Table 1. Target levels of Fe XIII and their threshold energies (in Ryd).

Index	Configuration	Level	Expt.[a]	GRASP[b]	GRASP[c]	CIV3[d]
1.....	$3s^2 3p^2$	$^3P_0$	0.0000	0.0000	0.0000	0.0000
2.....	$3s^2 3p^2$	$^3P_1$	0.0848	0.0835	0.0835	0.0768
3.....	$3s^2 3p^2$	$^3P_2$	0.1691	0.1700	0.1693	0.1582
4.....	$3s^2 3p^2$	$^1D_2$	0.4380	0.4629	0.4570	0.4366
5.....	$3s^2 3p^2$	$^1S_0$	0.8339	0.8497	0.8513	0.8612
6.....	$3s3p^3$	$^5S^o_2$		1.9719	1.8987	
7.....	$3s3p^3$	$^3D^o_1$	2.6172	2.7427	2.6004	2.5978
8.....	$3s3p^3$	$^3D^o_2$	2.6186	2.7437	2.6017	2.5982
9.....	$3s3p^3$	$^3D^o_3$	2.6445	2.7683	2.6271	2.6212
10.....	$3s3p^3$	$^3P^o_0$		3.1533	2.9915	2.9906
11.....	$3s3p^3$	$^3P^o_1$	3.0040	3.1595	2.9978	2.9956
12.....	$3s3p^3$	$^3P^o_2$	3.0097	3.1649	3.0033	2.9910
13.....	$3s3p^3$	$^1D^o_2$	3.3017	3.5222	3.3084	3.2968
14.....	$3s^2 3p3d$	$^3F^o_2$		4.1285	3.9508	3.9906
15.....	$3s3p^3$	$^3S^o_1$	3.7860	4.1498	3.8485	3.8390
16.....	$3s^2 3p3d$	$^3F^o_3$		4.1901	4.0120	4.0500
17.....	$3s^2 3p3d$	$^3F^o_4$		4.2822	4.1025	4.1366
18.....	$3s3p^3$	$^1P^o_1$	3.9918	4.3144	4.0650	4.0348
19.....	$3s^2 3p3d$	$^3P^o_2$	4.4320	4.7668	4.5045	4.4884
20.....	$3s^2 3p3d$	$^3P^o_1$	4.5102	4.8245	4.5788	4.5594
21.....	$3s^2 3p3d$	$^3P^o_0$	4.5867	4.8765	4.6310	4.6076
22.....	$3s^2 3p3d$	$^1D^o_2$	4.5460	4.9284	4.6237	4.5960
23.....	$3s^2 3p3d$	$^3D^o_1$	4.6156	4.9392	4.6924	4.6642
24.....	$3s^2 3p3d$	$^3D^o_2$	4.6406	4.9689	4.7194	4.6918
25.....	$3s^2 3p3d$	$^3D^o_3$	4.6400	4.9694	4.7219	4.6968
26.....	$3s^2 3p3d$	$^1F^o_3$	5.0745	5.4286	5.1884	5.2120
27.....	$3p^4$	$^3P_2$		5.5487	5.5444	
28.....	$3s^2 3p3d$	$^1P^o_1$	5.2005	5.5975	5.3014	5.2694
29.....	$3p^4$	$^3P_1$		5.6581	5.6547	
30.....	$3p^4$	$^3P_0$		5.6877	5.6844	
31.....	$3s3p^2 3d$	$^5F_1$		5.7727	5.7591	
32.....	$3s3p^2 3d$	$^5F_2$		5.7924	5.7792	
33.....	$3p^4$	$^1D_2$		5.7955	5.7830	
34.....	$3s3p^2 3d$	$^5F_3$		5.8246	5.8116	
35.....	$3s3p^2 3d$	$^5F_4$		5.8698	5.8569	
36.....	$3s3p^2 3d$	$^5F_5$		5.9286	5.9151	
37.....	$3s3p^2 3d$	$^5D_0$		5.9856	5.9873	
38.....	$3s3p^2 3d$	$^5D_1$		5.9911	5.9924	
39.....	$3s3p^2 3d$	$^5D_2$		6.0016	6.0024	
40.....	$3s3p^2 3d$	$^5D_3$		6.0179	6.0183	
41.....	$3s3p^2 3d$	$^5D_4$		6.0444	6.0456	
42.....	$3s3p^2(^1D)3d$	$^3F_2$		6.2614	6.2600	
43.....	$3s3p^2(^1D)3d$	$^3F_3$		6.3008	6.2996	
44.....	$3s3p^2(^1D)3d$	$^3F_4$		6.3595	6.3587	
45.....	$3s3p^2 3d$	$^5P_3$		6.4703	6.4298	
46.....	$3s3p^2 3d$	$^5P_2$		6.5030	6.4626	
47.....	$3s3p^2 3d$	$^5P_1$		6.5227	6.4821	
48.....	$3p^4$	$^1S_0$		6.6097	6.6104	

