53}_{25}$**Mn**(p)

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ^2_p [keV]	$\Gamma_\mathrm{p}\Gamma_{\gamma_\circ}/\Gamma$ [eV]	$S_{\mathrm{p}\gamma}$ [eV]	Γ_p/Γ	$\alpha^2_{s\ell i}$	$\alpha^2_{s\ell j}$	$\alpha^2_{s\ell k}$	Rel.int. γ_i	E_cm [keV]	E^* [keV]	Ref.
4713.4(30)	1^-		120(24)	0.11			0.50	1.0				4624	11184(3)	85Oz01
4714.4(30)	3^+		80(12)	0.18			0.67	–0.2				4625	11185(3)	85Oz01
4717.7(30)	3^+		2000(200)	4.6			1.0					4628	11188(3)	85Oz01
4718.0(30)	5^+		300(36)	0.68			0.83	0.25	0.25	+0.5		4629	11189(3)	85Oz01
4720.6(30)	3^-		50(10)	0.05			0.50	0.5	0.5			4631	11191(3)	85Oz01
4722.5(30)	3^+		80(16)	0.18			0.50	0.3				4633	11193(3)	85Oz01
4723.2(30)	3^+		50(10)	0.11			0.50	0.4				4634	11193(3)	85Oz01
4725.9(30)	1^+		1000(200)	0.63			0.50	1.0				4636	11196(3)	85Oz01
4729.2(30)	3^+		60(11)	0.14			0.55	–0.7				4640	11199(3)	85Oz01
4730.6(30)	3^-		60(10)	0.06			0.60		1.0			4641	11201(3)	85Oz01
4732.6(30)	3^-		60(10)	0.06			0.60	0.6	0.4			4643	11203(3)	85Oz01
4733.2(30)	5^+		60(10)	0.13			0.60			1.0		4643	11203(3)	85Oz01
4734.7(30)	5^+		80(16)	0.18			0.50		0.1	0.9		4645	11205(3)	85Oz01
4734.8(30)	1^+		3000(600)	1.9			0.50	1.0				4645	11205(3)	85Oz01
4735.3(30)	3^+		100(20)	0.22			0.50	–0.1				4646	11205(3)	85Oz01
4737.5(30)	1^+		1000(100)	0.63			1.0					4648	11207(3)	85Oz01
4738.2(30)	3^+		50(10)	0.11			0.50	–0.7				4648	11208(3)	85Oz01
4738.7(30)	5^+		400(48)	0.89			0.83	0.2		–0.8		4649	11209(3)	85Oz01
4740.4(30)	5^+		100(17)	0.22			0.59	0.05	0.25	–0.7		4651	11210(3)	85Oz01
4742.8(30)	3^+		200(40)	0.45			0.50	–0.4				4653	11213(3)	85Oz01
4746.0(30)	3^-		100(20)	0.09			0.50	0.8	0.2			4656	11216(3)	85Oz01
4746.4(30)	3^+		100(20)	0.22			0.50	–0.7				4656	11216(3)	85Oz01
4747.8(30)	1^+		5000(500)	3.1			1.0					4658	11218(3)	85Oz01
4750.2(30)	3^+		60(10)	0.13			0.67	–0.2				4660	11220(3)	85Oz01
4751.0(30)	3^+		150(30)	0.33			0.50	–0.7				4661	11221(3)	85Oz01
4754.2(30)	5^+		60(10)	0.13			0.75		0.4	0.6		4664	11224(3)	85Oz01

(continued) $^{53}_{25}$**Mn**(p)

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ_p^2 [keV]	$\Gamma_p\Gamma_{\gamma_\circ}/\Gamma$ [eV]	$S_{p\gamma}$ [eV]	Γ_p/Γ	$\alpha^2_{s\ell i}$	$\alpha^2_{s\ell j}$	$\alpha^2_{s\ell k}$	Rel.int. γ_i	E_{cm} [keV]	E^* [keV]	Ref.
4756.7(30)	3^+		200(25)	0.44			0.80	–0.6				4667	11226(3)	85Oz01
4757.7(30)	5^+		200(40)	0.44			0.50	0.1		–0.9		4667	11227(3)	85Oz01

Additional data on this isotope can be found in [99Hu14, 93Ca12, 90Hu08, 85Sz0A, 80Fo03, 78Fo0A, 78Kl0A, 78Sc07, 76Ga15, 76Ga20, 76Gu04, 76Kl0A, 74Be73, 74Ne12, 73Be0A, 64Ar14].
* There is a systematic shift about several keV in positions of resonances of different measurements.
For $E_\circ$>3200 keV channel-spin-dependent partial widths $\Gamma_{s'\ell'}$ were determined from the angular distributions of inelastic protons (s' is the channel spin of the exit channel and ℓ' is the orbital angular momentum of the emitted particle) [85Oz01]. Coefficients $\alpha^2_{s'\ell'}$ and b_2 for proton inelastic scattering were defined as follows: $\Gamma_{s'\ell'} = \alpha^2_{s'\ell'}\Gamma_{p'}$ $(\Sigma\Sigma\alpha^2_{s'\ell'} = 1)$, $b_2 = 1/5(\alpha^2_{5/2,1} - 4\alpha^2_{3/2,1})$, where $\Gamma_{p'}$ is the inelastic partial width. By changing the coefficients $\alpha^2_{rms'l'}$ for possible outgoing channel spin and orbital angular momenta, the best fit was sought for each angular distribution of inelastic protons [85Oz01].
In Table coefficients are given in the following sequence (as $\alpha^2_{s'\ell'i}$, $\alpha^2_{s'\ell'j}$, $\alpha^2_{s'\ell'k}$):
$\alpha^2_{3/2,2}$ (for J^π=1/2$^+$), $\alpha^2_{3/2,1}$ and $\alpha^2_{5/2,1}$ (for J^π=1/2$^-$, 3/2$^-$), b^2 (for J^π=3/2$^+$), $\alpha^2_{5/2,0}$, $\alpha^2_{3/2,2}$, $\alpha^2_{5/2,2}$ (for J^π=5/2$^+$), $\alpha^2_{5/2,2}$ (for J^π=9/2$^+$), all from [85Oz01]; the signs of b_2 and of product $\alpha_{5/2,0}\times\alpha_{5/2,2}$ are given by the last values.
For parts of IAS ($2J^\pi$=9$^+$) at $E_\circ$=4100–4200 keV $\Gamma_{\gamma_\circ}$ instead of $S_{p\gamma}$ is given from [79Fo12]; in this work branchings were measured and parameter $\Gamma_p\Gamma_{\gamma_\circ}/\Gamma$ for components of IAS was given.
Relative intensity of γ-transitions (γ_i from [90Al22]) was composed from three yields of γ-rays with different energies E_γ=1.8–5.1, 5.1–7.4 and 7.4–8.4 MeV.

Comparison of data from [94Sz01] and [85Oz01]. $^{53}_{25}$**Mn**(p)

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ_p^2 [keV]	$E_\circ$ [keV]	$2J^\pi$	$2s'$	ℓ'	Γ [eV]	γ_p^2 [keV]	E_{cm} [keV]	E^* [keV]	Ref.
4036.4(30)	1^+		1500(150)	1.5	4036.4	1^+	1	0	1500	1.50	3960	10520	85Oz01
4038.7(30)	3^-		500(57)	0.82							3962	10522	85Oz01
4041.2(30)	3^+		100(10)	0.47							3965	10524	85Oz01
4044.1(30)	5^+		60(10)	0.28							3967	10527	85Oz01
4047.5(30)	3^+		300(32)	1.4							3971	10530	85Oz01
4050.6(30)	5^+		30(10)	0.14							3974	10534	85Oz01
4053.0(30)	1^+		5500(550)	5.4	4053.8	1^+	1	0	6000	5.93	3977	10536	85Oz01
4058.9(30)	5^+		200(30)	0.91							3982	10542	85Oz01
4060.4(30)	5^+		30(10)	0.14							3983	10543	85Oz01
4064.6(30)	3^+		100(20)	0.45	4064.6	1^-	1	1	30	0.05	3987	10547	85Oz01
							3	1	20	0.31			
4066.0(30)	5^+		300(35)	1.4	4065.2	5^+	1	2	60	0.27	3989	10549	85Oz01
							5	0	20	0.14			
							3	2	10	0.67			
							5	2	10	0.67			

(continued) $^{53}_{25}$**Mn**(p)

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ^2_p [keV]	$E_\circ$ [keV]	$2J^\pi$	$2s'$	ℓ'	Γ [eV]	γ^2_p [keV]	E_cm [keV]	E^* [keV]	Ref.
					4066.0	5^-	1	3	15	0.35			
							5	1	6	0.09			
					4066.4	5^+	1	2	200	0.90			
							5	0	16	0.12			
							3	2	45	3.00			
							5	2	10	0.67			
					4066.8	5^+	1	2	50	0.23			
							5	0	1	0.01			
							3	2	20	1.33			
							5	2	1	0.07			
4068.6(30)	1^-		1000(100)	1.6	4068.5	1^-	1	1	450	0.71	3991	10551	85Oz01
							3	1	70	1.06			
					4069.2	9^+	1	4	15	3.13			
							5	2	2	0.13			
4070.1(30)	1^+		1000(100)	0.97	4069.8	1^+	1	0	800	0.78	3993	10553	85Oz01
							3	2	24	1.59			
							5	2	12	0.79			
					4070.3	1^+	1	0	1500	1.46			
							3	2	10	0.66			
							5	2	10	0.66			
					4071.6	5^+	1	2	150	0.67			
							5	0	3	0.02			
							3	2	2	0.13			
							5	2	2	0.13			
					4072.2	5^+	1	2	120	0.54			
							5	0	3	0.02			
							3	2	3	0.20			
							5	2	3	0.20			
					4073.2	5^+	1	2	50	0.22			
							5	0	3	0.02			
							3	2	1	0.07			
							5	2	1	0.07			
4075.2(30)	3^+		80(16)	0.36	4075.6	5^+	1	2	70	0.31	3998	10558	85Oz01
							5	0	10	0.07			
							3	2	10	0.65			
							5	2	90	5.85			
					4077.5	5^+	1	2	50	0.22			
							5	0	10	0.07			
							3	2	10	0.65			
							5	2	10	0.65			
4079.6(30)	5^+		100(10)	0.45	4078.6	1^-	1	1	100	0.16	4002	10562	85Oz01
							3	1	30	0.44			
4080.5(30)	3^+		80(16)	0.36	4081.0	5^+	1	2	115	0.51	4003	10563	85Oz01
							5	0	10	0.07			
							3	2	20	1.28			

(continued) $^{53}_{25}$**Mn**(p)

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ^2_p [keV]	$E_\circ$ [keV]	$2J^\pi$	$2s'$	ℓ'	Γ [eV]	γ^2_p [keV]	E_cm [keV]	E^* [keV]	Ref.
							5	2	5	0.32			
4082.6(30)	3^+		60(12)	0.27	4082.0	1^-	1	1	200	0.31	4005	10565	85Oz01
							3	1	100	1.47			
					4082.6	1^-	1	1	100	0.16			
							3	1	100	1.47			
4084.8(30)	5^+		30(10)	0.13	4084.0	3^-	1	1	30	0.05	4007	10567	85Oz01
							3	1	50	0.73			
4086.1(30)	3^-		300(30)	0.46	4086.0	5^+	1	2	40	0.18	4009	10568	85Oz01
							5	0	6	0.04			
							3	2	20	1.27			
							5	2	1	0.06			
4086.6(30)	1^-		$10(1)\cdot10^3$	15.5	4086.9	3^-	1	1	320	0.50	4009	10569	85Oz01
							3	1	20	0.29			
					4089.6	1^+	1	0	60	0.06			
							3	2	10	0.63			
							5	2	10	0.63			
					4090.5	1^+	1	0	40	0.04			
							3	2	5	0.31			
							5	2	5	0.31			
					4092.2	5^+	1	2	50	0.22			
							5	0	5	0.03			
							3	2	5	0.31			
							5	2	5	0.31			
4093.7(30)	3^+		400(40)	1.8	4093.9	5^+	1	2	60	0.26	4016	10576	85Oz01
							5	0	5	0.03			
							3	2	5	0.31			
							5	2	5	0.31			
					4094.2	5^+	1	2	320	1.40			
							5	0	5	0.03			
							3	2	10	0.62			
							5	2	5	0.31			
					4094.7	5^-	1	3	40	0.90			
							5	1	5	0.07			
					4095.1	5^+	1	2	50	0.22			
							5	0	5	0.03			
							3	2	1	0.06			
							5	2	1	0.06			
					4096.0	3^-	1	1	40	0.06			
							3	1	10	0.14			
4097.8(30)	1^+		150(19)	0.14	4097.5	1^+	1	0	50	0.05	4020	10580	85Oz01
							3	2	8	0.49			
							5	2	8	0.49			
					4098.4	1^+	1	0	180	0.17			
							3	2	18	1.10			
							5	2	18	1.10			

(continued) $^{53}_{25}$**Mn**(p)

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ_p^2 [keV]	$E_\circ$ [keV]	$2J^\pi$	$2s'$	ℓ'	Γ [eV]	γ_p^2 [keV]	E_{cm} [keV]	E^* [keV]	Ref.
4100.2(30)	5^+		100(15)	0.44	4099.3	5^+	1	2	20	0.09	4022	10582	85Oz01
							5	0	1	0.01			
							3	2	1	0.06			
							5	2	1	0.06			
					4100.3	9^+	1	4	15	2.96			
							5	2	2	0.12			
					4100.8	5^+	1	2	150	0.65			
							5	0	40	0.27			
							3	2	1	0.06			
							5	2	1	0.06			
4102.6(30)	3^-		200(20)	0.31	4102.6	3^-	1	1	110	0.17	4025	10585	85Oz01
							3	1	15	0.21			
4103.8(30)	3^-		100(10)	0.15	4103.4	3^-	1	1	260	0.40	4026	10586	85Oz01
							3	1	8	0.11			
					4103.9	3^+	1	2	30	0.13			
							3	0	2	0.01			
							3	2	1	0.06			
							5	2	1	0.06			
					4104.9	5^-	1	3	12	0.27			
							5	1	10	0.14			
4106.4(30)	3^+		100(14)	0.43	4107.0	3^+	1	2	120	0.52	4028	10588	85Oz01
							3	0	60	0.35			
					4107.4	3^-	1	1	22	0.03			
							3	1	28	0.35			
					4110.1	1^+	1	0	110	0.10			
							3	2	2	0.12			
							5	2	2	0.12			
4110.9(30)	3^+		300(30)	1.3	4110.5	3^+	1	2	400	1.71	4033	10593	85Oz01
							3	0	20	0.13			
							3	2	15	0.89			
							5	2	15	0.89			
4111.9(30)	3^+		120(29)	0.52	4110.8	3^-	1	1	80	0.12	4034	10594	85Oz01
							3	1	19	0.26			
					4114.1	1^+	1	0	300	0.28			
							3	2	10	0.59			
							5	2	10	0.59			
4116.8(30)	1^+		1300(130)	1.2	4114.5	1^+	1	0	1000	0.94	4039	10598	85Oz01
							3	2	10	0.59			
							5	2	10	0.59			
					4115.8	5^+	1	2	30	0.13			
							5	0	2	0.01			
							3	2	2	0.12			
							5	2	2	0.12			
					4116.7	5^+	1	2	150	0.64			
							5	0	5	0.03			

(continued) $^{53}_{25}$**Mn**(p)

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ^2_p [keV]	$E_\circ$ [keV]	$2J^\pi$	$2s'$	ℓ'	Γ [eV]	γ^2_p [keV]	E_cm [keV]	E^* [keV]	Ref.
							3	2	1	0.06			
							5	2	1	0.06			
					4117.3	5^+	1	2	50	0.21			
							5	0	4	0.03			
							3	2	4	0.23			
							5	2	4	0.23			
4115	9^+				4117.6	9^+	1	4	30	5.74	4037	10597	79Fo12
							5	2	2	0.12			
					4123.5	3^+	1	2	60	0.25			
							3	0	20	0.13			
							3	2	5	0.25			
							5	2	10	0.57			
4125.6(30)	3^+		180(25)	0.56	4123.5	3^+	1	2	180	0.76	4047	10607	85Oz01
							3	0	20	0.13			
							3	2	10	0.57			
							5	2	20	1.14			
					4125.1	9^+	1	4	7	1.32			
							5	2	3	0.17			
					4126.4	3^+	1	2	10	0.04			
							3	0	28	0.18			
							3	2	3	0.17			
							5	2	3	0.17			
4128.8(30)	3^+		60(10)	0.25	4127.4	3^+	1	2	60	0.25	4050	10610	85Oz01
							3	0	1	0.06			
							3	2	1	0.06			
							5	2	1	0.06			
4130.2(30)	3^+		60(10)	0.25	4128.5	3^+	1	2	32	0.13	4052	10612	85Oz01
							3	0	24	0.15			
							3	2	1	0.06			
							5	2	1	0.06			
					4129.1	3^-	1	1	40	0.06			
							3	1	30	0.39			
4130.7(30)	1^-		200(20)	0.30	4129.4	3^-	1	1	85	0.13	4052	10612	85Oz01
							3	1	38	0.50			
					4130.4	5^+	1	2	10	0.04			
							5	0	10	0.06			
							3	2	10	0.56			
							5	2	10	0.56			
4133.4(30)	3^+		90(24)	0.38	4132.4	3^+	1	2	85	0.35	4055	10615	85Oz01
							3	0	90	0.56			
							3	2	10	0.56			
							5	2	10	0.56			
4134	$\langle 9^+ \rangle$				4129.8	9^+	1	4	14	2.62	4056	10616	79Fo12
							5	2	7	0.39			
					4133.9	1^+	1	0	85	0.08			

