

Table 5.3.7a. The 41 fine-structure levels for the three lowest configurations included in the calculation (98B2, 98B3) and their calculated and observed energies in rydbergs (85S1) for Fe XII. The index i is used in Table 5.3.7b for transition keys.

i	Configuration	Level	Observed	Theory	i	Configuration	Level	Observed	Theory
1	$3s^2 3p^3$	$^4S_{3/2}^o$	0.00000	0.00000	22	$3s^2 3p^2 3d$	$(^3P) ^4D_{5/2}$	4.06475	4.06475
2		$^2D_{3/2}^o$	0.37868	0.37868	23		$(^1D) ^2F_{7/2}$	4.15435	4.15435
3		$^2D_{5/2}^o$	0.41998	0.41998	24		$(^1D) ^2G_{7/2}$	4.48255	4.48255
4		$^2P_{1/2}^o$	0.67532	0.67532	25		$(^1D) ^2G_{9/2}$	4.50967	4.50967
5		$^2P_{3/2}^o$	0.73371	0.73371	26		$(^3P) ^2P_{3/2}$	4.57274	4.57274
6	$3s 3p^4$	$^4P_{5/2}$	2.50027	2.50027	27		$(^3P) ^4P_{5/2}$	4.67033	4.67033
7		$^4P_{3/2}$	2.58804	2.58804	28		$(^3P) ^2P_{1/2}$	4.68255	4.68255
8		$^4P_{1/2}$	2.62725	2.62725	29		$(^3P) ^4P_{3/2}$	4.70888	4.70888
9		$^2D_{3/2}$	3.09613	3.09613	30		$(^3P) ^4P_{1/2}$	4.73649	4.73649
10		$^2D_{5/2}$	3.11383	3.11383	31		$(^1S) ^2D_{3/2}$	4.79436	4.79436
11	$^2P_{3/2}$	3.55092	3.55092	32	$(^1S) ^2D_{5/2}$		4.90298	4.90298	
12	$^2P_{1/2}$	3.59360	3.59360	33	$(^1D) ^2D_{3/2}$		5.04869	5.04869	
13	$^2S_{1/2}$	3.73985	3.73985	34	$(^1D) ^2D_{5/2}$		5.05398	5.05398	
14	$3s^2 3p^2 3d$	$(^3P) ^4F_{3/2}$	3.82967	3.82967	35		$(^1D) ^2P_{1/2}$	5.18456	5.18456
15		$(^3P) ^4F_{5/2}$	3.86397	3.86397	36		$(^3P) ^2F_{5/2}$	5.25564	5.25564
16		$(^3P) ^4F_{7/2}$	3.91417	3.91417	37		$(^1D) ^2P_{3/2}$	5.26475	5.26475
17		$(^3P) ^4F_{9/2}$	3.97663	3.97663	38		$(^1D) ^2S_{1/2}$	5.28198	5.28198
18		$(^1D) ^2F_{5/2}$	3.98400	3.98400	39		$(^3P) ^2F_{7/2}$	5.29610	5.29610
19		$(^3P) ^4D_{1/2}$	4.01245	4.01245	40		$(^3P) ^2D_{5/2}$	5.50342	5.50342
20		$(^3P) ^4D_{7/2}$	4.01815	4.01815	41		$(^3P) ^2D_{3/2}$	5.51754	5.51754
21		$(^3P) ^4D_{3/2}$	4.02246	4.02246					

Table 5.3.7b. The effective collision strengths $\Upsilon(i, j)$ as a function of temperature $T(\text{K})$ for the transitions among the five fine-structure levels of the ground configuration, and the transitions between these five levels to the eight levels of the first excited configuration. The level indices are as specified in Table 5.3.7a for Fe xvii (98B2, 98B3).