Index	Configuration	Level	Expt.[a]	GRASP[b]	GRASP[c]	CIV3[d]
49.....	$3s3p^2(^3P)(^4P)3d$	$^3P_2$		6.7648	6.7631	
50.....	$3s3p^2(^3P)(^4P)3d$	$^3P_1$		6.8482	6.8462	
51.....	$3s3p^2(^3P)(^4P)3d$	$^3P_0$		6.9048	6.9047	
52.....	$3s3p^23d$	$^3G_3$		7.0072	6.9720	
53.....	$3s3p^23d$	$^3G_4$		7.0220	6.9868	
54.....	$3s3p^23d$	$^3G_5$		7.0414	7.0060	
55.....	$3s3p^2(^3P)(^4P)3d$	$^3D_1$		7.0666	7.0097	
56.....	$3s3p^2(^3P)(^4P)3d$	$^3D_2$		7.0752	7.0186	
57.....	$3s3p^2(^3P)(^4P)3d$	$^3D_3$		7.0921	7.0339	
58.....	$3s3p^23d$	$^1G_4$		7.1333	7.1225	
59.....	$3s3p^2(^1D)3d$	$^1F_3$		7.2445	7.2348	
60.....	$3s3p^2(^3P)(^4P)3d$	$^3F_2$		7.3369	7.3136	
61.....	$3s3p^2(^3P)(^4P)3d$	$^3F_3$		7.3838	7.3622	
62.....	$3s3p^2(^1D)3d$	$^3D_1$		7.3972	7.3870	
63.....	$3s3p^2(^1D)3d$	$^3D_2$		7.4209	7.4109	
64.....	$3s3p^2(^3P)(^4P)3d$	$^3F_4$		7.4509	7.4280	
65.....	$3s3p^2(^1D)3d$	$^3P_0$		7.4676	7.4415	
66.....	$3s3p^2(^1D)3d$	$^3D_3$		7.4687	7.4609	
67.....	$3s3p^2(^1D)3d$	$^3P_1$		7.4842	7.4587	
68.....	$3s3p^2(^1D)3d$	$^3P_2$		7.5160	7.4910	
69.....	$3s3p^2(^3P)3d$	$^1P_1$		7.5402	7.5333	
70.....	$3s3p^23d$	$^3S_1$		7.6629	7.6561	
71.....	$3s3p^2(^1S)3d$	$^3D_1$		7.7297	7.6830	
72.....	$3s3p^2(^1S)3d$	$^3D_2$		7.7356	7.6721	
73.....	$3s3p^2(^1S)3d$	$^3D_3$		7.7962	7.7111	
74.....	$3s3p^2(^3P)(^2P)3d$	$^3F_2$		7.8615	7.8205	
75.....	$3s3p^2(^3P)(^2P)3d$	$^3F_3$		7.9025	7.8650	
76.....	$3s3p^2(^3P)(^2P)3d$	$^3F_4$		7.9385	7.8993	
77.....	$3s3p^2(^1D)3d$	$^1D_2$		7.9594	7.9241	
78.....	$3s3p^2(^3P)(^2P)3d$	$^3D_3$		8.1752	8.1095	
79.....	$3s3p^2(^3P)(^2P)3d$	$^3D_2$		8.2051	8.1212	
80.....	$3s3p^2(^3P)(^2P)3d$	$^3D_1$		8.2295	8.1344	
81.....	$3s3p^2(^1S)3d$	$^1D_2$		8.2398	8.1926	
82.....	$3s3p^2(^1D)3d$	$^1P_1$		8.3951	8.3257	
83.....	$3s3p^23d$	$^1S_0$		8.3971	8.3913	
84.....	$3s3p^2(^3P)(^2P)3d$	$^3P_2$		8.6544	8.6114	
85.....	$3s3p^2(^3P)(^2P)3d$	$^3P_1$		8.7027	8.6585	
86.....	$3s3p^2(^3P)(^2P)3d$	$^3P_0$		8.7262	8.6850	
87.....	$3s3p^2(^3P)3d$	$^1F_3$		8.8997	8.8197	
88.....	$3s^23d^2$	$^3F_2$		9.0282	8.9791	
89.....	$3s^23d^2$	$^3F_3$		9.0382	8.9900	
90.....	$3s^23d^2$	$^3F_4$		9.0472	9.0001	
91.....	$3s3p^2$	$^1D_2$		9.2874	9.1905	
92.....	$3s^23d^2$	$^1G_4$		9.3583	9.2835	
93.....	$3s^23d^2$	$^3P_0$		9.3808	9.2843	
94.....	$3s^23d^2$	$^3P_1$		9.3883	9.2913	
95.....	$3s^23d^2$	$^3P_2$		9.4030	9.3049	
96.....	$3s^23d^2$	$^1D_2$		9.4997	9.4177	
97.....	$3s^23d^2$	$^1S_0$		10.1460	10.1260	

a: NIST (`http://www.physics.nist/gov/PhysRefData`)
b: Present results from 6 configurations and 97 levels

Table 2. Transition energies ($\AA$), oscillator strengths, and radiative rates (s^{-1}) for allowed transitions in Fe XIII.