(continued) **$^{53}_{25}$Mn(p)**

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ_p^2 [keV]	$E_\circ$ [keV]	$2J^\pi$	$2s'$	ℓ'	Γ [eV]	γ_p^2 [keV]	E_{cm} [keV]	E^* [keV]	Ref.
							3	2	1	0.06			
							5	2	1	0.06			
4136.2(30)	1^+		1700(170)	1.6	4134.9	1^+	1	0	1100	1.02	4058	10618	85Oz01
							3	2	25	1.39			
							5	2	40	2.22			
					4135.2	1^+	1	0	200	0.19			
							3	2	30	1.67			
							5	2	30	1.67			
4136.5(30)	3^-		110(20)	0.16							4058	10618	85Oz01
4138.6(30)	1^+		500(50)	0.46	4137.3	1^+	1	0	360	0.33	4060	10620	85Oz01
							3	2	25	1.38			
							5	2	25	1.38			
4140	$\langle 9^+ \rangle$				4138.9	9^+	1	4	20	0.39	4062	10622	79Fo12
							5	2	1	0.06			
4140.1(30)	5^+		60(10)	0.25	4138.6	5^+	1	2	70	0.29	4062	10621	85Oz01
							5	0	1	0.01			
							3	2	1	0.06			
							5	2	1	0.06			
					4139.3	5^+	1	2	95	0.39			
							5	0	9	0.06			
							3	2	1	0.06			
							5	2	1	0.06			
4142.2(30)	5^+		30(10)	0.12	4140.9	5^+	1	2	95	0.39	4064	10623	85Oz01
							5	0	9	0.06			
							3	2	1	0.06			
							5	2	1	0.06			
					4145.1	9^+	1	4	2	0.37			
							5	2	1	0.05			
					4145.5	5^+	1	2	6	0.03			
							5	0	2	0.01			
							3	2	1	0.05			
							5	2	10	0.54			
					4146.1	5^+	1	2	6	0.03			
							5	0	5	0.03			
							3	2	5	0.27			
							5	2	5	0.27			
4147.1(30)	3^-		30(10)	0.04	4149.3	1^+	1	0	90	0.08	4068	10628	85Oz01
							3	2	8	0.43			
4150.6(30)	1^+		150(15)	0.14	4149.9	1^+	1	0	100	0.09	4072	10632	85Oz01
							3	2	5	0.27			
							5	2	5	0.27			
4151.8(30)	3^-		100(13)	0.15	4151.0	3^-	1	1	100	0.15	4073	10633	85Oz01
							3	1	32	0.40			
					4151.4	1^+	1	0	150	0.14			
							3	2	50	2.66			

(continued) **$^{53}_{25}$Mn**(p)

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ_p^2 [keV]	$E_\circ$ [keV]	$2J^\pi$	$2s'$	ℓ'	Γ [eV]	γ_p^2 [keV]	E_{cm} [keV]	E^* [keV]	Ref.
							5	2	50	2.66			
					4152.8	5^+	1	2	80	0.33			
							5	0	5	0.03			
							3	2	10	0.53			
							5	2	15	0.80			
4154.6(30)	5^+		400(70)	0.61	4153.4	5^+	1	2	280	1.14	4076	10636	85Oz01
							5	0	35	0.21			
							3	2	60	3.18			
							5	2	80	4.24			
					4154.4	3^-	1	1	50	0.07			
							3	1	90	1.12			
					4155.6	1^+	1	0	110	0.10			
							3	2	60	3.16			
							5	2	60	3.16			
4156.6(30)	3^+		150(15)	0.61	4156.4	5^+	1	2	60	0.24	4078	10638	85Oz01
							5	0	1	0.01			
							3	2	1	0.05			
							5	2	1	0.05			
4157	9^+										4079	10638	79Fo12
4157.6(30)	3^+		250(25)	1.0	4157.0	5^+	1	2	40	0.16	4079	10639	85Oz01
							5	0	7	0.05			
							3	2	1	0.05			
							5	2	1	0.05			
					4157.9	3^-	1	1	50	0.07			
							3	1	5	0.06			
4160.3(30)	5^+		20(10)	0.08	4158.8	3^+	1	2	20	0.08	4081	10641	85Oz01
							3	0	34	0.20			
							3	2	12	0.63			
4162.6(30)	3^+		60(10)	0.24	4161.7	3^+	1	2	70	0.28	4084	10643	85Oz01
							3	0	17	0.10			
							3	2	1	0.05			
							5	2	1	0.05			
4162.8(30)	9^+		40(10)	7.3	4163.5	9^+	1	4	48	8.47	4084	10644	79Fo12
							5	2	20	1.03			
					4164.4	3^-	1	1	40	0.06			
							3	1	10	0.12			
					4165.9	3^+	1	2	10	0.04			
							3	0	1	0.01			
							3	2	1	0.05			
							5	2	1	0.05			
4169.9(30)	1^+		600(75)	0.54	4169.3	1^+	1	0	800	0.72	4091	10651	85Oz01

(continued) **$^{53}_{25}$Mn(p)**

$E_\circ$ [keV]	$2J^\pi$	$2T$	Γ_p [eV]	γ_p^2 [keV]	$E_\circ$ [keV]	$2J^\pi$	$2s'$	ℓ'	Γ [eV]	γ_p^2 [keV]	E_{cm} [keV]	E^* [keV]	Ref.
							3	2	100	5.09			
							5	2	100	5.09			

Weak components of Γ in [94Sz01] (1 eV in many resonances) are considered as fictitious and hence these results of R-matrix fit ($E_\circ$, $2J^\pi$, $2s'$, ℓ', Γ, γ_p^2) given in the central part of this Table were not included in the main isotope Table with the parameters taken mainly from [85Oz01].

Branching ratios of γ-transitions [94Sz01, 91Di07, 90Al22, 75Sc08]. Part 1. **$^{53}_{25}$Mn(p)**

E^* [keV]	$2J^\pi$	$E_\circ$ [keV]	Branching ratios Percentage										Ref.
E^*			0.0	378	1290	1441	1621	2274	2407	2573	2671	2686	
$2J_f^\pi$			7^-	5^-	3^-	11^-	9^-	5^-	3^-	7^-	1^-	7^-	
377.86(8)	5^-		100										90Al22
1289.71(13)	3^-		62	38									90Al22
1441.15(10)	11^-												
1620.10(10)	9^-												
2273.78(15)	5^-		80	19	1								90Al22
2406.90(16)	3^-		40	13	47								75Sc08
2448.0(8)				100									75Sc08
2562.94(14)	13^-												
2572.97(22)	7^-		37	63									90Al22
2671.03(23)	1^-		60	40									90Al22
2686.07(17)	7^-		65	22	13								90Al22
2692.72(14)	15^-												
2697.71(18)	11^-												
2706.76(25)	1^+				100								90Al22
2760.9(6)				100									75Sc08
2875.80(18)	3^-		15	82	3								90Al22
2912.75(23)	3^-			29	71								90Al22
2946.9(4)	$\langle 9\rangle^-$												
2967.3(8)			100										75Sc08
2978.0(8)			100										75Sc08
3007.02(21)	$\langle 5\rangle^+$		12	37	51								90Al22
3060(15)	5^-,7^-												
3097.16(19)	3^-		17	77	6								90Al22
3101.9(4)			62	38									90Al22
3127.42(22)	$\langle 5^-\rangle$		10	87	3								90Al22
3181.94(20)	3^-,5		7	79	14								90Al22
3199.72(25)	5		33	33	32	1							90Al22
3248.9(10)	$\langle 9\rangle^-$												

(continued) $^{53}_{25}$**Mn**(p)

E^* [keV]	$2J^\pi$	$E_\circ$ [keV]	Branching ratios Percentage										Ref.
E^*			0.0	378	1290	1441	1621	2274	2407	2573	2671	2686	
$2J_f^\pi$			7^-	5^-	3^-	11^-	9^-	5^-	3^-	7^-	1^-	7^-	
3381.0(3)	3^-,7^-		10	90									90Al22
3426.0(4)	13^-												
3439.0(3)	15^-												
3466.4(4)	3^-–7^-		58	42									90Al22
3479.9(3)	1^-		58	42									90Al22
3532.2(3)	3^-–X^-		18	10	72								90Al22
3555.0(11)	$\langle 11^- \rangle$												
3595.1(4)	3^-–7		19	84									90Al22
3624.8(12)													
3666.1(3)	5^-		87	17									90Al22
3704.8(8)	5^-,7^-												
3709.7(5)	7^-			34	16	10	40						90Al22
3727.6(13)													
3784.3(13)													
3849.9(11)													
3897.9(3)	1^-			22	46				8		24		90Al22
3955.0(3)	7^-		19	36			31					14	90Al22
3960.0(4)	5^-,7^-		48	38	17								90Al22
3999.0(5)	3^-–7^-			100									90Al22
4021.3(14)													
4062.1(3)	$\langle 7^- \rangle$		60	13	16			9	2				90Al22
4066.10(21)				65	23				12				90Al22
4069.1(8)	3^+,5^+												
4082.9(4)	3–7^-			85	15								90Al22
4149.0(5)													
4168.7(11)													
4237.9(8)													
4266.2(3)	5^-,7^-		50	34				16					90Al22
4281.5(15)													
4300.0(4)	5^-,7^-			51	23			26					90Al22
4310.0(8)													
4348.0(4)	1^-,3^-			100									75Sc08
4361.9(6)	1–7^-			46	28			26					90Al22
4384.0(3)	17^-												
4399.6(13)													
4427.6(3)				34	44				22		7		90Al22
4444.7(15)													
4456.3(16)													
4522.0(8)	5^+,3^+			60									90Al22
4552.0(5)	5^-,7^-		86		14								90Al22
4560.0(7)	3^-,5		19		81								90Al22
4572.5(6)	1^-,3^-				46				54				75Sc08

(continued) $^{53}_{25}\mathbf{Mn}(\mathrm{p})$

E^*	$2J^\pi$	$E_\circ$	Branching ratios										Ref.
[keV]		[keV]	Percentage										
E^*			0.0	378	1290	1441	1621	2274	2407	2573	2671	2686	
$2J_f^\pi$			7^-	5^-	3^-	11^-	9^-	5^-	3^-	7^-	1^-	7^-	
4596.0(15)													
4635.0(5)	$5^-,7^-$		37		43				20				90Al22
4650.0(11)													
4719.1(5)	1^-				90			10					90Al22
4763.7(6)	$\langle 3\text{–}7\rangle$		35	36	29								90Al22
4780.2(4)	$1^-,3^-$			63				17	**				90Al22
4793.0(5)	$\langle 3\text{–}7\rangle$				37							17	90Al22
4806.2(16)													
4838.4(15)	$7^-,5^-$												
4845.2(16)													
4856.0(11)													
4907.4(16)													
4929.0(16)	$5^-,7^-$												
4944.7(15)													
4955.1(11)	1^-												
4988.0(6)	$1\text{–}5^-$								60		40		90Al22
5007.3(15)													
5028.7(15)	1^+												
5044.2(11)													
5053.9(15)													
5081.4(15)													
5094.5(6)				79					21				75Sc08
5155(10)													
5240(10)	$5^-,7^-$												
5316.2(5)					65								75Sc08
5370.7(6)				60				10		30			75Sc08
5434.2(5)	$\langle 7^-\rangle$		30					62	8				75Sc08
5476(3)													
5490.7(5)	1^-			30	29			19	22				90Al22
5578.6(6)				74				26					75Sc08
5614.4(5)	$\langle 19^-\rangle$												
5801(6)													
5814(10)	$\langle 11^-\rangle$												
5894(3)													
5954(3)													
5998.0(5)	$3^-,5,7^-$			27	20				18				90Al22
6005(6)													
6084.1(15)													
6119(10)													
6177(10)	$3^+,5^+$												
6533.4(6)	21^-												
6601(10)	$3^+,5^+$												

(continued) $^{53}_{25}\mathbf{Mn}(\mathrm{p})$

E^*	$2J^\pi$	$E_\circ$	Branching ratios										Ref.
[keV]		[keV]	Percentage										
E^*			0.0	378	1290	1441	1621	2274	2407	2573	2671	2686	
$2J_f^\pi$			7^-	5^-	3^-	11^-	9^-	5^-	3^-	7^-	1^-	7^-	
6977(5)	3^-												
7004.2(6)	$\langle 23^- \rangle$												
7028(8)	$7^+,9^+$												
7094(8)													
7150(8)	$3^+,5^+$												
7277(5)													
7385(8)	$5^-,7^-$												
7420(5)	$1^-,3^-$												
7460.9(3)		918		2	59				3				75Sc08
7473(8)													
7494.35(25)		953	4	1	11			1	19		10		75Sc08
7507(8)	$5^-,7^-$												
7528.11(24)		987	1	31	9			11	1	0.5	3	0.5	75Sc08
7546.8(3)	1^-	1005		0.5	4				7		9		75Sc08
7574(10)													
7628(8)	$1^-,3^-$												
7667(8)													
7710(8)	$5^-,7^-$												
7758(8)	$5^-,7^-$												
7810(8)	$1^-,3^-$												
7899(10)													
7917.7(6)	5^-												
7921.3(3)	5^-	1390	69	9	9			4		2		1	90Al22
7928.2(3)	5^-	1397	66		8			2	6			2	90Al22
7935.3													
7960.9													
7965.2(7)	$\langle 25^- \rangle$												
7977.2(3)	3^-	1444	1	1	7			47	1		4	2	90Al22
7994.2													
8007.2(3)	5^-	1475	22	50	2			6				2	90Al22
8011.9													
8015.8													
8026.3(4)	5	1494	60	7	1			16		4			90Al22
8028.77(25)	5^-	1497	4	1	5			1				1	90Al22
8038.4	$[X^-]$	1507	4	4	7							5	90Al22
8047.2													
8053.0(4)	5^-	1522	11	7	3			34	21	8		8	90Al22
8057.2(3)	5^-	1526	9	3	25			8	9	2		6	90Al22
8064.9													
8071.7													
8076.6													
8083.1(3)	5^-	1552	1	5	11			28	2				90Al22

(continued) $^{53}_{25}$**Mn**(p)

E^*	$2J^\pi$	$E_\circ$	Branching ratios										Ref.
[keV]		[keV]	Percentage										
E^*			0.0	378	1290	1441	1621	2274	2407	2573	2671	2686	
$2J_f^\pi$			7^-	5^-	3^-	11^-	9^-	5^-	3^-	7^-	1^-	7^-	
8088.0(3)	5^-	1557	2	23	6							19	90Al22
8095.3	3–7^-	1565	2	27	11				11			23	90Al22
8100.2													
8108.0													
8117.8													
8121.8													
8132.6													
8135.0(3)	3^-	1605		4	26				12		5	1	90Al22
8138.3(3)	3^-	1610		1	1			7	10		24	2	90Al22
8157.8(3)	5^+	1628	55	4	5				2				90Al22
8178.1(3)	3^-,5^-	1648	2	5	46			2	8			13	90Al22
8183.6													
8188.5	1^-,3^-												
8191.4													
8197.3													
8214.0													
8218.9													
8229.7													
8240.5													
8247.2(4)	3^-,5^-	1720	5	75	2			1	1	2			91Di07
8252.6(8)	5,3	1724		75						5			66Vu01
8263.9(5)	5^-	1736		30	5				10		30	sum	66Vu01
8267.3(5)	3^-,5^-	1740		47					14		6	24	91Di07
8270.9													
8273.8													
8290.5		1764		3	18			19				19	91Di07
8293.5(3)	3^-	1767		2	51			7			4	7	91Di07
8303.2(4)	5^-	1776	71	16	2					1			91Di07
8312.1		1788			50				5		30	sum	66Vu01
8320.0													
8326.3(4)	5^-,7^-	1800	9	46	4			10	18	9			91Di07
8329.2(5)	5	1803		35	5			10	30	10			66Vu01
8335.3(3)	X^-	1810		19	17						10	6	91Di07
8346.4													
8348.4													
8351.4													
8355.3		1854	20	5	20			30					66Vu01
8357.2													
8373.9													
8379.8													
8394.5													
8399.4(5)	3^-,5^-	1875	8	67	13						2	5	91Di07

(continued) $^{53}_{25}\mathbf{Mn}(\mathrm{p})$

E^* [keV]	$2J^\pi$	$E_\circ$ [keV]	Branching ratios Percentage										Ref.
E^*			0.0	378	1290	1441	1621	2274	2407	2573	2671	2686	
$2J^\pi_f$			7^-	5^-	3^-	11^-	9^-	5^-	3^-	7^-	1^-	7^-	
8403.1(3)	3^-	1878	4	20	32				4		11	6	91Di07
8406.3		1880	5	20	20			15			25	sum	66Vu01
8421.1(3)	3^-	1896	1	56	6			22				1	91Di07
8425.6(4)	3^-	1901											66Vu01
8432.8													
8442.6													
8450.4													
8453.4(5)	$5^{\langle+\rangle}$	1930	16	15									91Di07
8459.3													
8466.1													
8476.9													
8483.26(24)	$3^{\langle-\rangle}$	1960		16	6			5	4		4	3	91Di07
8488.7													
8494.3(4)	$5,7^{\langle-\rangle}$	1971	79						2	6			91Di07
8501.2(3)	3^-,5	1978		7	5			7				16	91Di07
8506.1(4)	3^-,5,7^-	1983	20					39	5				91Di07
8514.1(3)	3^-,5^-	1991	58	10	8			2	1	2	4	4	91Di07
8516.2(3)	7^-												
8519.1(4)	3^+,5^+												
8534.8													
8538.7													
8544.3(4)													
8547.6													
8555.4		2023	76	3	4	7							91Di07
8559.2(3)	3^-,5^-	2037	35	27	11			4	2	13			91Di07
8564.4(3)	3^-,5,7^-	2042	16	20	10				6	7		11	91Di07
8573.1													
8579.0													
8592.7													
8595.6													
8608.1(4)	3^-,5^-	2087	5	63	7			6	4		5	1	91Di07
8608.4													
8612.1(5)	3^-,5,7^-	2091	7	40	38			6	4				91Di07
8623.1													
8632.0													
8636.9													
8643.7													
8647.6													
8653.3(3)	$\langle3^-\rangle$	2133	67					13	5	3			91Di07
8663.3													
8668.3													
8673.3(3)	$\langle3^-\rangle$	2154	62	7	13			4	4		2		91Di07

(continued) $^{53}_{25}\mathbf{Mn}(\mathrm{p})$

E^* [keV]	$2J^\pi$	$E_\circ$ [keV]	Branching ratios Percentage										Ref.
E^*			0.0	378	1290	1441	1621	2274	2407	2573	2671	2686	
$2J_f^\pi$			7^-	5^-	3^-	11^-	9^-	5^-	3^-	7^-	1^-	7^-	
8683.0													
8691.3(4)	3^-,5,7^-	2172	73	19									91Di07
8702.6													
8705.5													
8712.7(7)	3^-,5,7^-	2194	86	14									91Di07
8719.3													
8728.1													
8731.3(4)	5^-	2213	50	5	25				14				91Di07
8744.5(4)	3^-,5,7^-	2226	11	64	8				3				91Di07
8752.6													
8755.6													
8760.5													
8767.3													
8784.4(3)	3^-,5,7^-	2267	7	58				8		3		5	91Di07
8789.9													
8795.8													
8802.7													
8808.1(4)	3^-,5,7^-	2291	3	49	8			7	3	13			91Di07
8812.5													
8816.5(5)	5	2300	80	13						2			91Di07
8821.3													
8824.3													
8827.2													
8834.1													
8837.6(6)	5	2321	49	47	4								91Di07
8845.3(3)	3^-,5^+	2329	5	8	8			2	39	4		3	91Di07
8850.7													
8859.3(4)	3^-,5^+	2344	17	43				9	9				91Di07
8864.3(4)	5	2348	77	3	5				4	1			91Di07
8867.4													
8880.1(4)	5	2364	53	20	15			1	1				91Di07
8889.0													
8893.9													
8897.8													
8901.5(4)	3^-,5,7^-	2386	14	51	10				5			4	91Di07
8911.6													
8919.2(4)	3^-,5^+	2404	28	13	12			4	3			27	91Di07
8921.4(4)	3^-,5,7^-	2407	48	6				6	3			19	91Di07
8923.5(3)	7^-	2409	9	27		4	4	7	8			7	91Di07
8924.4(4)	5^-,7^-	2410	3	26	7				7			3	91Di07
8936.5(4)	5^-	2422	47	29					3	2	2	9	91Di07
8941.0													