Levels		$T(10^5\text{K})$								
i	j	4	8	12	16	20	30	50	70	100
1	2	0.2680	0.1960	0.1570	0.1320	0.1150	0.0880	0.0631	0.0505	0.0401
1	3	0.2680	0.2070	0.1710	0.1480	0.1310	0.1060	0.0796	0.0663	0.0549
1	3	0.0740	0.0550	0.0430	0.0350	0.0300	0.0220	0.0147	0.0111	0.0083
1	4	0.3040	0.2190	0.1680	0.1360	0.1140	0.0820	0.0529	0.0392	0.0283
2	3	2.3750	1.6990	1.3150	1.0780	0.9180	0.6800	0.4655	0.3658	0.2872
2	4	0.7630	0.6170	0.5350	0.4850	0.4510	0.4030	0.3600	0.3407	0.3258
2	5	1.4180	1.0840	0.8740	0.7400	0.6500	0.5140	0.3929	0.3370	0.2934
3	4	0.5560	0.4440	0.3850	0.3500	0.3270	0.2930	0.2638	0.2505	0.2403
3	5	1.7790	1.4210	1.2270	1.1100	1.0320	0.9190	0.8199	0.7752	0.7407
4	5	1.2410	0.9400	0.7360	0.6040	0.5140	0.3780	0.2538	0.1960	0.1505
1	6	0.8614	0.9203	0.9688	1.0090	1.0440	1.1150	1.2190	1.2950	1.3810
1	7	0.5652	0.6009	0.6312	0.6568	0.6790	0.7248	0.7918	0.8410	0.8969
1	8	0.2837	0.3018	0.3171	0.3299	0.3411	0.3640	0.3976	0.4223	0.4502
1	9	0.0049	0.0042	0.0038	0.0036	0.0033	0.0030	0.0026	0.0024	0.0022
1	10	0.0045	0.0036	0.0033	0.0031	0.0031	0.0030	0.0031	0.0032	0.0033
1	11	0.0771	0.0675	0.0612	0.0565	0.0527	0.0456	0.0372	0.0322	0.0277
1	12	0.0264	0.0230	0.0209	0.0194	0.0182	0.0161	0.0135	0.0120	0.0107
1	13	0.0124	0.0116	0.0111	0.0107	0.0104	0.0099	0.0093	0.0090	0.0088
2	6	0.0457	0.0394	0.0362	0.0342	0.0327	0.0302	0.0277	0.0264	0.0254
2	7	0.0331	0.0262	0.0226	0.0202	0.0183	0.0152	0.0117	0.0098	0.0080
2	8	0.0163	0.0129	0.0112	0.0101	0.0093	0.0080	0.0065	0.0057	0.0049
2	9	0.8267	0.9183	0.9841	1.0360	1.0790	1.1660	1.2870	1.3750	1.4730
2	10	0.0844	0.0703	0.0633	0.0589	0.0556	0.0502	0.0445	0.0415	0.0390
2	11	0.1869	0.1869	0.1918	0.1973	0.2026	0.2145	0.2334	0.2477	0.2642
2	12	0.5174	0.5672	0.6045	0.6349	0.6610	0.7141	0.7910	0.8469	0.9101
2	13	0.0463	0.0432	0.0428	0.0430	0.0435	0.0448	0.0472	0.0492	0.0517
3	6	0.0824	0.0715	0.0662	0.0628	0.0603	0.0563	0.0522	0.0503	0.0489
3	7	0.0305	0.0235	0.0203	0.0182	0.0167	0.0143	0.0118	0.0104	0.0093
3	9	0.1041	0.0848	0.0756	0.0697	0.0655	0.0584	0.0510	0.0470	0.0438
3	10	1.1570	1.2500	1.3230	1.3830	1.4330	1.5360	1.6830	1.7900	1.9110
3	11	1.2540	1.3530	1.4320	1.4990	1.5560	1.6740	1.8460	1.9720	2.1150
4	7	0.0213	0.0171	0.0149	0.0133	0.0122	0.0101	0.0078	0.0064	0.0052
4	8	0.0170	0.0157	0.0148	0.0142	0.0136	0.0127	0.0116	0.0110	0.0105
4	9	0.1308	0.1330	0.1375	0.1417	0.1456	0.1538	0.1662	0.1755	0.1862
4	11	0.0932	0.0962	0.0994	0.1024	0.1051	0.1108	0.1195	0.1262	0.1338
4	12	0.3362	0.3782	0.4061	0.4277	0.4457	0.4812	0.5312	0.5669	0.6069
4	13	0.0742	0.0810	0.0861	0.0903	0.0940	0.1014	0.1121	0.1199	0.1287
5	6	0.0480	0.0371	0.0320	0.0288	0.0265	0.0227	0.0186	0.0164	0.0145
5	7	0.0440	0.0375	0.0342	0.0322	0.0306	0.0281	0.0255	0.0242	0.0231
5	8	0.0222	0.0174	0.0150	0.0134	0.0122	0.0103	0.0082	0.0070	0.0059
5	9	0.0719	0.0557	0.0487	0.0445	0.0416	0.0372	0.0327	0.0305	0.0287
5	10	0.3843	0.4026	0.4211	0.4370	0.4507	0.4789	0.5198	0.5497	0.5836
5	11	0.1752	0.1820	0.1892	0.1956	0.2012	0.2131	0.2308	0.2439	0.2591
5	12	0.0377	0.0238	0.0183	0.0152	0.0132	0.0101	0.0072	0.0057	0.0044
5	13	0.7153	0.7716	0.8148	0.8504	0.8810	0.9436	1.0350	1.1020	1.1780