i	j	ΔE_{ij}	f_{ij}	A_{ji}	i	j	ΔE_{ij}	f_{ij}	A_{ji}
1	7	3.322+02	6.755-02	1.360+09	4	9	3.953+02	2.698-03	8.227+07
1	11	2.884+02	5.235-02	1.399+09	4	11	3.379+02	6.165-04	6.001+07
1	15	2.196+02	1.167-01	5.378+09	4	12	3.373+02	1.522-06	8.927+04
1	18	2.112+02	1.099-01	5.478+09	4	13	2.979+02	7.595-02	5.709+09
1	20	1.889+02	8.184-01	5.100+10	4	14	2.486+02	2.420-03	2.612+08
1	23	1.845+02	2.185-01	1.427+10	4	15	2.472+02	5.090-02	9.262+09
1	28	1.628+02	7.234-03	6.069+08	4	16	2.445+02	3.149-04	2.510+07
2	6	4.826+02	2.261-04	3.886+06	4	18	2.366+02	1.374-01	2.728+10
2	7	3.427+02	6.764-03	3.842+08	4	19	2.117+02	3.171-02	4.719+09
2	8	3.426+02	4.660-02	1.589+09	4	20	2.089+02	5.166-03	1.316+09
2	10	2.969+02	2.088-02	4.741+09	4	22	2.041+02	3.634-01	5.820+10
2	11	2.962+02	2.619-02	1.990+09	4	23	2.036+02	4.139-03	1.110+09
2	12	2.957+02	1.175-02	5.378+08	4	24	2.022+02	8.732-02	1.424+10
2	13	2.650+02	1.233-03	7.025+07	4	25	2.022+02	2.046-02	2.384+09
2	14	2.253+02	1.335-03	1.052+08	4	26	1.835+02	5.849-01	8.275+10
2	15	2.241+02	9.563-02	1.270+10	4	28	1.775+02	3.598-03	1.270+09
2	18	2.154+02	1.206-01	1.734+10	5	7	4.814+02	4.103-04	3.937+06
2	19	1.946+02	3.077-01	3.252+10	5	11	3.945+02	1.603-03	2.290+07
2	20	1.922+02	3.947-05	7.126+06	5	15	2.761+02	4.316-02	1.258+09
2	21	1.901+02	1.009-01	5.586+10	5	18	2.630+02	7.061-02	2.269+09
2	22	1.881+02	1.361-01	1.540+10	5	20	2.293+02	1.929-03	8.158+07
2	23	1.877+02	2.599-01	4.922+10	5	23	2.228+02	2.803-04	1.255+07
2	24	1.865+02	2.400-01	2.761+10	5	28	1.919+02	1.238-00	7.474+10
2	28	1.653+02	5.169-04	1.262+08	6	27	2.548+02	1.319-04	1.356+07
3	6	5.057+02	2.576-04	6.720+06	6	29	2.472+02	6.050-06	1.101+06
3	7	3.542+02	1.246-04	1.104+07	6	31	2.398+02	7.933-06	1.534+06
3	8	3.541+02	1.142-03	6.078+07	6	32	2.385+02	8.216-05	9.632+06
3	9	3.507+02	3.548-02	1.374+09	6	33	2.383+02	5.373-06	6.309+05
3	11	3.048+02	9.956-03	1.191+09	6	34	2.365+02	2.317-04	1.973+07
3	12	3.043+02	5.099-02	3.673+09	6	38	2.267+02	7.372-04	1.594+08
3	13	2.718+02	1.227-03	1.108+08	6	39	2.261+02	3.274-03	4.270+08
3	14	2.302+02	8.368-04	1.053+08	6	40	2.252+02	6.342-03	5.956+08
3	15	2.290+02	1.509-01	3.201+10	6	42	2.124+02	4.071-05	6.016+06
3	16	2.267+02	3.008-03	2.789+08	6	43	2.105+02	5.604-04	6.025+07
3	18	2.199+02	5.764-02	1.326+10	6	45	2.026+02	5.863-01	6.807+10
3	19	1.982+02	1.259-01	2.137+10	6	46	2.011+02	4.221-01	6.960+10
3	20	1.958+02	3.722-02	1.079+10	6	47	2.002+02	2.562-01	7.103+10
3	22	1.915+02	3.247-02	5.906+09	6	49	1.901+02	3.299-03	6.087+08
3	23	1.911+02	4.571-02	1.392+10	6	50	1.869+02	8.704-04	2.771+08
3	24	1.899+02	1.928-01	3.566+10	6	52	1.810+02	4.074-06	5.927+05
3	25	1.899+02	6.014-01	7.948+10	6	55	1.789+02	7.132-05	2.478+07
3	26	1.733+02	2.110-02	3.348+09	6	56	1.786+02	7.251-04	1.517+08
3	28	1.679+02	3.266-05	1.288+07	6	57	1.780+02	3.124-03	4.699+08
4	6	6.039+02	8.345-06	1.526+05	6	59	1.728+02	2.808-05	4.480+06
4	7	3.997+02	3.865-04	2.689+07	6	60	1.699+02	8.757-06	2.024+06
4	8	3.995+02	2.081-04	8.696+06	6	61	1.684+02	1.275-04	2.142+07

Table 2. Transition energies ($\AA$), oscillator strengths, and radiative rates (s^{-1}) for allowed transitions in Fe XIII.