(continued) $^{53}_{25}\mathbf{Mn}(\mathrm{p})$

E^*	$2J^\pi$	$E_\circ$	Branching ratios										Ref.
[keV]		[keV]	Percentage										
E^*			0.0	378	1290	1441	1621	2274	2407	2573	2671	2686	
$2J_f^\pi$			7^-	5^-	3^-	11^-	9^-	5^-	3^-	7^-	1^-	7^-	
8945.5(5)	5,7^-	2431	8	85				2	2			2	91Di07
8952.8	5^-,7^-	2439	23	37	3		7	1	7	1			91Di07
8959.6													
8965.5													
8972.4	3^-,5,7^-	2459	39	42					7	3		3	91Di07
8977.3	3^-,5,7^-	2464	10	70									91Di07
8981.2	3,5	2468	6	74				1				10	91Di07
8985.2													
8993.0	3^-,5	2480	27	73									91Di07
8996.0	5^-,7	2483	59	15			11						91Di07
9002.8	3^-,5,7^-	2490	22	17	5			19					91Di07
9011.6													
9015.6													
9020.5													
9023.4													
9027.3	3^-,5,7^-	2515	2	68	5								91Di07
9035.2													
9041.1													
9044.0													
9049.9													
9052.9													
9063.6													
9066.6													
9070.5(3)	X^-	2559	1	71	9			2	3		4	2	91Di07
9082.3													
9091.1													
9096.0	3^-,5^-	2585	23	1	19			3	10			8	91Di07
9100.0													
9107.8	5^+												
9114.7	3^-,5,7^-	2604	13	16	22			4	8	4		7	91Di07
9120.6	3^-,5^-	2610	3	23	4			4		4	5	16	91Di07
9127.4													
9139.2	3^-,5^+	2629	31	17	14			8	10			4	91Di07
9149.0													
9152.9	3^-,5^+	2643	12	14	31				15				91Di07
9155.9													
9159.8													
9168.6	3^-,5,7^-	2659	1	9	43				12				91Di07
9173.5													
9179.4	5^-	2670	8	51	14					3			91Di07
9182.4													
9191*	[5]	2681	33	10						7			91Di07

(continued) $^{53}_{25}\mathbf{Mn}(\mathrm{p})$

E^*	$2J^\pi$	$E_\circ$	Branching ratios										Ref.
[keV]		[keV]	Percentage										
E^*			0.0	378	1290	1441	1621	2274	2407	2573	2671	2686	
$2J_f^\pi$			7^-	5^-	3^-	11^-	9^-	5^-	3^-	7^-	1^-	7^-	
9193.2	9^+	2684	61	6	10	12						4	91Di07
9197.1	$3^-,5,7^-$	2688	21	43	17				9				91Di07
9200.0	$3^-,5,7^-$	2691	27	60	3					2			91Di07
9204.0	9^+	2695	59	3	10	3		6	4				91Di07
9207.9	5^-	2699	36	39	4			7			9		91Di07
9214.7													
9218.7	$3^-,5,7^-$	2710	22	19	8			7	9				91Di07
9224.6	$3^-,5,7^-$	2716	21	48	14				3		3	4	91Di07
9229.5	5^-	2721	20	37	4			5	9	2		5	91Di07
9232.4													
9241.2	$3^-,5,7^-$	2733	5	55	10			11					91Di07
9245.2	$3^-,5^-$	2737	4	34	13			12					91Di07
9250.1(8)	5^+	2742	53	10	14				2		1		91Di07
9262.8													
9267.7													
9277.5	5^-	2770	12	17	31			3	11	4	2	1	91Di07
9282.4(3)	3^-	2776	3	30	12			4	11		8	17	91Di07
9290.3													
9296.2(3)	3^-	2789	4	80				3					91Di07
9303.0													
9307.0	7^-	2800	29	10	9	7			5			8	91Di07
9313.8	5^-	2807	5	95									91Di07
9318.7													
9326.6													
9332.5													
9343.3(3)	X^-	2837	5	10	6				11			6	91Di07
9346.2	$3^-,5,7^-$	2840	5	7	39			5	18			2	91Di07
9352.1													
9360.9	$3^-,5,7^-$	2855	32	40				9	8	4			91Di07
9364.9													
9370.1													
9375.7													
9380.6													
9388.4													
9399.2													
9403.1													
9406.1													
9411.0													
9415.9	$\langle 3^- \rangle$	2911	2	7	33			4	5	2	6	2	91Di07
9425(5)	$1^-,3^-$												
9585(8)	$1^-,3^-$												
9654.3	$5^-,7^-$												

(continued) $^{53}_{25}\mathbf{Mn}(\mathrm{p})$

E^*	$2J^\pi$	$E_\circ$	Branching ratios										Ref.
[keV]		[keV]	Percentage										
E^*			0.0	378	1290	1441	1621	2274	2407	2573	2671	2686	
$2J_f^\pi$			7^-	5^-	3^-	11^-	9^-	5^-	3^-	7^-	1^-	7^-	
9837(8)	$\langle 9\rangle^+$												
9938(8)	5^-,7^-												
10050(8)													
10108(8)	5^+,3^+												
10174(3)	3^-												
10190(8)	5^+,3^+												
10320(8)	5^+,3^+												
10475(8)	5^+,3^+												
10552.2(3)	3^-												
10561*	$\langle 9^+\rangle$	4069	80							14			94Sz01
10570(3)	1^-												
10582.7													
10597(3)	$\langle 9\rangle^+$	4100	63										94Sz01
10607.1													
10610*	$\langle 9^+\rangle$	4118	100										94Sz01
10616(3)	$\langle 9^+\rangle$	4125	40			60							94Sz01
10621.7(3)	$\langle 9^+\rangle$	4130	100										94Sz01
10626.7													
10631*	$\langle 9^+\rangle$	4139	100										94Sz01
10638(3)	9^+	4145	100										94Sz01
10646(3)	9^+												
10651.2													
10657(3)	9^+	4164	67			12	10			9			94Sz01
10663(3)	$\langle 9^+\rangle$	4170	63			22				15			94Sz01
10669(3)	9^+												
10673.1	$[9^+]$	4181	54			21				15		***	94Sz01
10678(3)	$\langle 9^+\rangle$	4187	100										94Sz01
10686.2	$[9^+]$	4192	78							22			94Sz01
10691.6													
10697.4	$\langle 9^+\rangle$	4206	100										94Sz01
10703*	$\langle 9^+\rangle$	4211	100										94Sz01
10709*	$\langle 9^+\rangle$	4217	100										94Sz01
10721.1													
10721.7													
10733*	$\langle 9^+\rangle$	4241	37			26				37			94Sz01
10736.4	$\langle 9^+\rangle$	4242	19							81			94Sz01
10747.4	$\langle 9^+\rangle$	4257	100										94Sz01
10760*	$\langle 9^+\rangle$	4268	53			47							94Sz01
10954(3)	$\langle 5\rangle^+$												
11033(8)	5^+,3^+												
11070(3)	5^+,3^+												
11082(8)	5^+,3^+												

(continued) $^{53}_{25}\mathbf{Mn}(\mathrm{p})$

E^*	$2J^\pi$	$E_\circ$	Branching ratios										Ref.
[keV]		[keV]	Percentage										
E^*			0.0	378	1290	1441	1621	2274	2407	2573	2671	2686	
$2J_f^\pi$			7^-	5^-	3^-	11^-	9^-	5^-	3^-	7^-	1^-	7^-	
11159(3)	$5^+,3^+$												
11600(8)													
11654(8)	$5^-,7^-$												
12130(8)													

* Level introduced in [91Di07] or [94Sz01], not included in [02Nu0A].
** Difference in values of branching ratios measured in [75Sc08] and [90Al22].
*** Transition with branching ratio 10% to the level at 2946 keV.
There are transitions to the unknown states; sum of branching ratios could be less than 100.

Branching ratios of γ-transitions [94Sz01, 91Di07, 90Al22, 75Sc08]. Part 2. $^{53}_{25}\mathbf{Mn}(\mathrm{p})$

E^*	$2J^\pi$	$E_\circ$	Branching ratios														
[keV]		[keV]	Percentage														
E^*			2707	2876	2913	3007	3097	3102	3127	3182	3200	3381	3466	3480	3532	3595	3666	3710
$2J_f^\pi$			1^+	3^-	3^-	$\langle 5^+\rangle$	3^-		$\langle 5^-\rangle$		5	X$^-$	X$^-$	1^-	X$^-$			
4780.2(4)	$1^-,3^-$				20													
5316.2(5)						35												
7460.9(3)		918	2	6	7	1	3							1				
7494.35(25)		953	3	5	1	8	13			3				0	3			
7528.11(24)		987		1	1		2			4				9		2	1	
7546.8(3)	1^-	1005	3	26	13		5							6				
7921.3(3)	5^-	1390								1	1					1		
7928.2(3)	5^-	1397		4			1					2			1			8
7977.2(3)	3^-	1444	4	10	2	2	4					7						
8007.2(3)	5^-	1475		1	1		2			1		6	5					
8026.3(4)	5	1494						2		1	4					1		
8028.77(25)	5^-	1497	<1	<1			8			12	29					7		
8038.4	[X$^-$]	1507		12			6			7	14	9				5	1	
8053.0(4)	5^-	1522					3		2									
8057.2(3)	5^-	1526		2					17	3		1				3		
8083.1(3)	5^-	1552					14			1	3						3	
8088.0(3)	5^-	1557		14		4	8		9	1			2				1	
8095.3	3–7^-	1565		2		2	1		1	4	4	3	3					
8135.0(3)	3^-	1605		3		1	6		7	24	3							
8138.3(3)	3^-	1610	4	7			2		1	4			3	9			14	
8157.8(3)	5^+	1628	1	3			12		2									3
8178.1(3)	$3^-,5^-$	1648				2	2		2	1							1	

(continued) $^{53}_{25}\mathbf{Mn}(\mathrm{p})$

E^*	$2J^\pi$	$E_\circ$	Branching ratios															
[keV]		[keV]	Percentage															
E^*			2707	2876	2913	3007	3097	3102	3127	3182	3200	3381	3466	3480	3532	3595	3666	3710
$2J_f^\pi$			1^+	3^-	3^-	$\langle 5^+\rangle$	3^-		$\langle 5^-\rangle$		5	X$^-$	X$^-$	1^-	X$^-$			
8247.2(4)	3^-,5^-	1720		11	1													
8252.6(8)	5,3	1724		10														
8263.9(5)	5^-	1736		15														
8267.3(5)	3^-,5^-	1740			9													
8290.5		1764			9	2				6				18				
8293.5(3)	3^-	1767	2		6	3	1							11				
8303.2(4)	5^-	1776		2					3	1			1		1			
8312.1		1788		5														
8326.3(4)	5^-,7^-	1800						4										
8335.3(3)	X$^-$	1810	5	6	13	4	7						7		2		4	
8403.1(3)	3^-	1878	6	3		3												
8421.1(3)	3^-	1896		1	1			2	1	1			1		2		1	
8453.4(5)	$5^{\langle+\rangle}$	1930	23			46												
8483.26(24)	$3^{\langle-\rangle}$	1960		3	2	3	9			3	2				2		3	
8494.3(4)	$5,7^{\langle-\rangle}$	1971			1			6										
8501.2(3)	3^-,5	1978	1	4		2		2							7		6	
8506.1(4)	3^-,5,7^-	1983	3	3				10		3		6						
8514.1(3)	3^-,5^-	1991		1		1	2		1	2		1						
8555.4		2023				1		4				2	1					
8559.2(3)	3^-,5^-	2037		1					1	2					1			
8564.4(3)	3^-,5,7^-	2042	1	8		7			4	3		3						
8608.1(4)	3^-,5^-	2087		2				3	1					2				
8653.3(3)	$\langle 3^-\rangle$	2133	3			1				2	1			2			1	
8673.3(3)	$\langle 3^-\rangle$	2154	2				2							1				
8691.3(4)	3^-,5,7^-	2172				1	2				2							
8731.3(4)	5^-	2213								3	1							
8744.5(4)	3^-,5,7^-	2226							5				2					
8784.4(3)	3^-,5,7^-	2267			3	1	1			9					2		1	
8808.1(4)	3^-,5,7^-	2291		2														
8816.5(5)	5	2300							3	2								
8845.3(3)	3^-,5^+	2329	2	2				3	3	10	5							
8859.3(4)	3^-,5^+	2344	6	7				3			3							
8864.3(4)	5	2348	1	2		2	3											
8880.1(4)	5	2364		1			1			5		3						
8901.5(4)	3^-,5,7^-	2386				5	3								4			
8919.2(4)	3^-,5^+	2404	3	6		1						3						
8921.4(4)	3^-,5,7^-	2407		11								7						
8923.5(3)	7^-	2409				5			6	2	13	8						
8924.4(4)	5^-,7^-	2410		6	11	18			4								8	
8936.5(4)	5^-	2422				2						2			1		2	
8945.5(5)	5,7^-	2431					1											
8952.8	5^-,7^-	2439		1		3		2		2	5	2	1		1			

(continued) **$^{53}_{25}$Mn(p)**

E^*	$2J^\pi$	$E_\circ$	Branching ratios															
[keV]		[keV]	Percentage															
E^*			2707	2876	2913	3007	3097	3102	3127	3182	3200	3381	3466	3480	3532	3595	3666	3710
$2J^\pi_f$			1^+	3^-	3^-	$\langle 5^+ \rangle$	3^-		$\langle 5^- \rangle$		5	X^-	X^-	1^-	X^-			
8972.4	3^-,5,7^-	2459										4	2					
8977.3	3^-,5,7^-	2464				8				12								
8981.2	3,5	2468					1	1	1	1			2		1			
9002.8	3^-,5,7^-	2490					6		4		7	3	8		5			
9027.3	3^-,5,7^-	2515		9		6			2		3							
9070.5(3)	X^-	2559	3	2		3												
9096.0	3^-,5^-	2585		3		10		7		3			2		2		4	
9114.7	3^-,5,7^-	2604		3	5		1			7			3				3	
9120.6	3^-,5^-	2610		8	4			10	4	9								
9139.2	3^-,5^+	2629	2							4		5						
9152.9	3^-,5^+	2643	13				12											
9168.6	3^-,5,7^-	2659				9				10								
9179.4	5^-	2670			3		5		2	5	6		1		2			
9191	[5]	2681				14		4	6	13								
9193.2	9^+	2684		7														
9197.1	3^-,5,7^-	2688				5				5								
9200.0	3^-,5,7^-	2691						1			2	1						
9204.0	9^+	2695				5	3			2	3							
9207.9	5^-	2699		5														
9218.7	3^-,5,7^-	2710		17	8										7			
9224.6	3^-,5,7^-	2716		3									2					
9229.5	5^-	2721					1		3	2		2	2	2	1		1	
9241.2	3^-,5,7^-	2733				5				7		7						
9245.2	3^-,5^-	2737		5			5			8	4							
9250.1(8)	5^+	2742		2	2	6				2	2							
9277.5	5^-	2770		2		3	4		3	2			1	2	2			
9282.4(3)	3^-	2776	2	3		1			9									
9296.2(3)	3^-	2789					1		2		2		2					
9307.0	7^-	2800		9	16				7									
9343.3(3)	X^-	2837	4	23		21	5		4					5				
9346.2	3^-,5,7^-	2840					7				7	7					3	
9360.9	3^-,5,7^-	2855					3			2	1						1	
9415.9	$\langle 3^- \rangle$	2911	1	5	3	3			3			4	4		4			
10561	$\langle 9^+ \rangle$	4069								6								
10597(3)	$\langle 9 \rangle^+$	4100							37									

Branching ratios of γ-transitions [94Sz01, 91Di07, 90Al22, 75Sc08]. Part 3. $^{53}_{25}\mathbf{Mn}(\mathrm{p})$

E^*	$2J^\pi$	$E_\circ$	Branching ratios															
[keV]		[keV]	Percentage															
E^*			3850	3898	3940	3955	3960	3999	4062	4066	4083	4240	4266	4300	4348	4362	4427	4522
$2J_f^\pi$																		
7460.9(3)		918								6					3			
7494.35(25)		953								2			5				6	
7528.11(24)		987		6					3				2					
7546.8(3)	1^-	1005								0.5								
7921.3(3)	5^-	1390				1				1							1	
7977.2(3)	3^-	1444					1		3		1				1		2	
8007.2(3)	5^-	1475		1						1								
8026.3(4)	5	1494				3								1				
8028.77(25)	5^-	1497				18				2			2	7			1	1
8038.4	$[X^-]$	1507				5			5					1				
8053.0(4)	5^-	1522				2					1							
8057.2(3)	5^-	1526				3							1				1	
8083.1(3)	5^-	1552							10									
8088.0(3)	5^-	1557					1	1						3	2			
8095.3	$3–7^-$	1565			1	1										2		
8135.0(3)	3^-	1605							3		1							
8138.3(3)	3^-	1610	5						5		3							
8157.8(3)	5^+	1628			3					2	7						1	
8178.1(3)	$3^-,5^-$	1648								2		4	4				3	
8247.2(4)	$3^-,5^-$	1720				1											1	
8290.5		1764		3											3			
8293.5(3)	3^-	1767		3						1			2					
8303.2(4)	5^-	1776							1									
8399.4(5)	$3^-,5^-$	1875		5														
8403.1(3)	3^-	1878		7						2					2			
8421.1(3)	3^-	1896		2						1								
8483.26(24)	$3^{\langle-\rangle}$	1960		18			2			2			4	6				
8494.3(4)	$5,7^{\langle-\rangle}$	1971				1				5								
8501.2(3)	$3^-,5$	1978		12						7				6	4			
8506.1(4)	$3^-,5,7^-$	1983	3			1		2				2	3					
8514.1(3)	$3^-,5^-$	1991							1	1							1	
8555.4		2023								1				1				
8559.2(3)	$3^-,5^-$	2037		2														
8564.4(3)	$3^-,5,7^-$	2042	1					3	2									
8608.1(4)	$3^-,5^-$	2087								1								
8612.1(5)	$3^-,5,7^-$	2091								3								
8653.3(3)	$\langle 3^-\rangle$	2133		1						1								
8673.3(3)	$\langle 3^-\rangle$	2154		1						1							1	
8691.3(4)	$3^-,5,7^-$	2172											1				1	
8731.3(4)	5^-	2213								1								
8744.5(4)	$3^-,5,7^-$	2226					4		3									
8784.4(3)	$3^-,5,7^-$	2267								1								

(continued) $^{53}_{25}\mathbf{Mn}(\mathrm{p})$

E^*	$2J^\pi$	$E_\circ$	Branching ratios															
[keV]		[keV]	Percentage															
E^*			3850	3898	3940	3955	3960	3999	4062	4066	4083	4240	4266	4300	4348	4362	4427	4522
$2J_\mathrm{f}^\pi$																		
8845.3(3)	3^-,5^+	2329					3	2		1								
8859.3(4)	3^-,5^+	2344								3								
8864.3(4)	5	2348								1							1	
8901.5(4)	3^-,5,7^-	2386								4								
8924.4(4)	5^-,7^-	2410					7											
8936.5(4)	5^-	2422											1					
8952.8	5^-,7^-	2439											2				2	
8981.2	3,5	2468								2								
8996.0	5^-,7	2483				8							7					
9002.8	3^-,5,7^-	2490													4			
9027.3	3^-,5,7^-	2515								2							3	
9096.0	3^-,5^-	2585		2			2			1								
9114.7	3^-,5,7^-	2604											4					
9120.6	3^-,5^-	2610								2	4							
9139.2	3^-,5^+	2629									5							
9152.9	3^-,5^+	2643		3														
9168.6	3^-,5,7^-	2659						7							6		3	
9191	[5]	2681								13								
9200.0	3^-,5,7^-	2691		1				1		2								
9204.0	9^+	2695		2														
9218.7	3^-,5,7^-	2710				3												
9224.6	3^-,5,7^-	2716							2									
9229.5	5^-	2721							2				1				1	
9241.2	3^-,5,7^-	2733													3		4	
9245.2	3^-,5^-	2737		7														
9250.1(8)	5^+	2742		1						2	2						1	
9296.2(3)	3^-	2789								1			1	1			1	
9415.9	$\langle 3^- \rangle$	2911					2		4	4			2				1	

Branching ratios of γ-transitions [94Sz01, 91Di07, 90Al22, 75Sc08]. Part 4. $^{53}_{25}\mathbf{Mn}(\mathrm{p})$

E^*	$2J^\pi$	$E_\circ$	Branching ratios															
[keV]		[keV]	Percentage															
E^*			4552	4560	4635	4719	4762	4780	4793	4955	4988	5095	5317	5371	5434	5492	5579	5998
$2J_\mathrm{f}^\pi$																		
7494.35(25)		953											0,5		2			
7528.11(24)		987						4					1	3				

(continued) $^{53}_{25}\mathbf{Mn}(\mathrm{p})$

E^*	$2J^\pi$	$E_\circ$	Branching ratios															
[keV]		[keV]	Percentage															
E^*			4552	4560	4635	4719	4762	4780	4793	4955	4988	5095	5317	5371	5434	5492	5579	5998
$2J_f^\pi$																		
7546.8(3)	1^-	1005										1	1			2	1	
8028.77(25)	5^-	1497			1													
8038.4	$[X^-]$	1507		10	5													
8057.2(3)	5^-	1526							7									
8083.1(3)	5^-	1552	8			2		1								5		6
8088.0(3)	5^-	1557	2															2
8095.3	$3–7^-$	1565					2											
8135.0(3)	3^-	1605									4							
8138.3(3)	3^-	1610				1												
8178.1(3)	$3^-,5^-$	1648		2		1												
8421.1(3)	3^-	1896	1															
8483.26(24)	$3^{\langle-\rangle}$	1960	2	6														
8501.2(3)	$3^-,5$	1978						1	3	10								
8555.4		2023								10								
8559.2(3)	$3^-,5^-$	2037						1										
8691.3(4)	$3^-,5,7^-$	2172	1															
8731.3(4)	5^-	2213							1									
8784.4(3)	$3^-,5,7^-$	2267						1										
9241.2	$3^-,5,7^-$	2733								1								
9296.2(3)	3^-	2789							1									

Target isotope: $^{53}_{24}$Cr $I^{\pi}_{\circ} = 3/2^-$ *Abundance:* 9.501(17) % $S_{\mathrm{p}} = 7559.6(10)$ keV

$^{54}_{25}$Mn(p)

$E_{\circ}$ [keV]	Rel.int. [n/μC]	E_{cm} [keV]	E^* [keV]	Ref.
1015(1)		996	8556(3)	62Ar03
1082(1)		1062	8622(3)	62Ar03
1089(1)*		1069	8628(3)	62Ar03
1100(1)		1080	8639(3)	62Ar03
1105(1)		1085	8644(3)	62Ar03
1120(1)		1099	8659(3)	62Ar03
1135(1)		1114	8674(3)	62Ar03
1150(1)		1129	8688(3)	62Ar03
1157(1)		1136	8695(3)	62Ar03
1165(1)		1143	8703(3)	62Ar03
1170(1)		1148	8708(3)	62Ar03
1178(1)		1156	8716(3)	62Ar03
1182.0(7)*	15	1160	8720(3)	75We10
1183.6(7)		1162	8721(3)	75We10
1190.2(7)		1168	8728(3)	75We10
1191.9(7)		1170	8729(3)	75We10
1194.3(7)		1172	8732(3)	75We10
1199.8(7)		1178	8737(3)	62Ar03
1200.6(7)*		1178	8738(3)	75We10
1202.0(7)*	19	1180	8739(3)	75We10
1208.4(3)*	58	1186	8746(3)	75We10
1211.9(7)		1190	8749(3)	75We10
1216.5(7)		1194	8754(3)	62Ar03
1220.3(7)		1198	8757(3)	62Ar03
1224.0(7)		1201	8761(3)	62Ar03
1228.7(7)		1206	8766(3)	62Ar03
1231.3(7)		1209	8768(3)	75We10
1238.9(7)		1216	8776(3)	75We10
1240.3(7)		1217	8777(3)	62Ar03
1242.7(7)		1220	8779(3)	62Ar03
1249.0(7)		1226	8786(3)	75We10
1250.5(7)		1227	8787(3)	62Ar03
1255.9(7)		1233	8792(3)	62Ar03
1260.3(7)		1237	8797(3)	62Ar03
1263.0(7)		1240	8799(3)	62Ar03
1265.4(7)		1242	8802(3)	75We10
1272.4(7)		1249	8808(3)	62Ar03
1275.5(7)		1252	8812(3)	75We10
1277.9(7)		1254	8814(3)	75We10
1280.7(7)		1257	8817(3)	62Ar03
1285.5(7)		1262	8821(3)	62Ar03
1288.9(7)		1265	8825(3)	75We10
1292.2(7)		1268	8828(3)	62Ar03
1296.1(7)		1272	8832(3)	75We10
1299.1(7)		1275	8835(3)	62Ar03

(continued) $^{54}_{25}\mathbf{Mn}(\mathrm{p})$

$E_\circ$ [keV]	Rel.int. [n/μC]	E_{cm} [keV]	E^* [keV]	Ref.
1300.7(7)		1277	8836(3)	75We10
1303.5(7)		1279	8839(3)	62Ar03
1304.9(7)*	15	1281	8840(3)	75We10
1311.3(7)		1287	8847(3)	62Ar03
1314.4(7)		1290	8850(3)	62Ar03
1322.6(7)*	16	1298	8858(3)	75We10
1324.5(7)		1300	8860(3)	75We10
1326.7(7)		1302	8862(3)	75We10
1333.6(7)		1309	8869(3)	62Ar03
1335.8(7)		1311	8871(3)	75We10
1339.0(7)		1314	8874(3)	62Ar03
1342.7(7)		1318	8877(3)	75We10
1346.2(7)		1321	8881(3)	62Ar03
1354.0(7)*	20	1329	8889(3)	75We10
1356.7(7)		1332	8891(3)	75We10
1360.4(7)		1335	8895(3)	62Ar03
1363.9(7)		1339	8898(3)	75We10
1366.2(7)		1341	8901(3)	62Ar03
1370.0(7)		1345	8904(3)	62Ar03
1373.3(7)*	18	1348	8908(3)	75We10
1378.3(7)		1353	8912(3)	62Ar03
1381.7(7)		1356	8916(3)	75We10
1383.8(7)		1358	8918(3)	75We10
1394.0(7)		1368	8928(3)	75We10
1398.6(7)*	19	1373	8932(3)	75We10
1404.0(7)*	24	1378	8938(3)	75We10
1405.7(7)		1380	8939(3)	75We10
1408.6(7)		1383	8942(3)	75We10
1411.0(7)		1385	8945(3)	75We10
1414.4(7)*	24	1388	8948(3)	75We10
1420.0(7)		1394	8953(3)	75We10
1425.9(7)*	24	1400	8959(3)	75We10
1427.7(7)		1401	8961(3)	75We10
1433.3(7)		1407	8966(3)	75We10
1436.1(7)		1410	8969(3)	75We10
1439.5(7)		1413	8972(3)	75We10
1442.9(7)		1416	8976(3)	75We10
1445.8(7)		1419	8979(3)	75We10
1449.1(7)		1422	8982(3)	75We10
1451.7(7)		1425	8984(3)	75We10
1453.4(7)		1427	8986(3)	75We10
1457.1(7)		1430	8990(3)	75We10
1460.1(7)		1433	8993(3)	75We10
1461.7(7)*	19	1435	8994(3)	75We10
1466.4(7)*	18	1439	8999(3)	75We10

(continued) $^{54}_{25}\mathbf{Mn}(\mathrm{p})$

$E_\circ$ [keV]	Rel.int. [n/μC]	E_{cm} [keV]	E^* [keV]	Ref.
1469.3(7)		1442	9002(3)	75We10
1472.1(7)		1445	9004(3)	75We10
1474.0(7)		1447	9006(3)	75We10
1476.3(7)*	20	1449	9009(3)	75We10
1480.4(7)		1453	9013(3)	75We10
1482.6(7)		1455	9015(3)	75We10
1485.9(7)		1458	9018(3)	75We10
1487.4(7)		1460	9020(3)	75We10
1492.6(7)		1465	9025(3)	75We10
1494.9(7)		1467	9027(3)	75We10
1497.7(7)		1470	9030(3)	75We10
1502.5(7)		1475	9034(3)	75We10
1504.6(7)		1477	9036(3)	75We10
1510.6(7)*	17	1483	9042(3)	75We10
1514.7(7)*	19	1487	9046(3)	75We10
1517.0(7)*	16	1489	9049(3)	75We10
1519.8(7)*	20	1492	9051(3)	75We10
1522.2(7)		1494	9054(3)	75We10
1524.4(7)*	19	1496	9056(3)	75We10
1528.1(7)		1500	9059(3)	75We10
1530.7(7)		1502	9062(3)	75We10
1535.5(7)		1507	9067(3)	75We10
1539.9(7)		1511	9071(3)	75We10
1543.4(7)		1515	9074(3)	75We10
1548.2(7)		1520	9079(3)	75We10
1551.3(7)		1523	9082(3)	75We10
1559.0(7)		1530	9090(3)	75We10
1564.5(7)		1536	9095(3)	75We10
1567.3(7)		1538	9098(3)	75We10
1570.8(7)		1542	9101(3)	75We10
1572.3(7)		1543	9103(3)	75We10
1577.1(7)		1548	9108(3)	75We10
1578.3(7)		1549	9109(3)	75We10
1580.4(7)		1551	9111(3)	75We10
1583.3(7)		1554	9114(3)	75We10
1585.7(7)		1556	9116(3)	75We10
1588.6(7)		1559	9119(3)	75We10
1596.3(7)		1567	9126(3)	75We10
1598.7(7)		1569	9129(3)	75We10
1602.9(7)		1573	9133(3)	75We10
1605.8(7)		1576	9136(3)	75We10
1608.6(7)*	25	1579	9138(3)	75We10
1611.2(7)		1581	9141(3)	75We10
1614.9(7)		1585	9145(3)	75We10
1617.1(7)		1587	9147(3)	75We10

(continued) $^{54}_{25}\mathbf{Mn}(\mathrm{p})$

$E_\circ$ [keV]	Rel.int. [n/μC]	E_{cm} [keV]	E^* [keV]	Ref.
1620.5(7)*	19	1591	9150(3)	75We10
1627.1(7)*	20	1597	9157(3)	75We10
1635.0(7)		1605	9164(3)	75We10
1636.6(7)*	16	1606	9166(3)	75We10
1639.2(7)		1609	9168(3)	75We10
1642.8(7)		1612	9172(3)	75We10
1645.0(7)		1615	9174(3)	75We10
1648.0(7)		1617	9177(3)	75We10
1651.0(7)*	25	1620	9180(3)	75We10
1652.9(7)		1622	9182(3)	75We10
1656.3(7)		1626	9185(3)	75We10
1658.7(7)		1628	9188(3)	75We10
1662.6(7)*	66	1632	9191(3)	75We10
1664.8(7)		1634	9194(3)	75We10
1670.9(7)*	40	1640	9200(3)	75We10
1672.6(7)		1642	9201(3)	75We10
1674.8(7)		1644	9203(3)	75We10
1678.8(7)		1648	9207(3)	75We10
1680.9(7)*	44	1650	9209(3)	75We10
1692.0(7)*	26	1661	9220(3)	75We10
1696.3(7)		1665	9225(3)	75We10
1697.8(7)*	24	1666	9226(3)	75We10
1700.0(7)		1669	9228(3)	75We10
1705.1(7)		1674	9233(3)	75We10
1707.1(7)		1676	9235(3)	75We10
1708.2(7)		1677	9236(3)	75We10
1712.7(7)		1681	9241(3)	75We10
1714.1(7)		1682	9242(3)	75We10
1719.2(7)		1687	9247(3)	75We10
1721.5(7)		1690	9249(3)	75We10
1723.4(7)		1692	9251(3)	75We10
1726.1(7)		1694	9254(3)	75We10
1728.3(7)		1696	9256(3)	75We10
1731.4(7)		1699	9259(3)	75We10
1735.0(7)*	19	1703	9263(3)	75We10
1738.8(7)		1707	9266(3)	75We10
1740.9(7)		1709	9268(3)	75We10
1745.2(7)		1713	9273(3)	75We10
1748.3(7)		1716	9276(3)	75We10
1752.0(7)		1720	9279(3)	75We10
1753.4(7)		1721	9281(3)	75We10
1755.0(7)		1722	9282(3)	75We10
1757.9(7)		1725	9285(3)	75We10
1759.7(7)		1727	9287(3)	75We10
1763.6(7)		1731	9291(3)	75We10

(continued) $^{54}_{25}\mathbf{Mn}(\mathrm{p})$

$E_\circ$ [keV]	Rel.int. [n/μC]	E_{cm} [keV]	E^* [keV]	Ref.
1768.6(7)		1736	9295(3)	75We10
1770.5(7)		1738	9297(3)	75We10
1773.0(7)		1740	9300(3)	75We10
1777.0(7)		1744	9304(3)	75We10
1779.2(7)		1746	9306(3)	75We10
1780.8(7)		1748	9307(3)	75We10
1783.5(7)		1751	9310(3)	75We10
1785.5(7)		1752	9312(3)	75We10
1787.6(7)		1755	9314(3)	75We10
1790.8(7)		1758	9317(3)	75We10
1796.1(7)		1763	9322(3)	75We10
1797.5(7)		1764	9324(3)	75We10
1801.7(7)		1768	9328(3)	75We10
1804.6(7)		1771	9331(3)	75We10
1808.1(7)		1775	9334(3)	75We10
1811.0(7)		1777	9337(3)	75We10
1818.5(7)		1785	9344(3)	75We10
1820.1(7)		1786	9346(3)	75We10
1824.8(7)*	23	1791	9351(3)	75We10
1829.2(7)		1795	9355(3)	75We10
1830.7(7)		1797	9356(3)	75We10
1833.1(7)		1799	9359(3)	75We10
1837.3(7)		1803	9363(3)	75We10
1843.6(7)*	29	1810	9369(3)	75We10
1846.6(7)		1812	9372(3)	75We10
1850.8(7)		1817	9376(3)	75We10
1852.8(7)		1819	9378(3)	75We10
1855.3(7)		1821	9381(3)	75We10
1857.6(7)		1823	9383(3)	75We10
1861.1(7)		1827	9386(3)	75We10
1862.5(7)*	28	1828	9388(3)	75We10
1866.0(7)		1831	9391(3)	75We10
1870.1(7)		1836	9395(3)	75We10
1871.6(7)		1837	9397(3)	75We10
1875.3(7)		1841	9400(3)	75We10
1877.0(7)		1842	9402(3)	75We10
1880.8(7)		1846	9406(3)	75We10
1882.7(7)		1847	9407(3)	75We10
1885.9(7)		1851	9411(3)	75We10
1888.9(7)		1854	9414(3)	75We10
1890.7(7)		1856	9415(3)	75We10
1895.0(7)		1860	9420(3)	75We10
1899.1(7)		1864	9424(3)	75We10
1903.5(7)		1868	9428(3)	75We10
1908.1(7)		1873	9432(3)	75We10

(continued) $^{54}_{25}\mathbf{Mn}(\mathrm{p})$

$E_\circ$ [keV]	Rel.int. [n/μC]	E_{cm} [keV]	E^* [keV]	Ref.
1909.6(7)		1874	9434(3)	75We10
1912.3(7)		1877	9437(3)	75We10
1916.2(7)		1881	9440(3)	75We10
1919.1(7)		1884	9443(3)	75We10
1925.0(7)		1889	9449(3)	75We10
1928.0(7)		1892	9452(3)	75We10
1929.9(7)		1894	9454(3)	75We10
1934.5(7)		1899	9458(3)	75We10
1937.0(7)		1901	9461(3)	75We10
1939.4(7)		1904	9463(3)	75We10
1942.7(7)		1907	9466(3)	75We10
1945.0(7)		1909	9469(3)	75We10
1948.8(7)		1913	9472(3)	75We10
1953.3(7)		1917	9477(3)	75We10
1957.3(7)		1921	9481(3)	75We10
1961.5(7)		1925	9485(3)	75We10
1963.1(7)		1927	9486(3)	75We10
1966.7(7)		1930	9490(3)	75We10
1970.1(7)		1934	9493(3)	75We10
1974.7(7)		1938	9498(3)	75We10
1979.9(7)*	26	1943	9503(3)	75We10
1986.0(7)		1949	9509(3)	75We10
1988.4(7)*	21	1952	9511(3)	75We10
1993.5(7)		1957	9516(3)	75We10
1996.2(7)		1959	9519(3)	75We10
1997.5(7)		1961	9520(3)	75We10
2001.6(7)		1965	9524(3)	75We10
2003.5(7)		1966	9526(3)	75We10
2006.2(7)		1969	9529(3)	75We10
2010.3(7)		1973	9533(3)	75We10
2012.1(7)		1975	9534(3)	75We10
2015.1(7)		1978	9537(3)	75We10
2016.7(7)		1979	9539(3)	75We10
2022.9(7)		1985	9545(3)	75We10
2026.2(7)*	35	1989	9548(3)	75We10
2027.5(7)*		1990	9550(3)	75We10
2030.3(7)		1993	9552(3)	75We10
2032.2(7)		1995	9554(3)	75We10
2035.6(7)		1998	9558(3)	75We10
2040.7(7)		2003	9563(3)	75We10
2042.7(7)		2005	9565(3)	75We10
2047.1(7)*	44	2009	9569(3)	75We10
2051.8(7)		2014	9573(3)	75We10
2057.5(7)*	50	2019	9579(3)	75We10
2061.2(7)		2023	9583(3)	75We10

(continued) $^{54}_{25}$**Mn**(p)

$E_\circ$ [keV]	Rel.int. [n/μC]	E_{cm} [keV]	E^* [keV]	Ref.
2064.0(7)		2026	9585(3)	75We10
2067.2(7)		2029	9589(3)	75We10
2068.8(7)		2031	9590(3)	75We10
2073.4(7)		2035	9595(3)	75We10
2079.0(7)		2040	9600(3)	75We10
2082.2(7)		2044	9603(3)	75We10
2084.1(7)		2046	9605(3)	75We10
2086.6(7)		2048	9608(3)	75We10
2092.9(7)		2054	9614(3)	75We10
2095.1(7)		2056	9616(3)	75We10
2100.1(7)		2061	9621(3)	75We10

Additional data on this isotope can be found in [75We10, 66Jo08].
* γ-ray spectra were measured from these strong resonances (see table below).
Relative intensities Rel.int. in units [n/μC] are given as a number of pulses in the detector normalized to the integral charge of accelerator current (numbers per 1.5 μC).