i	j	ΔE_{ij}	f_{ij}	A_{ji}	i	j	ΔE_{ij}	f_{ij}	A_{ji}
6	62	1.680+02	6.463-06	2.547+06	7	62	1.958+02	1.328-01	2.310+10
6	63	1.672+02	5.814-05	1.387+07	7	63	1.948+02	8.928-02	9.417+09
6	66	1.658+02	3.445-04	5.972+07	7	65	1.929+02	1.117-03	6.009+08
6	67	1.653+02	7.668-05	3.119+07	7	67	1.922+02	1.048-03	1.892+08
6	68	1.644+02	3.543-04	8.748+07	7	68	1.909+02	3.856-03	4.234+08
6	69	1.636+02	7.177-07	2.979+05	7	69	1.899+02	6.754-03	1.248+09
6	70	1.601+02	2.918-05	1.265+07	7	70	1.852+02	8.270-04	1.608+08
6	71	1.583+02	2.967-06	1.317+06	7	71	1.827+02	4.507-04	9.003+07
6	72	1.581+02	3.092-05	8.250+06	7	72	1.825+02	1.256-02	1.509+09
6	73	1.565+02	5.323-04	1.036+08	7	74	1.780+02	1.803-01	2.277+10
6	74	1.547+02	7.376-06	2.055+06	7	77	1.747+02	1.497-03	1.964+08
6	75	1.537+02	3.838-07	7.744+04	7	79	1.668+02	4.301-04	6.185+07
6	77	1.522+02	1.434-06	4.129+05	7	80	1.661+02	1.247-03	3.016+08
6	78	1.469+02	3.049-04	6.733+07	7	81	1.658+02	9.509-04	1.385+08
6	79	1.462+02	6.120-05	1.910+07	7	82	1.612+02	5.930-04	1.522+08
6	80	1.456+02	3.944-06	2.068+06	7	83	1.612+02	4.710-04	3.629+08
6	81	1.454+02	2.181-09	6.882+02	7	84	1.541+02	2.657-05	4.476+06
6	82	1.419+02	2.792-07	1.542+05	7	85	1.529+02	7.248-05	2.068+07
6	84	1.364+02	5.689-05	2.040+07	7	86	1.523+02	7.719-05	6.660+07
6	85	1.354+02	1.404-05	8.512+06	7	88	1.450+02	4.626-03	8.807+08
6	87	1.315+02	6.901-09	1.900+03	7	91	1.392+02	8.843-05	1.826+07
6	88	1.291+02	7.822-09	3.128+03	7	93	1.373+02	3.299-06	3.503+06
6	89	1.290+02	3.508-09	1.005+03	7	94	1.371+02	4.904-06	1.740+06
6	91	1.246+02	6.231-07	2.678+05	7	95	1.368+02	4.132-06	8.834+05
6	94	1.229+02	2.155-06	1.587+06	7	96	1.349+02	4.118-05	9.062+06
6	95	1.226+02	5.325-06	2.362+06	7	97	1.231+02	3.138-05	4.145+07
6	96	1.211+02	3.509-09	1.597+03	8	27	3.249+02	1.938-02	1.225+09
7	27	3.248+02	2.809-03	1.066+08	8	29	3.127+02	3.913-02	4.450+09
7	29	3.126+02	2.564-02	1.751+09	8	31	3.009+02	7.765-07	9.538+04
7	30	3.094+02	3.001-02	6.271+09	8	32	2.989+02	2.679-04	2.000+07
7	31	3.008+02	7.339-04	5.412+07	8	33	2.986+02	7.261-04	5.432+07
7	32	2.988+02	2.597-08	1.164+03	8	34	2.958+02	3.400-05	1.852+06
7	33	2.985+02	7.671-05	3.445+06	8	38	2.806+02	1.158-03	1.635+08
7	37	2.810+02	9.644-04	2.444+08	8	39	2.797+02	2.408-05	2.053+06
7	38	2.805+02	3.599-04	3.050+07	8	40	2.783+02	2.037-06	1.253+05
7	39	2.796+02	2.123-07	1.087+04	8	42	2.590+02	4.971-04	4.941+07
7	42	2.590+02	3.244-03	1.936+08	8	43	2.562+02	1.798-03	1.305+08
7	46	2.423+02	2.647-05	1.804+06	8	45	2.445+02	6.127-04	4.882+07
7	47	2.411+02	2.255-05	2.588+06	8	46	2.424+02	1.591-05	1.806+06
7	48	2.356+02	2.313-03	8.335+08	8	47	2.411+02	7.313-05	1.398+07
7	49	2.266+02	2.145-02	1.672+09	8	49	2.266+02	1.102-01	1.431+10
7	50	2.220+02	1.408-01	1.906+10	8	50	2.220+02	1.031-01	2.324+10
7	51	2.189+02	9.204-02	3.842+10	8	52	2.137+02	3.521-04	3.672+07
7	55	2.108+02	1.472-01	2.210+10	8	55	2.108+02	5.633-02	1.409+10
7	56	2.103+02	9.853-02	8.913+09	8	56	2.104+02	1.339-01	2.018+10
7	60	1.984+02	3.499-01	3.559+10	8	57	2.096+02	5.825-02	6.319+09

Table 2. Transition energies ($\AA$), oscillator strengths, and radiative rates (s^{-1}) for allowed transitions in Fe XIII.

i	j	ΔE_{ij}	f_{ij}	A_{ji}	i	j	ΔE_{ij}	f_{ij}	A_{ji}
8	59	2.025+02	2.710-02	3.150+09	9	56	2.116+02	4.591-02	9.576+09
8	60	1.984+02	1.326-01	2.246+10	9	57	2.108+02	2.360-01	3.544+10
8	61	1.964+02	3.364-01	4.156+10	9	58	2.088+02	1.293-02	1.540+09
8	62	1.958+02	2.613-02	7.576+09	9	59	2.036+02	9.837-03	1.583+09
8	63	1.948+02	5.283-02	9.284+09	9	60	1.995+02	8.070-03	1.894+09
8	66	1.929+02	6.918-02	8.862+09	9	61	1.974+02	1.218-01	2.084+10
8	67	1.922+02	4.408-04	1.326+08	9	63	1.959+02	1.075-02	2.618+09
8	68	1.909+02	8.634-03	1.580+09	9	64	1.946+02	5.024-01	6.883+10
8	69	1.900+02	1.151-04	3.546+07	9	66	1.939+02	2.228-02	3.954+09
8	70	1.852+02	4.762-03	1.543+09	9	68	1.919+02	9.385-04	2.379+08
8	71	1.828+02	1.687-04	5.616+07	9	72	1.834+02	6.395-04	1.774+08
8	72	1.826+02	1.952-03	3.908+08	9	73	1.812+02	4.931-03	1.001+09
8	73	1.804+02	4.684-02	6.861+09	9	74	1.789+02	2.228-04	6.500+07
8	74	1.781+02	1.583-02	3.331+09	9	75	1.775+02	1.381-02	2.923+09
8	75	1.766+02	9.800-02	1.496+10	9	76	1.762+02	1.005-01	1.679+10
8	77	1.747+02	1.553-03	3.393+08	9	77	1.755+02	2.700-04	8.184+07
8	78	1.678+02	2.486-04	4.208+07	9	78	1.685+02	3.371-03	7.915+08
8	79	1.669+02	1.439-03	3.447+08	9	79	1.676+02	2.698-04	8.969+07
8	80	1.661+02	2.726-04	1.098+08	9	81	1.666+02	2.177-04	7.328+07
8	81	1.658+02	9.174-05	2.226+07	9	84	1.548+02	9.569-05	3.728+07
8	82	1.612+02	7.706-07	3.295+05	9	87	1.486+02	5.721-05	1.728+07
8	84	1.542+02	1.651-05	4.634+06	9	88	1.456+02	5.731-06	2.526+06
8	85	1.529+02	1.268-04	6.027+07	9	89	1.453+02	3.135-04	9.898+07
8	87	1.480+02	5.294-06	1.151+06	9	90	1.451+02	4.566-03	1.125+09
8	88	1.450+02	3.973-04	1.260+08	9	91	1.398+02	6.435-07	3.075+05
8	89	1.448+02	3.925-03	8.924+08	9	92	1.383+02	1.651-06	4.480+05
8	91	1.393+02	1.062-05	3.653+06	9	95	1.374+02	1.775-06	8.788+05
8	94	1.371+02	3.747-07	2.214+05	9	96	1.354+02	1.175-05	5.988+06
8	95	1.368+02	8.262-06	2.943+06	10	29	3.638+02	1.376-02	2.312+08
8	96	1.349+02	9.330-08	3.421+04	10	31	3.479+02	4.757-05	8.738+05
9	27	3.278+02	5.872-02	5.105+09	10	38	3.211+02	6.084-04	1.312+07
9	32	3.013+02	1.156-04	1.189+07	10	47	2.705+02	1.270-04	3.860+06
9	33	3.010+02	4.141-03	4.268+08	10	50	2.466+02	9.183-02	3.357+09
9	34	2.982+02	1.472-04	1.104+07	10	55	2.329+02	2.805-04	1.150+07
9	35	2.938+02	7.363-05	4.425+06	10	62	2.147+02	3.106-01	1.498+10
9	39	2.818+02	9.031-04	1.062+08	10	67	2.104+02	3.803-01	1.910+10
9	40	2.804+02	1.036-04	8.784+06	10	69	2.077+02	4.965-02	2.558+09
9	41	2.781+02	1.549-05	1.039+06	10	70	2.021+02	2.841-02	1.547+09
9	42	2.609+02	4.714-05	6.468+06	10	71	1.991+02	2.531-01	1.420+10
9	43	2.580+02	4.489-04	4.500+07	10	80	1.795+02	2.476-01	1.708+10
9	44	2.538+02	1.017-03	8.196+07	10	82	1.739+02	1.021-06	7.511+04
9	45	2.461+02	1.494-03	1.645+08	10	85	1.642+02	1.870-03	1.542+08
9	46	2.440+02	8.089-04	1.269+08	10	94	1.461+02	3.453-05	3.594+06
9	49	2.280+02	1.788-01	3.211+10	11	27	3.814+02	6.753-03	1.858+08
9	52	2.150+02	4.693-05	6.774+06	11	29	3.647+02	6.029-04	3.023+07
9	53	2.142+02	9.366-04	1.059+08	11	30	3.604+02	8.328-03	1.283+09