Branching ratios of γ-transitions [75We10, 02Nu0A]. Part 1. $^{54}_{25}$**Mn**(p)

E^* [keV]	J^π	$E_\circ$ [keV]	Branching ratios Percentage											Ref.
E^*			0.0	55	156	368	408	839	1010	1375	1391	1454	1508	
J^π_f			3^+	2^+	4^+	5^+	3^+	4^+	3^+	X$^+$	1^+	1^+	2^+	
54.87(12)	2^+		100											02Nu0A
156.30(8)	4^+		100											02Nu0A
368.29(18)	5^+				100									02Nu0A
407.55(8)	3^+		31(3)	9(3)	60(3)									02Nu0A
838.91(20)	4^+		38(2)		11(2)	51(2)								02Nu0A
1009.62(23)	3^+			57(2)	43(2)									02Nu0A
1073.3(3)	6^+													02Nu0A
1136.74(24)	5^+		59(5)	22(5)			19(5)							02Nu0A
1374.99(14)	2^+,3^+													02Nu0A
1375.58(25)	2^+,3^+													02Nu0A
1391.0(3)	1^+			100										02Nu0A
1454.4(3)	1^+			100										02Nu0A
1460.8(6)	5^+,4^+													02Nu0A
1508.40(17)	2^+		63(2)	37(2)										75We10
1544.0(3)	3^+,2^+		100											75We10
1634.2(3)	2^+,3^+			65(5)			35(5)							75We10
1651.1(9)	1^+			100										75We10
1679(4)	$\langle 0^+ \rangle$													02Nu0A

(continued) $^{54}_{25}\mathbf{Mn}(\mathrm{p})$

E^* [keV]	J^π	$E_\circ$ [keV]	Branching ratios Percentage										Ref.
E^*			0.0	55	156	368	408	839	1010	1375	1391	1454	1508	
J^π_f			3^+	2^+	4^+	5^+	3^+	4^+	3^+	X^+	1^+	1^+	2^+	
1783.4(3)	7^+													02Nu0A
1784.5(4)	1^+		60(10)				40(10)							75We10
1853.0(4)	3^+		32(3)	40(3)	28(3)									75We10
1922.3(7)	1^+			100										75We10
1925.3(4)	7^+													02Nu0A
2056(5)	$4^+,2^+$													02Nu0A
2109.8(4)	1^+			41(3)							59(3)			75We10
2113.0(15)	$\langle 4^+\rangle$													02Nu0A
2133.87(24)	$1^+,0^+$			100										75We10
2136.13(16)	$\langle 1\rangle^+$													02Nu0A
2234(10)	$2^+,4^+$													02Nu0A
2267.59(19)	2^+–1^+		18(2)	28(2)			54(2)							75We10
2280(5)	$\langle 5\rangle^+$													02Nu0A
2291.57(18)	2^+–4^+		25(9)	25(9)	50(9)									75We10
2320(10)	$\langle 5^+\rangle$													02Nu0A
2354.53(22)	$3^+,2^+$													02Nu0A
2498.2(7)	1^+			100										75We10
2556.6(5)	3^+–1^+		40(10)	60(10)										75We10
2558.6(5)	$4^+,5^+$		20(10)		80(10)									75We10
2620(8)														02Nu0A
2672.9(20)	X^+				100									75We10
2711.6(7)	2^-									100				75We10
2714.6(5)	5^+													02Nu0A
2773.8(8)	3^-			50(20)			50(20)							75We10
2795(20)	5^+													02Nu0A
2856.3(4)	8^+													02Nu0A
2877.3(3)	$2^+,3^+$		40(9)	30(9)	30(9)									75We10
2881(6)	1^+													02Nu0A
2903.1(15)	1^+			50(10)			50(10)							75We10
2981(9)														02Nu0A
3011.9(15)	2^-–4^-						40(10)	60(10)						75We10
3116.1(12)	2^-		40(10)				15(10)	15(10)						75We10
3191.2(12)	3^+		20(10)	20(10)									30(10)	75We10
3213.2(12)	5^+		30(9)	40(9)	30(9)									75We10
3221.2(15)	$\langle 3^+\rangle$			50(9)	50(9)									75We10
3307.1(20)	6^-–4^-				100									75We10
3334.1(10)	$4^-,5^-$						$\langle 40\rangle$							75We10
3358.8(10)	$3^+,2^+$		100											75We10
3384.2(10)	$\langle 3\rangle$				60(10)									75We10
3535.7(11)	1^+–3^+												$\langle 40\rangle$	75We10
3546.7(8)	3^+–5^+		$\langle 20\rangle$											75We10
3585					100									75We10

(continued) $^{54}_{25}\mathbf{Mn}(\mathrm{p})$

E^*	J^π	$E_\circ$	Branching ratios											Ref.
[keV]		[keV]	Percentage											
E^*			0.0	55	156	368	408	839	1010	1375	1391	1454	1508	
J^π_f			3^+	2^+	4^+	5^+	3^+	4^+	3^+	X^+	1^+	1^+	2^+	
3606										⟨20⟩		⟨20⟩		75We10
3673			59(5)				41(5)							75We10
3755					50(10)								20(10)	75We10
3812													53(5)	75We10
3857			30(10)	70(10)										75We10
3969			55(10)	45(10)										75We10
4056						40(10)	15(10)							75We10
4085					100									75We10
4158			50(10)											75We10
4176			60(10)							40(10)				75We10
4262					48(7)							33(7)	19(7)	75We10
4378			32(5)	68(5)										75We10
8628(3)		1089												02Nu0A
8720(3)		1182.0	34	12	1		8	1		2	4	2	1	75We10
8738(3)		1200.6	12	6	2		7		10	7		4	4	75We10
8739(3)		1202.0	12	4			3		12	10			1	75We10
8746(3)		1208.4	12	6	1		6		3		1	1	5	75We10
8840(3)		1304.9	6	13	3	2	1	2	6	10	7	15	7	75We10
8858(3)		1322.6	6	8	5	2	5	3	3	5	5	2	9	75We10
8869(3)		1333.6												
8889(3)		1354.0	21	6	7	6	3		2	9		6	9	75We10
8908(3)		1373.3	10	19			4		2	11	6	18		75We10
8932(3)		1398.6	11	9	6		7		4		14	1	4	75We10
8938(3)		1404.0	4	12	3	2	20		3	4	3	2	5	75We10
8948(3)		1414.4	8	31					7	4	7	6	1	75We10
8959(3)		1425.9	3	12			3		2	9		3	2	75We10
8994(3)		1461.7	16	33			9	3		2			7	75We10
8999(3)		1466.4	7	14					7		11	4		75We10
9009(3)		1476.3	10	7			3				6			75We10
9042(3)		1510.6	4	3			5			4	26	3	2	75We10
9046(3)		1514.7	9				12			4	7		18	75We10
9049(3)		1517.0	3	1	1		1		15		11		12	75We10
9051(3)		1519.8	3	12			7		3	3	4	8	2	75We10
9056(3)		1524.4	3	33						2		11	6	75We10
9138(3)		1608.6	1	3						3	17	24	4	75We10
9150(3)		1620.5	20	4			3		12	10	11	5	4	75We10
9157(3)		1627.1	5	13		4				16	27	20	7	75We10
9166(3)		1636.6	2	11			4			19	6	12	7	75We10
9180(3)		1651.0	14	4			2			14		3	22	75We10
9191(3)		1662.6	6	22			13		2	9	2	4		75We10
9200(3)		1670.9	9	33					15	2	2	2	7	75We10
9209(3)		1680.9	7	12			11			6		5		75We10

(continued) $^{54}_{25}$**Mn**(p)

E^*	J^π	$E_\circ$	Branching ratios											Ref.
[keV]		[keV]	Percentage											
E^*			0.0	55	156	368	408	839	1010	1375	1391	1454	1508	
J^π_f			3^+	2^+	4^+	5^+	3^+	4^+	3^+	X^+	1^+	1^+	2^+	
9220(3)		1692.0	40	17			3			4	4	3	2	75We10
9226(3)		1697.8	34	3			26		4	5	2	2	2	75We10
9263(3)		1735.0	60							6	13	2		75We10
9351(3)		1824.8	3	6			21				8	4		75We10
9369(3)		1843.6		6						8	20		7	75We10
9388(3)		1862.5		45							7	12	6	75We10
9503(3)		1979.9	26	11			5					17	9	75We10
9511(3)		1988.4	5						14	14				75We10
9548(3)		2026.2	1	10						4	6	2	18	75We10
9550(3)		2027.5	1	8			1			11	10	5	8	75We10
9569(3)		2047.1	18	8			10		13	2	11			75We10
9579(3)		2057.5	3	6	1				9			2		75We10

Branching ratios of γ-transitions [75We10, 02Nu0A]. Part 2. $^{54}_{25}$**Mn**(p)

E^*	J^π	$E_\circ$	Branching ratios													
[keV]		[keV]	Percentage													
E^*			1544	1634	1651	1785	1853	1922	2110	2134	2268	2292	2355	2498	2557	2559	2673
J^π_f			X^+	X^+	1^+	1^+	3^+	1^+	1^+	X^+	X^+	X^+		1^+	X^+	X^+	X^+
3812			26(5)	21(5)													
3937							40(10)									40(10)	
4056							25(10)										
8720(3)		1182.0				1											
8738(3)		1200.6		8		5	12								4	3	
8739(3)		1202.0		6		6	17								8	4	
8746(3)		1208.4	1	2			1	2				3	4	3	1	1	1
8840(3)		1304.9		1		4	4		1		4				2	1	3
8858(3)		1322.6		5	2	2	3	12			6				2	1	4
8889(3)		1354.0	2	2	2	2	3	3		4				4			
8908(3)		1373.3		2	2	5	2		3						5	3	8
8932(3)		1398.6	6	3	2	3	1	4							1	2	
8938(3)		1404.0	2	3	2	5	3	3						4	1	1	2
8948(3)		1414.4		2	2	8		2	3		3	2	1		2		
8959(3)		1425.9		2	3	4		27	7		3			7			4
8994(3)		1461.7	3	5		4	5										
8999(3)		1466.4		4		4		8	4		18				3	4	
9009(3)		1476.3				11		8		6			2		7		

(continued) $^{54}_{25}$**Mn**(p)

E^*	J^π	$E_\circ$	Branching ratios														
[keV]		[keV]	Percentage														
E^*			1544	1634	1651	1785	1853	1922	2110	2134	2268	2292	2355	2498	2557	2559	2673
J^π_f			X$^+$	X$^+$	1$^+$	1$^+$	3$^+$	1$^+$	1$^+$	X$^+$	X$^+$	X$^+$		1$^+$	X$^+$	X$^+$	X$^+$
9042(3)		1510.6		4		14		10		7				3	4		
9046(3)		1514.7				4				4	6			4			4
9049(3)		1517.0		4		2	1				10		13	7	3	1	5
9051(3)		1519.8		3		4	2	6			3	8		6	6	6	
9056(3)		1524.4				3		8		6	3						3
9138(3)		1608.6			4	3		5	8	3	11						9
9150(3)		1620.5			6	3		6									4
9157(3)		1627.1		8													
9166(3)		1636.6					6				9					13	
9180(3)		1651.0	4	3	2	3		5			4						
9191(3)		1662.6				8		2						3	4	3	
9200(3)		1670.9					3				3	2					
9209(3)		1680.9			12	11				13	11						
9220(3)		1692.0		3		3		2			10						
9226(3)		1697.8								5	4		3				
9263(3)		1735.0		2	1					3	3						3
9351(3)		1824.8				17					26						
9369(3)		1843.6								21	5	5					14
9388(3)		1862.5						5		5			4				6
9503(3)		1979.9		8										14			10
9511(3)		1988.4	11				11			14	11			20			
9548(3)		2026.2				3	1	1	6	5							13
9550(3)		2027.5					14		6	10							7
9569(3)		2047.1								11						3	
9579(3)		2057.5		9		1		10		2	2			19	6	6	

Branching ratios for transitions to levels with E^* larger than 2.7 MeV are given in Supplement.

Branching ratios of γ-transitions [75We10, 02Nu0A]. Part 3. $^{54}_{25}$**Mn**(p)

E^*	J^π	$E_\circ$	Branching ratios														Com.
[keV]		[keV]	Percentage														
			2712	2774	2877	2903	3012	3116	3191	3213	3221	3307	3334	3359	3384	3536	3547	E^*,keV
																		J^π_f
8720(3)		1182.0	2	8	12		7	2							3			
8738(3)		1200.6					4											
8739(3)		1202.0					4											
8746(3)		1208.4	1	3	4		2	1			2		3	1			2	

(continued) $^{54}_{25}$**Mn**(p)

E^* [keV]	J^π	$E_\circ$ [keV]	Branching ratios Percentage															Com.
			2712	2774	2877	2903	3012	3116	3191	3213	3221	3307	3334	3359	3384	3536	3547	E^*,keV J^π_f
8840(3)		1304.9		2	4		2											
8858(3)		1322.6	4		3		3											
8889(3)		1354.0			3		3		3									
8932(3)		1398.6	1		5		4	7	5									
8938(3)		1404.0		3	2			5			2	4						
8948(3)		1414.4			3		2		3					3				
8959(3)		1425.9	2	3														
8994(3)		1461.7	4			4	5											
8999(3)		1466.4	6				4						2					
9009(3)		1476.3	8	8			4	2	3					9				
9042(3)		1510.6						4				2				3		
9046(3)		1514.7	3	6				6	10									
9049(3)		1517.0			5													
9051(3)		1519.8							7					3				
9056(3)		1524.4			4		3		3	5				4				
9150(3)		1620.5		5			3											
9166(3)		1636.6	11															
9180(3)		1651.0			5		15											
9191(3)		1662.6	2	3				3				1			3			
9200(3)		1670.9					5				4		2					
9209(3)		1680.9					12											
9220(3)		1692.0			3	4												
9226(3)		1697.8			4		2											
9263(3)		1735.0			5													
9351(3)		1824.8					7						8					
9369(3)		1843.6							5		9							
9388(3)		1862.5					6							4				
9548(3)		2026.2			3		3					4						
9550(3)		2027.5										6				5		
9569(3)		2047.1					10											
9579(3)		2057.5	6						5									

Branching ratios of γ-transitions [75We10, 02Nu0A]. Part 4. $^{54}_{25}\mathbf{Mn}(\mathrm{p})$

E^*	J^π	$E_\circ$	Branching ratios															Com.
[keV]		[keV]	Percentage															
			3585	3606	3673	3755	3812	3857	3937	3969	4056	4085	4158	4176	4209	4262	4378	E^*,keV J^π_f
8738(3)		1200.6		4				4			4							
8739(3)		1202.0						5			4							
8746(3)		1208.4	3		6		3		2						4	4	5	
8959(3)		1425.9							4									
9009(3)		1476.3			6													
9042(3)		1510.6			2													
9049(3)		1517.0									2			3				
9051(3)		1519.8												4				
9056(3)		1524.4					3											
9138(3)		1608.6				3	2											
9150(3)		1620.5						4										
9191(3)		1662.6	2							3	5							
9200(3)		1670.9		3							8							
9220(3)		1692.0													2			
9226(3)		1697.8							2	2								
9263(3)		1735.0										2						
9548(3)		2026.2			7				13									
9550(3)		2027.5			5			3										
9569(3)		2047.1		7			7											
9579(3)		2057.5					9						4					

Target isotope: $^{54}_{24}$Cr $I^{\pi}_{\circ} = 0^+$ *Abundance:* 2.365(7) % $S_{\mathrm{p}} = 8067.03(37)$ keV

$^{55}_{25}$Mn(p)

$E_{\circ}$ [keV]	$2J^{\pi}$	Rel.int. [n/μC]	Γ_{p} [eV]	γ^2_{p} [keV]	$\Gamma_{\mathrm{p_1}}$ [eV]	Γ_{pn} [eV]	γ^2_{pn} [keV]	Γ_{γ} [eV]	E_{cm} [keV]	E^* [keV]	Ref.
1044.3(3)									1025	9092(3)	78We12
1047.8(3)									1028	9095(3)	78We12
1078.3(3)		3							1058	9125(3)	78We12 62Ar03
1098.8(3)		3							1078	9145(3)	78We12
1100.4(5)									1080	9147(3)	78We12 62Ar03
1130.3(3)		5							1109	9176(3)	78We12 62Ar03
1134.4(5)									1113	9180(3)	78We12
1150.6(7)									1129	9196(3)	78We12
1153.4(6)									1132	9199(3)	78We12
1158.6(6)									1137	9204(3)	78We12
1200.1(5)									1178	9245(3)	78We12
1203.6(5)		6							1181	9248(3)	78We12 62Ar03
1211.1(5)		5							1189	9256(3)	78We12 62Ar03
1217.9(5)		5							1195	9262(3)	78We12 62Ar03
1222.3(5)									1200	9267(3)	78We12
1227.9(5)		7							1205	9272(3)	78We12 62Ar03
1228.5(8)									1206	9273(3)	78We12
1240.1(5)									1217	9284(3)	78We12
1241.7(7)									1219	9286(3)	78We12 62Ar03
1248.4(4)		5							1225	9292(3)	78We12 62Ar03
1253.7(4)									1230	9297(3)	78We12 62Ar03
1263.8(4)		12							1240	9307(3)	78We12 62Ar03
1282.5(3)		14							1259	9326(3)	78We12 62Ar03
1291.6(5)									1268	9335(3)	78We12
1299.6(5)									1276	9343(3)	78We12
1304.3(6)									1280	9347(3)	78We12
1311.3(3)									1287	9354(3)	78We12 62Ar03
1315.5(5)									1291	9358(3)	78We12 62Ar03
1321.2(5)									1297	9364(3)	78We12 62Ar03
1338.2(5)									1313	9380(3)	78We12 62Ar03
1341.7(4)									1317	9384(3)	78We12
1344.5(7)									1320	9387(3)	78We12
1347.7(4)		14							1323	9390(3)	78We12 62Ar03
1351.7(5)									1327	9394(3)	78We12
1358.9(5)		14							1334	9401(3)	78We12
1362.3(3)									1337	9404(3)	78We12 62Ar03
1370.3(4)		15							1345	9412(3)	78We12 62Ar03
1375.9(4)									1350	9417(3)	78We12 62Ar03
1383.7(5)									1358	9425(3)	78We12 62Ar03
1385.4(7)		14							1360	9427(3)	78We12
1388.5(5)									1363	9430(3)	78We12
1396.2(5)									1370	9437(3)	78We12 62Ar03
1402.6(5)									1377	9444(3)	78We12 62Ar03
1407.8(5)									1382	9449(3)	78We12 62Ar03
1409.4(5)									1383	9450(3)	78We12 62Ar03