Table 2. Transition energies ($\AA$), oscillator strengths, and radiative rates (s^{-1}) for allowed transitions in Fe XIII.

i	j	ΔE_{ij}	f_{ij}	A_{ji}	i	j	ΔE_{ij}	f_{ij}	A_{ji}
11	31	3.487+02	3.164-05	1.735+06	12	33	3.464+02	1.829-03	1.017+08
11	32	3.461+02	1.040-04	3.473+06	12	34	3.426+02	2.931-05	1.190+06
11	33	3.457+02	2.792-04	9.349+06	12	38	3.224+02	2.851-04	3.049+07
11	37	3.225+02	3.721-04	7.162+07	12	39	3.212+02	5.869-05	3.793+06
11	38	3.218+02	3.986-05	2.567+06	12	40	3.194+02	3.317-05	1.549+06
11	39	3.206+02	1.750-04	6.812+06	12	42	2.943+02	1.904-05	1.466+06
11	42	2.938+02	1.414-06	6.558+04	12	43	2.906+02	7.256-08	4.094+03
11	46	2.725+02	1.173-04	6.318+06	12	45	2.757+02	2.490-04	1.561+07
11	47	2.710+02	2.141-05	1.945+06	12	46	2.730+02	8.176-04	7.318+07
11	48	2.641+02	1.010-03	2.896+08	12	47	2.714+02	4.114-04	6.210+07
11	49	2.528+02	3.399-02	2.129+09	12	49	2.531+02	4.228-02	4.401+09
11	50	2.470+02	9.843-03	1.076+09	12	50	2.474+02	4.699-02	8.534+09
11	51	2.433+02	4.543-02	1.536+10	12	52	2.372+02	2.132-04	1.806+07
11	55	2.332+02	4.237-03	5.196+08	12	55	2.336+02	1.665-03	3.393+08
11	56	2.327+02	9.155-04	6.765+07	12	56	2.330+02	4.008-03	4.923+08
11	60	2.181+02	5.824-03	4.898+08	12	57	2.320+02	3.056-03	2.704+08
11	62	2.150+02	4.620-02	6.664+09	12	59	2.234+02	4.347-02	4.151+09
11	63	2.138+02	2.826-01	2.473+10	12	60	2.184+02	6.654-05	9.303+06
11	65	2.115+02	1.250-01	5.590+10	12	61	2.160+02	1.789-02	1.827+09
11	67	2.107+02	1.145-01	1.721+10	12	62	2.153+02	6.149-04	1.475+08
11	68	2.092+02	1.223-01	1.119+10	12	63	2.141+02	1.482-02	2.157+09
11	69	2.080+02	1.802-03	2.777+08	12	66	2.117+02	2.260-01	2.402+10
11	70	2.024+02	1.086-01	1.769+10	12	67	2.110+02	7.531-02	1.881+10
11	71	1.994+02	3.620-02	6.073+09	12	68	2.094+02	2.744-01	4.173+10
11	72	1.991+02	1.549-01	1.564+10	12	69	2.083+02	1.902-02	4.874+09
11	74	1.938+02	1.400-05	1.492+06	12	70	2.026+02	1.168-01	3.164+10
11	77	1.899+02	1.859-02	2.065+09	12	71	1.996+02	3.683-03	1.027+09
11	79	1.806+02	1.763-01	2.163+10	12	72	1.994+02	3.029-02	5.084+09
11	80	1.797+02	6.512-02	1.345+10	12	73	1.968+02	1.810-01	2.228+10
11	81	1.794+02	1.011-03	1.258+08	12	74	1.940+02	3.167-04	5.612+07
11	82	1.741+02	1.266-03	2.788+08	12	75	1.924+02	1.469-02	1.891+09
11	83	1.740+02	7.697-04	5.088+08	12	77	1.901+02	6.060-04	1.119+08
11	84	1.658+02	1.426-05	2.076+06	12	78	1.819+02	1.727-01	2.488+10
11	85	1.644+02	1.121-03	2.767+08	12	79	1.808+02	4.448-02	9.076+09
11	86	1.637+02	1.053-03	7.865+08	12	80	1.799+02	2.848-03	9.781+08
11	88	1.553+02	4.636-04	7.695+07	12	81	1.796+02	1.193-04	2.468+07
11	91	1.487+02	3.119-05	5.644+06	12	82	1.742+02	4.063-04	1.488+08
11	93	1.465+02	3.089-05	2.881+07	12	84	1.660+02	1.454-03	3.519+08
11	94	1.463+02	5.455-05	1.700+07	12	85	1.646+02	4.175-04	1.714+08
11	95	1.460+02	2.045-05	3.843+06	12	87	1.589+02	4.872-03	9.193+08
11	96	1.437+02	3.122-06	6.049+05	12	88	1.554+02	2.930-05	8.091+06
11	97	1.304+02	1.516-07	1.783+05	12	89	1.551+02	6.210-04	1.229+08
12	27	3.823+02	9.302-03	4.246+08	12	91	1.488+02	3.001-04	9.035+07
12	29	3.655+02	1.043-02	8.676+08	12	94	1.464+02	3.986-07	2.067+05
12	31	3.494+02	2.653-05	2.416+06	12	95	1.461+02	1.910-06	5.969+05
12	32	3.468+02	1.713-04	9.498+06	12	96	1.439+02	1.324-06	4.268+05

Table 2. Transition energies ($\AA$), oscillator strengths, and radiative rates (s^{-1}) for allowed transitions in Fe XIII.

i	j	ΔE_{ij}	f_{ij}	A_{ji}	i	j	ΔE_{ij}	f_{ij}	A_{ji}
13	27	4.497+02	5.544-03	1.829+08	13	91	1.581+02	1.109-02	2.962+09
13	29	4.266+02	4.413-04	2.695+07	13	94	1.553+02	2.663-05	1.227+07
13	31	4.049+02	7.604-07	5.156+04	13	95	1.550+02	6.721-04	1.867+08
13	32	4.014+02	3.845-03	1.592+08	13	96	1.524+02	5.027-03	1.443+09
13	33	4.009+02	9.626-02	3.996+09	14	27	6.417+02	9.112-06	1.476+05
13	34	3.958+02	3.002-06	9.131+04	14	29	5.958+02	9.013-06	2.823+05
13	38	3.691+02	4.230-06	3.451+05	14	31	5.542+02	1.808-04	6.545+06
13	39	3.675+02	7.915-05	3.908+06	14	32	5.477+02	1.203-04	2.676+06
13	40	3.651+02	4.429-07	1.583+04	14	33	5.467+02	3.466-04	7.735+06
13	42	3.327+02	1.901-04	1.146+07	14	34	5.373+02	1.536-05	2.536+05
13	43	3.280+02	1.784-04	7.902+06	14	38	4.893+02	1.188-05	5.516+05
13	45	3.091+02	1.442-07	7.189+03	14	39	4.865+02	1.267-04	3.571+06
13	46	3.057+02	1.271-05	9.074+05	14	40	4.823+02	8.481-05	1.737+06
13	47	3.037+02	3.735-06	4.502+05	14	42	4.272+02	1.158-02	4.231+08
13	49	2.810+02	2.074-03	1.752+08	14	43	4.195+02	2.052-03	5.556+07
13	50	2.740+02	1.045-06	1.548+05	14	45	3.891+02	2.413-06	7.593+04
13	52	2.615+02	7.864-03	5.480+08	14	46	3.838+02	3.690-06	1.671+05
13	55	2.571+02	9.456-04	1.590+08	14	47	3.806+02	6.554-07	5.030+04
13	56	2.565+02	4.646-04	4.711+07	14	49	3.457+02	3.985-05	2.224+06
13	57	2.553+02	1.423-02	1.041+09	14	50	3.351+02	5.059-05	5.010+06
13	59	2.448+02	2.530-01	2.011+10	14	52	3.166+02	2.053-01	9.763+09
13	60	2.389+02	3.567-04	4.170+07	14	55	3.102+02	3.800-03	4.391+08
13	61	2.360+02	4.962-04	4.246+07	14	56	3.093+02	5.050-03	3.522+08
13	62	2.352+02	4.806-04	9.660+07	14	57	3.075+02	1.819-03	9.165+07
13	63	2.337+02	4.698-06	5.736+05	14	59	2.925+02	2.271-03	1.265+08
13	66	2.309+02	3.575-02	3.195+09	14	60	2.840+02	6.546-02	5.413+09
13	67	2.300+02	1.702-04	3.576+07	14	61	2.799+02	6.446-03	3.919+08
13	68	2.282+02	4.654-03	5.962+08	14	62	2.788+02	9.223-03	1.319+09
13	69	2.268+02	2.111-01	4.562+10	14	63	2.768+02	2.333-03	2.031+08
13	70	2.201+02	2.054-02	4.715+09	14	66	2.728+02	1.258-03	8.055+07
13	71	2.166+02	2.434-02	5.769+09	14	67	2.716+02	7.059-04	1.064+08
13	72	2.163+02	3.378-03	4.816+08	14	68	2.690+02	1.385-04	1.277+07
13	73	2.132+02	6.059-03	6.350+08	14	69	2.671+02	1.424-02	2.220+09
13	74	2.100+02	1.938-02	2.932+09	14	70	2.578+02	5.376-03	8.991+08
13	75	2.080+02	2.468-03	2.717+08	14	71	2.531+02	1.629-01	2.829+10
13	77	2.054+02	2.354-01	3.723+10	14	72	2.526+02	6.793-02	7.100+09
13	78	1.958+02	1.879-03	2.334+08	14	73	2.485+02	9.336-03	7.206+08
13	79	1.946+02	4.860-03	8.562+08	14	74	2.441+02	2.301-01	2.576+10
13	80	1.936+02	2.172-04	6.445+07	14	75	2.415+02	2.929-02	2.394+09
13	81	1.932+02	1.196-01	2.139+10	14	77	2.379+02	2.338-02	2.757+09
13	82	1.870+02	8.930-03	2.839+09	14	78	2.252+02	3.608-03	3.390+08
13	84	1.776+02	2.821-03	5.968+08	14	79	2.235+02	2.809-02	3.749+09
13	85	1.759+02	1.816-04	6.525+07	14	80	2.222+02	3.409-02	7.675+09
13	87	1.695+02	2.631-01	4.365+10	14	81	2.216+02	1.763-04	2.394+07
13	88	1.655+02	1.026-03	2.497+08	14	82	2.136+02	4.952-04	1.207+08
13	89	1.652+02	3.371-06	5.885+05	14	84	2.014+02	1.303-07	2.144+04