(continued) $^{55}_{25}\mathbf{Mn}(\mathrm{p})$

$E_\circ$ [keV]	$2J^\pi$	Rel.int. [n/μC]	Γ_p [eV]	γ^2_p [keV]	Γ_{p_1} [eV]	Γ_pn [eV]	γ^2_pn [keV]	Γ_γ [eV]	E_cm [keV]	E^* [keV]	Ref.
1411.5(7)									1385	9452(3)	78We12
1417.2(5)									1391	9458(3)	78We12
1422.2(8)									1396	9463(3)	78We12
1423.7(8)									1397	9464(3)	78We12
1427.8(5)									1401	9468(3)	78We12
1430.5(5)									1404	9471(3)	78We12
1446.8(5)									1420	9487(3)	78We12
1449.8(8)									1423	9490(3)	78We12
1451.7(8)									1425	9492(3)	78We12
1454.9(8)									1428	9495(3)	78We12
1459.3(8)									1432	9499(3)	78We12
1465.3(6)									1438	9505(3)	78We12
1471.7(6)		15							1444	9512(3)	78We12
1475.9(8)									1449	9516(3)	78We12
1477.7(8)									1450	9517(3)	78We12
1480.6(6)									1453	9520(3)	78We12
1488.6(9)									1461	9528(3)	78We12
1491.6(6)		17							1464	9531(3)	78We12
1502.7(6)									1475	9542(3)	78We12
1507.4(9)									1480	9547(3)	78We12
1510.3(6)									1482	9549(3)	78We12
1513.8(9)									1486	9553(3)	78We12
1516.8(6)									1489	9556(3)	78We12
1524.7(9)									1497	9564(3)	78We12
1526.7(9)									1498	9566(3)	78We12
1540.5(9)									1512	9579(3)	78We12
1551.0(7)		15							1523	9589(3)	78We12
1555.0(9)									1527	9593(3)	78We12
1559.0(7)									1531	9597(3)	78We12
1562.2(9)									1533	9600(3)	78We12
1566.6(7)		19							1538	9605(3)	78We12
1568.5(10)									1540	9607(3)	78We12
1573.1(7)									1544	9611(3)	78We12
1577.2(7)		22							1548	9615(3)	78We12
1579.7(10)									1551	9618(3)	78We12
1583.2									1554	9621(3)	78We12
1589.3(8)									1560	9627(3)	78We12
1593.7(8)									1564	9631(3)	78We12
1604.4									1575	9642(3)	78We12
1609.5(11)									1580	9647(3)	78We12
1611.3(11)									1582	9649(3)	78We12
1619.7(8)									1590	9657(3)	78We12
1622.5(11)									1593	9660(3)	78We12
1624.9(11)									1595	9662(3)	78We12
1626.9(11)									1597	9664(3)	78We12

(continued) $^{55}_{25}\mathbf{Mn}(\mathrm{p})$

$E_\circ$ [keV]	$2J^\pi$	Rel.int. [n/μC]	Γ_p [eV]	γ^2_p [keV]	Γ_{p_1} [eV]	Γ_pn [eV]	γ^2_pn [keV]	Γ_γ [eV]	E_cm [keV]	E^* [keV]	Ref.
1632.6(8)									1602	9669(3)	78We12
1641.4(8)		28							1611	9678(3)	78We12
1649.6(8)									1619	9686(3)	78We12
1656.6(9)									1626	9693(3)	78We12
1658.9(12)									1628	9695(3)	78We12
1666.2(9)		17							1635	9702(3)	78We12
1674.8(9)									1644	9711(3)	78We12
1681.1(9)		18							1650	9717(3)	78We12
1683.9(12)									1653	9720(3)	78We12
1692.3(11)									1661	9728(3)	78We12
1696.0(12)									1665	9732(3)	78We12
1700.7(9)		19							1669	9736(3)	78We12
1707.3(12)		22							1676	9743(3)	78We12
1711.4(12)		27							1680	9747(3)	78We12
1714.1(12)		36							1682	9750(3)	78We12
1721.0(9)		22							1690	9756(3)	78We12
1727.9(9)									1696	9763(3)	78We12
1731.9(12)		25							1700	9767(3)	78We12
1735.4(12)									1703	9770(3)	78We12
1740.5(12)									1708	9775(3)	78We12
1743.3(12)									1711	9778(3)	78We12
1747.8(10)		15							1716	9783(3)	78We12
1754.2(10)									1722	9789(3)	78We12
1757.7(13)									1725	9792(3)	78We12
1761.4(10)									1729	9796(3)	78We12
1764.1(10)									1732	9799(3)	78We12
1767.1(10)									1735	9802(3)	78We12
1774.2(10)		33							1741	9809(3)	78We12
1779.3(10)									1746	9814(3)	78We12
1787.1(10)		32							1754	9821(3)	78We12
1788.0(13)									1755	9822(3)	78We12
1792.9(13)									1760	9827(3)	78We12
1795.4(13)									1762	9829(3)	78We12
1798.1(13)									1765	9832(3)	78We12
1800.3(13)									1767	9834(3)	78We12
1805.7(10)									1772	9839(3)	78We12
1808.1(13)									1775	9842(3)	78We12
1809.7(13)									1776	9843(3)	78We12
1813.3(10)									1780	9847(3)	78We12
1816.4(10)									1783	9850(3)	78We12
1823.9(10)									1790	9857(3)	78We12
1824.8(13)									1791	9858(3)	78We12
1827.2(13)		25							1794	9861(3)	78We12
1833.0(10)									1800	9866(3)	78We12
1835.6(10)		34							1802	9869(3)	78We12

(continued) **$^{55}_{25}$Mn(p)**

$E_\circ$ [keV]	$2J^\pi$	Rel.int. [n/μC]	Γ_p [eV]	γ_p^2 [keV]	Γ_{p_1} [eV]	Γ_{pn} [eV]	γ_{pn}^2 [keV]	Γ_γ [eV]	E_{cm} [keV]	E^* [keV]	Ref.		
1839.1(10)		21							1805	9872(3)	78We12		
1845.1(10)									1811	9878(3)	78We12		
1848.8(10)									1815	9882(3)	78We12		
1854.2(9)		28							1820	9887(3)	78We12		
1857.0(11)									1823	9890(3)	78We12		
1860.7(9)		25							1826	9893(3)	78We12		
1861.3(12)									1827	9894(3)	78We12		
1867.5(9)									1833	9900(3)	78We12		
1869.5(11)									1835	9902(3)	78We12		
1873.1(8)		27							1839	9906(3)	78We12		
1879.5(8)									1845	9912(3)	78We12		
1881.4(11)									1847	9914(3)	78We12		
1884.9(8)									1850	9917(3)	78We12		
1886.7(10)									1852	9919(3)	78We12		
1890.3(8)									1855	9923(3)	78We12		
1893.1(10)									1858	9925(3)	78We12		
1899.1(8)									1864	9931(3)	78We12		
1901.6(10)		20							1867	9934(3)	78We12		
1903.4(8)									1868	9935(3)	78We12		
1909.6(8)		30							1874	9941(3)	78We12		
1911.8(11)		30							1877	9944(3)	78We12		
1917.9(10)									1883	9950(3)	78We12		
1920.3(10)									1885	9952(3)	78We12		
1922.6(11)									1887	9954(3)	78We12		
1923.8(11)		30							1888	9955(3)	78We12		
1927.5(8)									1892	9959(3)	78We12		
1931.6(10)									1896	9963(3)	78We12		
1934.6(8)		42							1899	9966(3)	78We12		
1939.9(8)		26							1904	9971(3)	78We12		
1941.3(11)									1906	9973(3)	78We12		
1947.8(8)									1912	9979(3)	78We12		
1951.0(8)									1916	9982(3)	78We12		
1953.1(8)		36							1917	9984(3)	78We12		
1955.4(11)									1919	9986(3)	78We12		
1958.7(10)									1923	9990(3)	78We12		
1963.6(8)		24							1927	9994(3)	78We12		
1966.1(11)									1930	9997(3)	78We12		
1968.0(11)		24							1932	9999(3)	78We12		
1973.1(10)									1937	10004(3)	78We12		
1975.9(10)									1940	10007(3)	78We12		
1978.5(12)									1942	10009(3)	78We12		
1984.2(30)*	3^-	29	10(5)	1.00	0.09			1.62	1948	10015(3)	78We12	73Pe07	71Mo28
1987.5(30)*	3^-	29	115(10)	11.0	0.50			1.03	1951	10018(3)	78We12	73Pe07	71Mo28
1989.5(12)									1953	10020(3)	78We12		
1992.9(30)*	3^-	19	20(5)	1.87	0.22			0.25	1956	10023(3)	78We12	73Pe07	71Mo28

(continued) $^{55}_{25}\mathbf{Mn}(\mathrm{p})$

$E_\circ$ [keV]	$2J^\pi$	Rel.int. [n/μC]	Γ_p [eV]	γ^2_p [keV]	Γ_{p_1} [eV]	Γ_pn [eV]	γ^2_pn [keV]	Γ_γ [eV]	E_cm [keV]	E^* [keV]	Ref.		
2002.0(30)*	3^-		40(5)	3.61	0.25			0.41	1966	10032(3)	78We12	73Pe07	71Mo28
2005.9(30)	$\langle 3^- \rangle$		20(5)	1.78	0.30			0.43	1969	10036(3)		73Pe07	71Mo28
2007.5(30)*	3^-		25(5)	2.21	0.19			0.30	1971	10038(3)	78We12	73Pe07	71Mo28
2008.9(30)*	3^-		55(5)	4.83	0.55			1.07	1972	10039(3)	78We12	73Pe07	71Mo28
2011.3(30)*	3^-	35	65(10)	5.65	0.35			0.48	1974	10041(3)	78We12	73Pe07	71Mo28
2019.3(11)									1982	10049(3)	78We12		
2022.4(9)									1985	10052(3)	78We12		
2026.2(10)		23							1989	10056(3)	78We12		
2033.9(10)									1996	10064(3)	78We12		
2036.2(10)		24							1999	10066(3)	78We12		
2041.5(30)*	1^+	27	30(5)	0.94					2004	10071(3)	78We12	76Bi0A	71Mo28
2045.2(10)									2008	10075(3)	78We12		
2047.3(13)									2010	10077(3)	78We12		
2051.6(10)									2014	10081(3)	78We12		
2055.6(10)									2018	10085(3)	78We12		
2058.1(10)									2020	10087(3)	78We12		
2060.5(30)*	1^+		10(5)	0.31					2023	10090(3)	78We12	76Bi0A	71Mo28
2064.4(10)		22							2026	10093(3)	78We12		
2068.4(30)*	1^+		30(5)	0.89					2030	10097(3)	78We12	76Bi0A	71Mo28
2070.7(10)									2033	10100(3)	78We12		
2077.0(12)									2039	10106(3)	78We12		
2081.3(14)		20							2043	10110(3)	78We12		
2084.6(30)*	1^+		25(5)	0.73					2046	10113(3)	78We12	76Bi0A	71Mo28
2087.9(11)		27							2049	10117(3)	78We12		
2091.3(11)									2053	10120(3)	78We12		
2096.0(11)									2058	10124(3)	78We12		
2099.8(14)									2061	10128(3)	78We12		
2103.3(13)									2065	10132(3)	78We12		
2105.9(13)									2067	10134(3)	78We12		
2108.5(11)									2070	10137(3)	78We12		
2112.4(11)									2074	10141(3)	78We12		
2115.8(11)									2077	10144(3)	78We12		
2118.1(11)									2079	10146(3)	78We12		
2123.1(13)									2084	10151(3)	78We12		
2126.9(11)									2088	10155(3)	78We12		
2130.8(11)									2092	10159(3)	78We12		
2131.8(14)									2093	10160(3)	78We12		
2140.9(11)									2102	10169(3)	78We12		
2143.2(14)									2104	10171(3)	78We12		
2145.4(30)*	1^+		100(15)	2.31					2106	10173(3)	78We12	76Bi0A	71Mo28
2149.0(11)									2110	10177(3)	78We12		
2151.2(13)									2112	10179(3)	78We12		
2156.4(12)									2117	10184(3)	78We12		
2158.2(12)									2119	10186(3)	78We12		
2159.7(15)									2120	10187(3)	78We12		

(continued) $^{55}_{25}\mathbf{Mn}(\mathrm{p})$

$E_\circ$ [keV]	$2J^\pi$	Rel.int. [n/μC]	Γ_p [eV]	γ^2_p [keV]	Γ_{p_1} [eV]	Γ_pn [eV]	γ^2_pn [keV]	Γ_γ [eV]	E_cm [keV]	E^* [keV]	Ref.		
2161.1(14)									2121	10188(3)	78We12		
2166.6(30)*	1^+	20	30(5)	0.65					2127	10194(3)	78We12	76Bi0A	71Mo28
2170.3(12)									2130	10197(3)	78We12		
2171.7(15)									2132	10199(3)	78We12		
2174.9(15)									2135	10202(3)	78We12		
2175.5(15)									2135	10203(3)	78We12		
2179.8(30)*	1^+		30(5)	0.62					2140	10207(3)	78We12	76Bi0A	71Mo28
2183.2(12)									2143	10210(3)	78We12		
2189.0(30)*	1^+		10(5)	0.20					2149	10216(3)	78We12	76Bi0A	71Mo28
2194.6(12)									2154	10221(3)	78We12		
2196.5(12)									2156	10223(3)	78We12		
2200.0(12)									2160	10227(3)	78We12		
2203.6(30)*	1^+		60(5)	1.16					2163	10230(3)	78We12	76Bi0A	71Mo28
2207.1(13)									2167	10234(3)	78We12		
2209.4(13)									2169	10236(3)	78We12		
2212.4(13)									2172	10239(3)	78We12		
2214.3(16)									2174	10241(3)	78We12		
2217.7(13)									2177	10244(3)	78We12		
2224.0(30)*	1^+		35(5)	0.63					2184	10250(3)	78We12	76Bi0A	71Mo28
2228.5(30)*	1^+		15(5)	0.27					2188	10255(3)	78We12	76Bi0A	71Mo28
2229.7(16)									2189	10256(3)	78We12		
2232.6(30)*	1^+		30(5)	0.53					2192	10259(3)	78We12	76Bi0A	71Mo28
2236.2(13)									2195	10262(3)	78We12		
2238.2(16)									2197	10264(3)	78We12		
2241.0(30)*	1^+		80(10)	1.38					2200	10267(3)	78We12	76Bi0A	71Mo28
2244.7(13)		22							2203	10270(3)	78We12		
2248.9(13)									2208	10275(3)	78We12		
2253.4(13)									2212	10279(3)	78We12		
2256.4(30)*	1^+		25(5)	0.41					2215	10282(3)	78We12	76Bi0A	71Mo28
2259.9(30)*	1^-		70(5)	2.58					2218	10285(3)	78We12	76Bi0A	71Mo28
2264.2(30)*	1^-		195(20)	7.10					2223	10290(3)	78We12	76Bi0A	71Mo28
2266.4(30)	1^+		10(5)	0.16					2225	10292(3)		76Bi0A	71Mo28
2267.9(30)*	1^-		75(10)	2.70					2226	10293(3)	78We12	76Bi0A	71Mo28
2270.3(30)	$\langle 1^- \rangle$		5(5)	0.18					2229	10296(3)	78We12	76Bi0A	71Mo28
2274.6(30)*	1^-		45(5)	1.59					2233	10300(3)	78We12	76Bi0A	71Mo28
2279.9(30)*	1^+	15	125(15)	1.92					2238	10305(3)	78We12	76Bi0A	71Mo28
2286.1(30)*	1^+		50(5)	0.76					2244	10311(3)	78We12	76Bi0A	71Mo28
2288.2(15)									2246	10313(3)	78We12		
2290.3(16)									2248	10315(3)	78We12		
2292.2(15)									2250	10317(3)	78We12		
2295.4(30)*	1^+		70(5)	1.03					2253	10320(3)	78We12	76Bi0A	71Mo28
2301.0(30)*	1^+	14	50(5)	0.72					2259	10326(3)	78We12	76Bi0A	71Mo28
2310.0(30)*	1^+		35(5)	0.49		5(5)	1.88		2268	10335(3)	78We12	76Bi0A	71Mo28
2313.2(30)*	1^+		45(5)	0.63		1(1)	0.35		2271	10338(3)	78We12	76Bi0A	71Mo28
2314.0(16)									2272	10339(3)	78We12		