Table 2. Transition energies ($\AA$), oscillator strengths, and radiative rates (s^{-1}) for allowed transitions in Fe XIII.

i	j	ΔE_{ij}	f_{ij}	A_{ji}	i	j	ΔE_{ij}	f_{ij}	A_{ji}
14	85	1.992+02	2.674-05	7.489+06	15	88	1.868+02	1.766-03	2.026+08
14	87	1.910+02	5.329-03	6.961+08	15	91	1.774+02	2.232-01	2.839+10
14	88	1.860+02	1.785-01	3.443+10	15	93	1.742+02	2.698-03	1.779+09
14	89	1.856+02	1.115-02	1.541+09	15	94	1.739+02	9.123-03	2.011+09
14	91	1.766+02	2.885-03	6.168+08	15	95	1.735+02	4.088-03	5.437+08
14	94	1.732+02	3.384-04	1.253+08	15	96	1.703+02	4.495-03	6.201+08
14	95	1.728+02	3.661-05	8.180+06	15	97	1.520+02	2.313-03	2.004+09
14	96	1.697+02	8.596-04	1.992+08	16	27	6.708+02	1.345-05	2.791+05
15	27	6.514+02	2.105-02	1.986+08	16	32	5.687+02	1.173-04	3.387+06
15	29	6.042+02	1.168-02	2.134+08	16	33	5.677+02	5.937-07	1.721+04
15	30	5.925+02	6.064-03	3.456+08	16	34	5.575+02	5.520-05	1.184+06
15	31	5.615+02	1.937-05	4.098+05	16	35	5.425+02	1.263-04	2.227+06
15	32	5.548+02	1.755-04	2.282+06	16	39	5.031+02	1.108-05	4.089+05
15	33	5.537+02	2.496-03	3.258+07	16	40	4.986+02	3.828-04	1.027+07
15	37	4.964+02	9.206-05	7.477+06	16	41	4.914+02	1.413-04	3.035+06
15	38	4.949+02	9.238-05	2.516+06	16	42	4.400+02	4.453-04	2.148+07
15	39	4.921+02	2.267-05	3.747+05	16	43	4.317+02	9.965-03	3.566+08
15	42	4.315+02	6.191-05	1.330+06	16	44	4.201+02	1.396-03	4.105+07
15	46	3.872+02	4.281-05	1.142+06	16	45	3.996+02	1.438-05	6.007+05
15	47	3.840+02	2.040-05	9.228+05	16	46	3.940+02	2.613-06	1.572+05
15	48	3.705+02	3.969-02	5.787+09	16	49	3.539+02	4.120-06	3.071+05
15	49	3.485+02	1.673-02	5.514+08	16	52	3.235+02	8.301-03	5.292+08
15	50	3.377+02	1.369-02	8.010+08	16	53	3.218+02	1.902-01	9.531+09
15	51	3.308+02	8.064-04	1.475+08	16	56	3.159+02	1.035-03	9.690+07
15	55	3.124+02	2.436-04	1.664+07	16	57	3.140+02	2.142-03	1.449+08
15	56	3.115+02	8.075-05	3.330+06	16	58	3.096+02	3.422-03	1.852+08
15	60	2.859+02	3.266-04	1.599+07	16	59	2.984+02	5.175-03	3.878+08
15	62	2.806+02	1.797-04	1.522+07	16	60	2.896+02	6.404-03	7.130+08
15	63	2.786+02	2.351-04	1.212+07	16	61	2.853+02	4.430-02	3.630+09
15	65	2.747+02	1.618-03	4.293+08	16	63	2.821+02	9.852-03	1.156+09
15	67	2.733+02	5.342-03	4.771+08	16	64	2.795+02	3.234-03	2.148+08
15	68	2.707+02	7.436-03	4.061+08	16	66	2.780+02	3.445-03	2.974+08
15	69	2.688+02	3.773-04	3.483+07	16	68	2.740+02	3.683-04	4.581+07
15	70	2.594+02	1.063-04	1.053+07	16	72	2.570+02	1.613-01	2.280+10
15	71	2.546+02	1.087-03	1.119+08	16	73	2.527+02	1.035-01	1.081+10
15	72	2.541+02	2.084-03	1.292+08	16	74	2.482+02	4.474-02	6.782+09
15	74	2.455+02	2.031-03	1.349+08	16	75	2.455+02	1.921-01	2.126+10
15	77	2.392+02	4.635-03	3.242+08	16	76	2.431+02	3.355-02	2.945+09
15	79	2.247+02	1.650-02	1.307+09	16	77	2.418+02	1.979-02	3.163+09
15	80	2.234+02	3.146-03	4.206+08	16	78	2.287+02	3.857-02	4.920+09
15	81	2.228+02	2.696-01	2.174+10	16	79	2.270+02	2.981-02	5.404+09
15	82	2.147+02	3.950-01	5.718+10	16	81	2.250+02	5.562-03	1.026+09
15	83	2.146+02	1.555-01	6.759+10	16	84	2.041+02	8.415-05	1.886+07
15	84	2.023+02	4.956-01	4.846+10	16	87	1.935+02	3.114-04	5.548+07
15	85	2.001+02	2.155-01	3.589+10	16	88	1.884+02	1.743-02	4.587+09
15	86	1.991+02	6.280-02	3.169+10	16	89	1.880+02	1.733-01	3.272+10