(continued) **$^{55}_{25}$Mn(p)**

$E_\circ$ [keV]	$2J^\pi$	Rel.int. [n/μC]	Γ_p [eV]	γ_p^2 [keV]	Γ_{p_1} [eV]	Γ_{pn} [eV]	γ_{pn}^2 [keV]	Γ_γ [eV]	E_{cm} [keV]	E^* [keV]	Ref.		
2315.6(13)									2273	10340(3)	78We12		
2318.9(13)									2276	10343(3)	78We12		
2323.1(30)*	1^+		70(5)	0.95		5(5)	1.41		2280	10347(3)	78We12	76Bi0A	71Mo28
2330.1(30)*	1^+		40(5)	0.53		5(5)	1.23		2287	10354(3)	78We12	76Bi0A	71Mo28
2333.1(15)									2290	10357(3)	78We12		
2335.8(14)									2293	10360(3)	78We12		
2339.3(14)									2296	10363(3)	78We12		
2343.3(14)									2300	10367(3)	78We12		
2348.6(14)									2305	10372(3)	78We12		
2352.5(14)									2309	10376(3)	78We12		
2355.7(30)*	1^+		10(5)	0.12		1(1)	0.10		2312	10379(3)	78We12	76Bi0A	71Mo28
2360.0(16)									2317	10384(3)	78We12		
2361.5(14)									2318	10385(3)	78We12		
2363.7(30)*	1^-		15(5)	0.41		5(5)	0.04		2320	10387(3)	78We12	76Bi0A	71Mo28
2368.9(16)									2325	10392(3)	78We12		
2371.3(17)									2328	10395(3)	78We12		
2377.0(15)									2334	10400(3)	78We12		
2378.9(30)*	1^+		40(10)	0.47		5(5)	0.55		2335	10402(3)	78We12	76Bi0A	71Mo28
2382.3(15)									2339	10406(3)	78We12		
2383.9(30)*	1^+		45(10)	0.52		45(12)	4.66		2340	10329(3)	78We12	76Bi0A	71Mo28
2384.5(15)									2341	10408(3)	78We12		
2389.6(15)									2346	10413(3)	78We12		
2393.8(30)*	1^+		15(5)	0.17		10(5)	0.91		2350	10417(3)	78We12	76Bi0A	71Mo28
2396.3(18)									2352	10419(3)	78We12		
2397.0(30)*	1^+		50(5)	0.56		5(5)	0.44		2353	10420(3)	78We12	76Bi0A	71Mo28
2400.1(15)									2356	10423(3)	78We12		
2402.3(30)*	1^+		60(10)	0.66		40(10)	3.28		2358	10425(3)	78We12	76Bi0A	71Mo28
2404.5(30)*	1^+		75(15)	0.82		50(15)	4.00		2360	10427(3)	78We12	76Bi0A	71Mo28
2408.5(15)									2364	10431(3)	78We12		
2410.7(18)									2366	10433(3)	78We12		
2413.5(18)									2369	10436(3)	78We12		
2418.1(30)*	1^+		75(15)	0.79		75(15)	5.13		2374	10441(3)	78We12	76Bi0A	71Mo28
2420.7(15)									2376	10443(3)	78We12		
2422.8(30)	$\langle 3^- \rangle$		20(10)	0.46		180(50)	0.56		2378	10445(3)	78We12	76Bi0A	71Mo28
2428.9(16)									2384	10451(3)	78We12		
2432.5(30)*	1^+		100(15)	1.02		30(10)	1.76		2388	10455(3)	78We12	76Bi0A	71Mo28
2438.9(16)									2394	10461(3)	78We12		
2443.5(19)									2399	10466(3)	78We12		
2445.3(19)									2400	10467(3)	78We12		
2447.8(19)									2403	10470(3)	78We12		
2453.1(16)									2408	10475(3)	78We12		
2455.0(19)									2410	10477(3)	78We12		
2458.8(18)									2414	10481(3)	78We12		
2461.3(19)									2416	10483(3)	78We12		
2468.6(16)									2423	10490(3)	78We12		

(continued) $^{55}_{25}\mathbf{Mn}(\mathrm{p})$

$E_\circ$ [keV]	$2J^\pi$	Rel.int. [n/μC]	Γ_p [eV]	γ^2_p [keV]	Γ_{p_1} [eV]	Γ_pn [eV]	γ^2_pn [keV]	Γ_γ [eV]	E_cm [keV]	E^* [keV]	Ref.		
2470.8(30)*	1^+		80(10)	0.74		80(15)	3.25		2425	10492(3)	78We12	76Bi0A	71Mo28
2477.8(16)									2432	10499(3)	78We12		
2483.4(19)									2438	10505(3)	78We12		
2485.3(20)									2440	10507(3)	78We12		
2490.9(17)									2445	10512(3)	78We12		
2492.1(30)*	1^+		50(15)	0.44		200(50)	6.80		2446	10513(3)	78We12	76Bi0A	71Mo28
2495.8(17)									2450	10517(3)	78We12		
2501.2(20)									2455	10522(3)	78We12		
2503.8(20)									2458	10525(3)	78We12		
2508.4(17)									2462	10529(3)	78We12		
2512.2(17)									2466	10533(3)	78We12		
2517.2(20)									2471	10538(3)	78We12		
2518.3(20)									2472	10539(3)	78We12		
2520.9(20)									2475	10542(3)	78We12		
2524.2(17)									2478	10545(3)	78We12		
2530.8(30)	1^+		125(25)	1.01		40(15)	1.01		2484	10551(3)		76Bi0A	71Mo28
2532.0(30)*	1^-		40(15)	0.69		40(20)	0.10		2486	10553(3)	78We12	76Bi0A	71Mo28
2538.3(17)		13							2492	10559(3)	78We12		
2542.5(30)*	1^-		40(10)	0.67		15(5)	0.03		2496	10563(3)	78We12	76Bi0A	71Mo28
2544.3(30)	1^+		100(20)	0.78		100(20)	3.49		2498	10565(3)		76Bi0A	71Mo28
2545.6(30)	1^+		90(20)	0.70		10(5)	0.35		2499	10566(3)		76Bi0A	71Mo28
2548.1(30)*	1^+		120(25)	0.93		15(5)	0.51		2501	10568(3)	78We12	76Bi0A	71Mo28
2551.5(18)									2505	10572(3)	78We12		
2553.0(20)									2507	10573(3)	78We12		
2556.3(30)	$\langle 1^- \rangle$		10(5)	0.16		2(2)	0.00		2509	10576(3)	78We12	76Bi0A	71Mo28
2556.9(30)	1^-		10(5)	0.16		30(10)	0.06		2510	10577(3)	71Mo28	76Bi0A	
2563.0(30)	1^+		50(25)	0.37		100(50)	3.01		2516	10583(3)	71Mo28	76Bi0A	
2564.6(30)	1^-		75(25)	1.19		200(100)	0.42		2518	10585(3)	71Mo28	76Bi0A	
2567.6(30)	1^+		75(25)	0.55		250(100)	7.27		2520	10587(3)	71Mo28	76Bi0A	
2574.6(30)	1^+		340(50)	2.47		80(30)	2.21		2527	10594(3)	71Mo28	76Bi0A	
2583.1(30)	1^-		25(10)	0.38		70(15)	0.14		2536	10603(3)	71Mo28	76Bi0A	
2589.9(30)	1^+		45(10)	0.32		100(30)	1.73		2542	10609(3)	71Mo28	76Bi0A	
2592.1(30)	3^-		30(10)	0.44		70(20)	0.11		2545	10612(3)	71Mo28	76Bi0A	
2597.0(30)	$\langle 3^- \rangle$		10(5)	0.15		80(25)	0.13		2550	10616(3)	71Mo28	76Bi0A	
2598.1(30)	3^-		40(15)	0.58		150(50)	0.23		2550	10617(3)	71Mo28	76Bi0A	
2599.9(30)	3^-		30(10)	0.44		5(5)	0.01		2552	10619(3)	71Mo28	76Bi0A	
2602.8(30)	1^+		30(15)	0.20		10(5)	0.16		2555	10622(3)	71Mo28	76Bi0A	
2603.7(30)	3^-		30(10)	0.48		140(50)	0.22		2556	10623(3)	71Mo28	76Bi0A	
2607.8(30)	1^+		175(30)	1.18		30(15)	0.47		2560	10627(3)	71Mo28	76Bi0A	
2608.1(30)	$\langle 3^- \rangle$		80(20)	1.14		80(25)	0.12		2560	10627(3)	71Mo28	76Bi0A	
2608.6(30)	3^-		225(50)	3.20		60(15)	0.08		2561	10628(3)	71Mo28	76Bi0A	
2611.4(30)	3^-		125(30)	1.77		125(100)	0.49		2563	10631(3)	71Mo28	76Bi0A	
2618.4(30)	$\langle 3^- \rangle$		10(5)	0.14		20(10)	0.03		2570	10637(3)	71Mo28	76Bi0A	
2620.3(30)	1^+		25(10)	0.16		5(5)	0.07		2572	10639(3)	71Mo28	76Bi0A	
2638.3(30)	1^-		20(10)	0.26		40(15)	0.07		2590	10657(3)	71Mo28	76Bi0A	

(continued) $^{55}_{25}$**Mn**(p)

$E_\circ$ [keV]	$2J^\pi$	Rel.int. [n/μC]	Γ_p [eV]	γ_p^2 [keV]	Γ_{p_1} [eV]	Γ_{pn} [eV]	γ_{pn}^2 [keV]	Γ_γ [eV]	E_{cm} [keV]	E^* [keV]	Ref.	
2642.2(30)	1^+		100(20)	0.63		200(50)	2.59		2594	10661(3)	71Mo28	76Bi0A
2642.5(30)	3^-		20(10)	0.26		50(25)	0.07		2594	10661(3)	71Mo28	76Bi0A
2647.0(30)	1^-		10(5)	0.18		50(20)	0.08		2599	10665(3)	71Mo28	76Bi0A
2649.6(30)	1^-		30(10)	0.39		50(25)	0.08		2601	10668(3)	71Mo28	76Bi0A
2652.0(30)	1^+		35(10)	0.21		65(20)	0.80		2604	10670(3)	71Mo28	76Bi0A
2654.3(30)	1^+		30(10)	0.18		90(30)	1.10		2606	10673(3)	71Mo28	76Bi0A
2662.2(30)	$\langle 3^- \rangle$		10(5)	0.18		75(25)	0.10		2613	10680(3)	71Mo28	76Bi0A
2667.1(30)	1^+		65(15)	0.36		75(20)	0.86		2618	10685(3)	71Mo28	76Bi0A
2670.0(30)	1^+		50(20)	0.29		100(25)	1.13		2621	10688(3)	71Mo28	76Bi0A
2681.3(30)	1^-		40(10)	0.48		120(30)	0.17		2632	10699(3)	71Mo28	76Bi0A
2682.9(30)	1^+		125(25)	0.72		300(75)	3.20		2634	10701(3)	71Mo28	76Bi0A
2685.5(30)	1^+		40(10)	0.23		100(25)	1.05		2636	10703(3)	71Mo28	76Bi0A
5850(10)			broad						5744	13811(10)	91VeZY	
6250(10)									6136	14203(10)	91VeZY	

Additional data on this isotope can be found in [88St03, 80We01, 78Zy0A, 74Ne12, 73Be0A, 70Ma25, 69Er04, 67Ab01, 66Er0A, 66Jo08].

* Errors in $E_\circ$ are taken from the scattering experiment, other $E_\circ$ were derived from (p,γ) data.

Strong γ-yield was observed from the resonance at $E_\circ$=1538 keV.

Positions of the first resonances are $E_\circ$=954, 987, 1006, 1110 and 1142 keV [62Ar03].

Relative intensities Rel.int. in units [n/μC] are given as a number of pulses in the detector normalized to the integral charge of an accelerator current (numbers per 1.5 μCoulomb).

Partial radiative widths of resonances with J^π=3/2$^-$ [73Pe07]. $^{55}_{25}$**Mn**(p)

E^* [keV]	$E_\circ$ [keV]	$2J^\pi$	Partial radiative widths [meV]													
E^*			0.0	126	1528	2252	2267	2427	2563	2727	2753	2873	2976	3006	3040	3051
$2J_f^\pi$			5^-	7^-	3^-	3^-	$\langle 5^- \rangle$	1^+	3^-	7^-	X^-	1^-	X^-	$\langle 3^- \rangle$	X^+	X^+
10015	1984.2	3^-	300	60	300	330	90		130	50	40	30	40		140	
10018	1987.5	3^-	530		40				70			70	20	60	110	30
10023	1992.9	3^-	10		40	20			20		10		40	10	30	
10032	2002.0	3^-	10	10	30	40		30	30			50				130
10036	2005.9	$\langle 3^- \rangle$	20		60	40			40	30	10	50		20	40	
10038	2007.5	3^-	120		20	40	20			60						
10039	2008.9	3^-	240		80	30	80		70						130	
10041	2011.3	3^-	210			20	20	30	20							

Branching ratios of γ-transitions [89Va0A, 78We12]. Part 1. $^{55}_{25}\mathbf{Mn}(\mathrm{p})$

E^*	$2J^\pi$	$E_\circ$	Branching ratios											Ref.
[keV]		[keV]	Percentage											
E^*			0.0	126	984	1292	1528	1884	2198	2252	2267	2366	2427	
$2J_f^\pi$			5^-	7^-	9^-	$\langle 11\rangle^-$	3^-	$\langle 7\rangle^-$	7^-	3^-	$\langle 5\rangle^-$	5^-	1^+	
125.95(1)	7^-		100											89Va0A
984.26(6)	9^-		5(3)	95(2)										89Va0A
1289.1(15)														
1292.12(7)	$\langle 11\rangle^-$			80(1)	20(1)									89Va0A
1293.0(20)	$\langle 1^-\rangle$													
1528.36(6)	3^-		97(1)	3(1)										89Va0A
1884.08(8)	$\langle 7\rangle^-$		57(4)	43(4)										89Va0A
2015.2(15)	7^-													
2198.43(9)	7^-		61(4)	6(2)	33(2)									89Va0A
2215.0(10)	5^-,7^-		100											89Va0A
2252.45(9)	3^-		100											89Va0A
2266.89(17)	$\langle 5\rangle^-$		72(2)	28(2)										89Va0A
2281(10)	$\langle 1\rangle$													
2311.45(14)	13^-				10(4)	90(4)								89Va0A
2365.80(9)	5^-		26(3)	74(3)										89Va0A
2398.41(12)	$\langle 9^-\rangle$			75(5)	25(5)									89Va0A
2426.53(11)	1^+						100							89Va0A
2563.15(9)	3^-		100											89Va0A
2582(5)														
2621.7(10)	$\langle 1^+\rangle$													
2694.6(10)														
2727.31(8)	7^-		50(4)		30(7)	20(3)								89Va0A
2741(2)														
2752.69(11)	5^-,9^-		24(5)	43(5)				33(5)						89Va0A
2822.1(7)	$\langle 9\rangle^-$													
2823.65(15)	9^-													
2828.44(22)														
2873.28(14)	1^-		23(6)				77(6)							78We12
2925.0(10)														
2953.45(17)	3^-		21(5)	79(5)										78We12
2976.15(13)	3^-–7^-		73(8)				27(8)							78We12
2984(10)	$\langle 3\rangle^+$													
2991.77(17)	$\langle 7\rangle^-$			67(3)	33(3)									78We12
3005.9(3)	$\langle 3^-\rangle$		100											78We12
3028(5)	1^-,3^-													
3035.92(15)	$\langle 11^-\rangle$			100										78We12
3037.5(3)	1^-,3^-										100			78We12
3039.9(3)	3^+,5^+			100										78We12
3046.0(8)														
3050.83(19)	3^+,5^+			30(10)			70(10)							78We12
3054.68(16)	$\langle 15\rangle^-$													
3070.0(5)			100											78We12

(continued) $^{55}_{25}\mathbf{Mn}(\mathrm{p})$

E^*	$2J^\pi$	$E_\circ$	Branching ratios										Ref.
[keV]		[keV]	Percentage										
E^*			0.0	126	984	1292	1528	1884	2198	2252	2267	2366	2427	
$2J_f^\pi$			5^-	7^-	9^-	$\langle 11\rangle^-$	3^-	$\langle 7\rangle^-$	7^-	3^-	$\langle 5\rangle^-$	5^-	1^+	
3080.33(18)	$\langle 3\rangle$		11(3)				64(3)					25(3)		78We12
3126.14(20)	$\langle 13^-\rangle$													
3136(10)	$\langle 5\rangle^-$													
3147(2)	5^-,7^-													
3158.43(12)	3^-		41(7)				59(7)							78We12
3195.3(4)	$\langle 3\rangle$		100											78We12
3260.8(5)	$\langle 5\rangle$													
3263.2(3)	$\langle 3^-\rangle$		75(10)									25(10)		78We12
3268.0(3)							41(4)	34(4)	25(4)					78We12
3341.96(22)	$\langle 13\rangle^-$													
3351.0(4)	$\langle 3^-\rangle$		35(9)	65(9)										78We12
3373.2(3)	$\langle 11\rangle$													
3379(8)														
3383.0(4)			100											78We12
3424.1(3)	$\langle 3\rangle^+$			47(5)										78We12
3431.8(3)	$\langle 1\rangle^-$		100											78We12
3480(10)														
3505(10)														
3523(5)	1^-,3^-													
3528.2(6)			100											78We12
3532.0(3)			100											78We12
3580(2)														
3600(5)	5^-,7^-													
3604(5)	$\langle 3^+\rangle$													
3608(15)	$\langle 5\rangle^-$													
3610.8(4)				100										78We12
3631(10)														
3642(10)														
3661.4(4)	X^-		20(10)						80(10)					78We12
3673(10)	X^-													
3682(10)														
3703.47(25)			49(12)						51(12)					78We12
3753.5(5)			100											78We12
3771.81(22)	X^-		15(5)					40(5)	15(5)	15(10)				78We12
3791(2)														
3800(5)														
3813.05(22)	13^-–17^-													
3831.5(4)				50(10)					50(10)					78We12
3844.9(3)	11^-–15^-													
3860(5)														
3882.94(23)	1^-,3^-		32(7)				35(7)					33(7)		78We12
3917.3(4)	1^-,3^-													

(continued) $^{55}_{25}\mathbf{Mn}$(p)

E^*	$2J^\pi$	$E_\circ$	Branching ratios										Ref.
[keV]		[keV]	Percentage										
E^*			0.0	126	984	1292	1528	1884	2198	2252	2267	2366	2427	
$2J_f^\pi$			5^-	7^-	9^-	$\langle 11\rangle^-$	3^-	$\langle 7\rangle^-$	7^-	3^-	$\langle 5\rangle^-$	5^-	1^+	
3932(10)	X^-													
3946.0(4)							100							78We12
3983.2(5)				100										78We12
3998(5)	$1^-,3^-$													
4003.0(3)			88(2)		12(2)									78We12
4051.6(4)								74(3)						
4091.0(4)	$\langle 3\rangle^-$													
4100(2)	$\langle 3\rangle^-$													
4113.0(4)	$\langle 5\rangle^+$		25(10)					25(10)						78We12
4173(5)														
4200(5)	X^+													
4205.47(22)	$13^- – 17^-$													
4217.1(4)	$\langle 1^-,3^-\rangle$		100											78We12
4234.1(5)	$\langle 11\rangle^+$		100											78We12
4266(5)	$\langle 3^-\rangle$													
4383.5(4)	$3^+ – 7^+$													
4404(5)	$5^-,7^-$													
4415.64(22)														
4429.1(3)			61(7)	39(7)										78We12
4493.0(5)	$1^-,3^-$				100									78We12
4544.1(4)	$\langle 1,3\rangle^-$		75(5)				25(5)							78We12
4580(2)	$\langle 3\rangle^+$													
4586(15)	$1^-,3^-$													
4600.0(5)										40(10)				78We12
4648.1(4)	$1^-,3^-$		70(10)				30(10)							78We12
4746.3(5)	$1^-,3^-$		100											78We12
4804(5)	$1^-,3^-$													
4896(15)	$7^-,5^-$													
4925.1(4)	$\langle 3\rangle^+$		48(9)				52(9)							78We12
4928.8(4)										20(10)		80(10)		78We12
4997(5)														
5026(16)														
5028.1(3)	$\langle 19\rangle^-$													
5058(5)	$1^-,3^-$													
5085(5)	$1^-,3^-$													
5110(2)	$\langle 3\rangle^+$													
5120.3(10)														
5186.3(5)	$1^-,3^-$		100											78We12
5233.3(10)														
5254.3(10)														
5260(5)														
5304.2(7)														

(continued) $^{55}_{25}\mathbf{Mn}(\mathrm{p})$

E^*	$2J^\pi$	$E_\circ$	Branching ratios											Ref.
[keV]		[keV]	Percentage											
E^*			0.0	126	984	1292	1528	1884	2198	2252	2267	2366	2427	
$2J_f^\pi$			5^-	7^-	9^-	$\langle 11\rangle^-$	3^-	$\langle 7\rangle^-$	7^-	3^-	$\langle 5\rangle^-$	5^-	1^+	
5350(2)	$\langle 3\rangle^+$													
5365.3(10)	$1^-,3^-$													
5400(2)	$\langle 1^+\rangle$													
5418.1(4)	$\langle 19\rangle$													
5423.5(6)	$\langle 19\rangle^-$													
5463.3(10)														
5498(15)	$5^-,7^-$													
5500(2)	$3^+,5^+$													
5520.3(10)														
6069(5)	$\langle 3^-\rangle$													
6164(5)														
7035.0(10)	X^-													
7230(2)	$\langle 5\rangle^+$													
7493.2(4)														
7553.6(5)	$\langle 21^-\rangle$													
9126.01(25)		1078	2	3			3			4		3	7	78We12
9146.8(3)		1099	<1				<1			11	10		5	78We12
9176.8(4)		1130	13	2			10			46	2			78We12
9181.0(3)		1134	3				6			30	2			78We12
9248.7(3)		1204	5				16	6		6				78We12
9256		1211					43			3				78We12
9263.2(3)		1218	5				2				24	3	11	78We12
9272.7(3)		1228	50				1				3	7	2	78We12
9292.7(4)		1248	4				9					7	6	78We12
9308.2(3)		1264	<1				6			19	3		4	78We12
9326.4(3)		1283	6				5	3			1		7	78We12
9390.3(3)		1348	3				19			2	6		6	78We12
9404.8(3)		1362	2				1			5	2		6	78We12
9412.7(3)		1370	4	4			3			16	17	6	3	78We12
9427.5(3)		1385	4				6			53	7		8	78We12
9512.2(3)		1472	1				46		2	12			11	78We12
9531.55(23)		1492	6	2			12	2				5	2	78We12
9591.2(3)		1551	29	8			18			15				78We12
9607.3(3)		1569	25				16			14	10		3	78We12
9616.2(4)		1577	<1				26			17	27		11	78We12
9677.44(22)		1641	2	3			12			1	2	2	7	78We12
9703.2(5)		1666	1				2			26	12		11	78We12
9717.8(5)		1681	6	1			3		2	9	22			78We12
9737.1(5)		1701	4	1			8			9	5	2	6	78We12
9743.7(6)		1707	<1				6			43	11		6	78We12
9747.3(7)		1711	5	1			44		4	19	3			78We12
9750.1(4)		1714	20	1			10	2	2	4	2	1	1	78We12

(continued) $^{55}_{25}\mathbf{Mn}(\mathrm{p})$

E^*	$2J^\pi$	$E_\circ$	Branching ratios											Ref.
[keV]		[keV]	Percentage											
E^*			0.0	126	984	1292	1528	1884	2198	2252	2267	2366	2427	
$2J_f^\pi$			5^-	7^-	9^-	$\langle 11\rangle^-$	3^-	$\langle 7\rangle^-$	7^-	3^-	$\langle 5\rangle^-$	5^-	1^+	
9757.3(5)		1721	1				4			5	3		3	78We12
9767.9(6)		1732	13				4	2		13			10	78We12
9783.5(6)		1748	39					9		7	6		6	78We12
9809.0(5)		1774	12	7			29		4	17		3	2	78We12
9822.1(6)		1787	21	37			9	6						78We12
9822.7(5)		1788	10	12			10	3		5		3	9	78We12
9861.3(5)		1827	2	7			4	3	21	7		12		78We12
9869.0(5)		1836	11	2			10	1		3	2	2		78We12
9873.2(5)		1839	22	3			7	4	3	3	6			78We12
9888.0(5)		1854	2				14			13		9	7	78We12
9893.3(6)		1861	3	6			8	7		3			3	78We12
9905.94(25)		1873	4	41			9	5	3	1		4	3	78We12
9934.2(5)		1902	10	15			4	2		2	2	21		78We12
9942.06(23)		1910	3	6			13	1	3	11	7	3		78We12
9944.4(5)		1912	28	15			5	8		4	2	6		78We12
9956.1(6)		1924	33	3			4			12	7	3		78We12
9966.7(3)		1935	26				14	2		3	4	6	19	78We12
9971.8(4)		1940	2	25			15	9	11	12				78We12
9973.0(6)		1941	4	11			10	3	4	6		3	26	78We12
9985.04(25)		1953	3				3			36	3			78We12
9986.9(5)		1955	7	27			11	3	6	4	5			78We12
9995.2(3)		1964	38				3			4			5	78We12
9999.1(6)		1968	8	2			5			5		2	6	78We12
10007.4(11)		1976	1	9			60			1	5			78We12
10010		1978	9				7			2	7	30	7	78We12
10016.2(10)	$\langle 3^-\rangle$	1985	22	2			22			17	4	2	1	78We12
10020.5(13)	$\langle 3^-\rangle$	1989	46				6	2		2		2	2	78We12
10025.1(10)	$\langle 3^-\rangle$	1994	<1	22			2	2	1	23	4		2	78We12
10041.2(13)	$\langle 3^-\rangle$	2011	27	1			7			6	6		5	78We12
10056.6(11)		2026	13	35			10		7	4		4	2	78We12
10066.4(11)		2036	25	36			2	11	3					78We12
10071.7(11)	1^+	2042	4	10			6	1	2	12	8	4	2	78We12
10094.1(11)		2064	21	23			26	2	2	3	3	1		78We12
10109.5(12)		2080	12	2			19		2	3			8	78We12
10117.1(12)		2088	25	4			11		4	5	6	7		78We12
10192.7(13)		2165	4	1			19	1		5			2	78We12
10271.1(14)		2245	2	1			12			4	8		16	78We12
10304.8(14)	1^+	2279	10				9			8	13	3		78We12
10326.3(14)	1^+	2301					17			5	13			78We12
10559(2)		2358	14							6	13	3		78We12

Branching ratios of γ-transitions. Part 2. $^{55}_{25}\mathbf{Mn}(\mathrm{p})$

E^*	$2J^\pi$	$E_\circ$	Branching ratios															
[keV]		[keV]	Percentage															
E^*			2563	2727	2753	2873	2953	2976	2992	3006	3036	3040	3051	3070	3080	3158	3195	3209
$2J_\mathrm{f}^\pi$			3^-	7^-	X^-	1^-	3^-	X^-	$\langle 7^- \rangle$	$\langle 3^- \rangle$	11^-	X^+	X^+		$\langle 3 \rangle$			
3424.1(3)	$\langle 3 \rangle^+$			53(5)														
4051.6(4)			26(3)															
9126.01(25)		1078	14	5		6		8			14		4		7			
9146.8(3)		1099	31	8				2					13		1			
9176.8(4)		1130				9		4							8			
9181.0(3)		1134	6			12	3	5			2	3			11			
9248.7(3)		1204	26		5	6					5							
9256		1211	8	5		2					3		5		5			
9263.2(3)		1218		3	3	10					5		7		8			
9272.7(3)		1228	2			3		2			1		3		3			
9292.7(4)		1248	11	12		10					6		23					
9308.2(3)		1264	4	13		2									15			
9326.4(3)		1283	19	4				10			13			5	1			
9390.3(3)		1348	13			19		1			3		3		17			
9404.8(3)		1362	18	3		2					3		4		22			
9412.7(3)		1370	8			8						9						
9427.5(3)		1385		3		3									9			
9512.2(3)		1472		2	2						10		7		3			
9531.55(23)		1492	6	15	3	2	5	3		3	1		6		7			
9591.2(3)		1551		4			7	6										
9607.3(3)		1569	7	5	2						9		2					
9616.2(4)		1577		4							4		3					
9677.44(22)		1641	11	5		3	2	6			6		4		6			
9703.2(5)		1666	7			2				1								
9717.8(5)		1681	7	3		6		5	2						3	2	2	
9737.1(5)		1701	17		11			3							5			
9743.7(6)		1707	17	3		8					1							
9747.3(7)		1711	11					2			7	4						
9750.1(4)		1714	8	3	4		1	1	7		1	2	1					
9757.3(5)		1721	4	3		2		3		3	7		3		35			
9767.9(6)		1732	12	18		4							7					
9783.5(6)		1748		3			8	5		6	2		2					
9809.0(5)		1774		2				4	3		1	2	1		3		4	
9822.1(6)		1787		2	2	3		5				3	4					
9822.7(5)		1788	4			6		6			4	6						
9861.3(5)		1827	8	4				6	4		1	3	4		6		3	
9869.0(5)		1836	16	2			13	7			6	4	5					
9873.2(5)		1839	14	4		5	8	2		3	4	4	2					
9888.0(5)		1854	7	5				4		2	3	1	4		13	2		
9893.3(6)		1861	18	15		9					3	12	1					
9905.94(25)		1873	2			5		3			1	4	6				2	
9934.2(5)		1902			3				6	5	1	4		5			5	

(continued) $^{55}_{25}$**Mn**(p)

E^*	$2J^\pi$	$E_\circ$	Branching ratios															
[keV]		[keV]	Percentage															
E^*			2563	2727	2753	2873	2953	2976	2992	3006	3036	3040	3051	3070	3080	3158	3195	3209
$2J_f^\pi$			3^-	7^-	X^-	1^-	3^-	X^-	$\langle 7^- \rangle$	$\langle 3^- \rangle$	11^-	X^+	X^+		$\langle 3 \rangle$			
9942.06(23)		1910	3		4	3	8		3	2	4	1	4		11			
9944.4(5)		1912	2				4			6	1		2		6	2	6	
9956.1(6)		1924	7		5		4	12			2	1	4					
9966.7(3)		1935	3	2							4		7		5			
9971.8(4)		1940							11			4	1					
9973.0(6)		1941						15			1	6	2		3			
9985.04(25)		1953	4	6	3	4	3	3			3	3	5		8			
9986.9(5)		1955	4			2		2	2		1	5	5					
9995.2(3)		1964		4		3		2			2	7	11					
9999.1(6)		1968				16		3			3	7	20					
10007.4(11)		1976	5		2	2		3			2				4			
10010		1978	23		9	6												
10016.2(10)	$\langle 3^- \rangle$	1985	10	1	1	3		3			2	2	6					
10020.5(13)	$\langle 3^- \rangle$	1989	11	3	2	7		3		4	1	2	4					3
10025.1(10)	$\langle 3^- \rangle$	1994	9			2		13		7	1							
10041.2(13)	$\langle 3^- \rangle$	2011		4			4				4	2	3		9			
10056.6(11)		2026	6					4			3	4						
10066.4(11)		2036			3		2	5	3						7			
10071.7(11)	1^+	2042	4	5				3		9	5				4			
10094.1(11)		2064	2															
10109.5(12)		2080		4		1		4		2	8		5		4			
10117.1(12)		2088	4				5	3		3	4				6	2	7	
10192.7(13)		2165	20	3			17	16		3								
10271.1(14)		2245	5			6		24							18			
10304.8(14)	1^+	2279	16	7	5							8		13				
10326.3(14)	1^+	2301	6			4		9		4	5				22			
10559(2)		2358		3	13		13						21					

Branching ratios of γ-transitions. Part 3. $^{55}_{25}$**Mn**(p)

E^*	$2J^\pi$	$E_\circ$	Branching ratios															
[keV]		[keV]	Percentage															
			3263	3269	3351	3383	3424	3432	3528	3532	3611	3662	3704	3772	3832	3883	3946	3983
9126.01(25)		1078						2								14		
9146.8(3)		1099														15		
9176.8(4)		1130							3				3					

(continued) $^{55}_{25}\mathbf{Mn}(\mathrm{p})$

E^* [keV]	$2J^\pi$	$E_\circ$ [keV]	Branching ratios Percentage															
			3263	3269	3351	3383	3424	3432	3528	3532	3611	3662	3704	3772	3832	3883	3946	3983
9181.0(3)		1134								5			3				4	
9248.7(3)		1204						4	7									
9256		1211						1	2								8	
9263.2(3)		1218																
9272.7(3)		1228					11							9		3		
9292.7(4)		1248															12	
9308.2(3)		1264						9					12					
9326.4(3)		1283				5				5			7					
9390.3(3)		1348														3		
9404.8(3)		1362						23		2						7		
9412.7(3)		1370											⟨9⟩					
9427.5(3)		1385						3		3			1					
9512.2(3)		1472								4								
9531.55(23)		1492			8			3		3						3		
9591.2(3)		1551					1							5				
9607.3(3)		1569																
9616.2(4)		1577							5									
9677.44(22)		1641	2	5		3	9						5			3		
9703.2(5)		1666											9			3	2	
9717.8(5)		1681		2	2											3	2	
9737.1(5)		1701	7													3		5
9743.7(6)		1707						5										
9747.3(7)		1711																
9750.1(4)		1714			5		3	4	2	2			2	2		1		
9757.3(5)		1721							5									
9767.9(6)		1732					6	6										
9783.5(6)		1748																
9809.0(5)		1774										6						
9822.1(6)		1787	1	1									1			2		
9822.7(5)		1788						3			3							
9861.3(5)		1827			5													
9869.0(5)		1836		3		7							3					
9873.2(5)		1839	6															
9888.0(5)		1854	1	5									2			3		
9893.3(6)		1861						7					5					
9905.94(25)		1873											2					
9934.2(5)		1902														9		
9942.06(23)		1910				3		4			3							
9944.4(5)		1912				3												
9956.1(6)		1924					3											
9966.7(3)		1935					5											
9971.8(4)		1940									10							
9973.0(6)		1941											6					

(continued) $^{55}_{25}\mathbf{Mn}(\mathrm{p})$

E^* [keV]	$2J^\pi$	$E_\circ$ [keV]	Branching ratios Percentage															
			3263	3269	3351	3383	3424	3432	3528	3532	3611	3662	3704	3772	3832	3883	3946	3983
9985.04(25)		1953					3			4								
9986.9(5)		1955	4	9			3											
9995.2(3)		1964					21											
9999.1(6)		1968												9				
10007.4(11)		1976						1	1									
10010		1978																
10016.2(10)	$\langle 3^- \rangle$	1985																
10020.5(13)	$\langle 3^- \rangle$	1989																
10025.1(10)	$\langle 3^- \rangle$	1994											6			3		
10041.2(13)	$\langle 3^- \rangle$	2011				7								4				
10056.6(11)		2026														5		
10066.4(11)		2036									3							
10071.7(11)	1^+	2042	9		6		3	3										
10094.1(11)		2064		10					3		4							
10109.5(12)		2080			2					7			2		5			
10117.1(12)		2088												4				
10192.7(13)		2165		9														
10271.1(14)		2245						4										
10304.8(14)	1^+	2279						8										
10326.3(14)	1^+	2301											15					
10559(2)		2358						4									5	

Branching ratios of γ-transitions. Part 4. $^{55}_{25}\mathbf{Mn}(\mathrm{p})$

E^* [keV]	$2J^\pi$	$E_\circ$ [keV]	Branching ratios Percentage														
			4003	4052	4091	4113	4118	4217	4234	4429	4493	4544	4600	4648	4746	4925	4929	5186
9126.01(25)		1078	3							2								
9146.8(3)		1099	3															
9176.8(4)		1130																
9181.0(3)		1134	2							3								
9248.7(3)		1204													11			3
9256		1211							7			4			3			1
9263.2(3)		1218	7						3	9								
9272.7(3)		1228																
9292.7(4)		1248																
9308.2(3)		1264			13													

(continued) $^{55}_{25}\mathbf{Mn}(\mathrm{p})$

E^* [keV]	$2J^\pi$	$E_\circ$ [keV]	Branching ratios Percentage															
			4003	4052	4091	4113	4118	4217	4234	4429	4493	4544	4600	4648	4746	4925	4929	5186
9326.4(3)		1283						5							4			
9390.3(3)		1348			5													
9404.8(3)		1362																
9412.7(3)		1370			9					4								
9427.5(3)		1385																
9512.2(3)		1472																
9531.55(23)		1492	3															
9591.2(3)		1551	1		3			1		2								
9607.3(3)		1569	4													3		
9616.2(4)		1577	3															
9677.44(22)		1641	1															
9703.2(5)		1666	5	7				2		4			5					1
9717.8(5)		1681				5						4	2	2				
9737.1(5)		1701			2						7							
9743.7(6)		1707																
9747.3(7)		1711																
9750.1(4)		1714	3		1					3	1							
9757.3(5)		1721	5		5				4								5	
9767.9(6)		1732	5															
9783.5(6)		1748	7															
9809.0(5)		1774																
9822.1(6)		1787								3								
9822.7(5)		1788								4	6							
9861.3(5)		1827																
9869.0(5)		1836					3											
9873.2(5)		1839																
9888.0(5)		1854	3															
9893.3(6)		1861																
9905.94(25)		1873	5															
9934.2(5)		1902						6										
9942.06(23)		1910																
9944.4(5)		1912																
9956.1(6)		1924																
9966.7(3)		1935																
9971.8(4)		1940																
9973.0(6)		1941																
9985.04(25)		1953	6															
9986.9(5)		1955																
9995.2(3)		1964																
9999.1(6)		1968																
10007.4(11)		1976	2			2												
10010		1978																
10016.2(10)	$\langle 3^- \rangle$	1985	2															

(continued) $^{55}_{25}\mathbf{Mn}(\mathrm{p})$

E^*	$2J^\pi$	$E_\circ$	Branching ratios														
[keV]		[keV]	Percentage														
			4003	4052	4091	4113	4118	4217	4234	4429	4493	4544	4600	4648	4746	4925	4929	5186
10020.5(13)	$\langle 3^- \rangle$	1989												3				
10025.1(10)	$\langle 3^- \rangle$	1994	3															
10041.2(13)	$\langle 3^- \rangle$	2011				8					3							
10056.6(11)		2026																
10066.4(11)		2036																
10071.7(11)	1^+	2042																
10094.1(11)		2064																
10109.5(12)		2080	3	3	2				2									
10117.1(12)		2088																
10192.7(13)		2165																
10271.1(14)		2245																
10304.8(14)	1^+	2279																
10326.3(14)	1^+	2301																
10559(2)		2358							5									