Table 2. Transition energies ($\AA$), oscillator strengths, and radiative rates (s^{-1}) for allowed transitions in Fe XIII.

i	j	ΔE_{ij}	f_{ij}	A_{ji}	i	j	ΔE_{ij}	f_{ij}	A_{ji}
16	90	1.876+02	4.858-03	7.160+08	18	55	3.311+02	6.940-05	4.222+06
16	91	1.788+02	8.397-05	2.454+07	18	56	3.301+02	1.103-04	4.050+06
16	92	1.763+02	2.221-03	3.707+08	18	60	3.015+02	2.087-04	9.188+06
16	95	1.748+02	7.015-04	2.144+08	18	62	2.956+02	2.840-05	2.168+06
16	96	1.716+02	6.172-05	1.957+07	18	63	2.933+02	2.101-04	9.772+06
17	34	5.908+02	5.040-05	1.238+06	18	65	2.890+02	8.513-04	2.040+08
17	35	5.740+02	3.931-05	7.958+05	18	67	2.875+02	2.023-03	1.633+08
17	36	5.535+02	5.208-04	9.278+06	18	68	2.846+02	4.347-03	2.148+08
17	40	5.250+02	8.700-06	2.707+05	18	69	2.825+02	4.574-05	3.823+06
17	41	5.171+02	6.477-04	1.616+07	18	70	2.721+02	7.764-05	6.992+06
17	43	4.514+02	2.425-04	1.020+07	18	71	2.668+02	1.725-05	1.616+06
17	44	4.387+02	8.701-03	3.016+08	18	72	2.664+02	5.850-04	3.300+07
17	45	4.165+02	2.092-06	1.034+05	18	74	2.569+02	1.410-03	8.552+07
17	52	3.344+02	5.064-05	3.884+06	18	77	2.500+02	1.450-03	9.287+07
17	53	3.326+02	6.100-03	3.678+08	18	79	2.342+02	9.011-03	6.574+08
17	54	3.303+02	1.836-01	9.186+09	18	80	2.328+02	1.945-03	2.395+08
17	57	3.243+02	5.367-04	4.376+07	18	81	2.321+02	1.160-01	8.613+09
17	58	3.196+02	2.900-03	1.893+08	18	82	2.233+02	1.502-01	2.009+10
17	59	3.076+02	5.645-05	5.116+06	18	83	2.232+02	4.972-02	1.997+10
17	61	2.938+02	3.449-03	3.427+08	18	84	2.100+02	6.629-01	6.018+10
17	64	2.876+02	4.035-02	3.254+09	18	85	2.077+02	4.659-01	7.208+10
17	66	2.860+02	6.708-03	7.035+08	18	86	2.066+02	1.649-01	7.736+10
17	73	2.593+02	1.151-01	1.468+10	18	88	1.933+02	2.090-03	2.238+08
17	75	2.517+02	1.166-01	1.578+10	18	91	1.832+02	2.081-01	2.480+10
17	76	2.492+02	3.642-01	3.911+10	18	93	1.799+02	6.055-03	3.745+09
17	78	2.341+02	5.716-02	8.946+09	18	94	1.796+02	1.289-02	2.665+09
17	87	1.974+02	2.483-05	5.467+06	18	95	1.791+02	3.416-02	4.263+09
17	89	1.916+02	1.371-02	3.203+09	18	96	1.757+02	5.186-03	6.721+08
17	90	1.912+02	1.851-01	3.375+10	18	97	1.563+02	1.471-03	1.205+09
17	92	1.795+02	1.804-09	3.734+02	19	27	1.165+03	4.539-04	2.230+06
18	27	7.383+02	1.234-02	9.062+07	19	29	1.022+03	1.955-05	2.079+05
18	29	6.782+02	1.079-02	1.564+08	19	31	9.059+02	1.154-06	1.563+04
18	30	6.635+02	2.326-03	1.057+08	19	32	8.885+02	3.231-05	2.730+05
18	31	6.249+02	1.627-05	2.779+05	19	33	8.858+02	7.106-04	6.041+06
18	32	6.165+02	4.058-04	4.272+06	19	34	8.615+02	5.282-05	3.391+05
18	33	6.153+02	1.266-02	1.339+08	19	38	7.443+02	8.119-06	1.629+05
18	37	5.453+02	2.179-05	1.467+06	19	39	7.380+02	1.710-06	2.094+04
18	38	5.435+02	8.971-05	2.026+06	19	40	7.283+02	7.750-05	6.961+05
18	39	5.401+02	7.091-05	9.729+05	19	42	6.097+02	1.774-04	3.184+06
18	42	4.680+02	4.015-05	7.336+05	19	43	5.940+02	5.803-04	7.835+06
18	46	4.164+02	4.156-05	9.595+05	19	45	5.349+02	4.036-05	6.720+05
18	47	4.126+02	2.794-05	1.094+06	19	46	5.248+02	2.287-05	5.538+05
18	48	3.970+02	2.761-02	3.505+09	19	47	5.190+02	1.974-07	8.149+03
18	49	3.719+02	1.733-02	5.015+08	19	49	4.561+02	7.117-03	2.282+08
18	50	3.596+02	1.343-02	6.927+08	19	50	4.378+02	3.239-03	1.879+08
18	51	3.518+02	1.202-02	1.943+09	19	52	4.067+02	7.043-05	2.028+06

Table 2. Transition energies ($\AA$), oscillator strengths, and radiative rates (s^{-1}) for allowed transitions in Fe XIII.

i	j	ΔE_{ij}	f_{ij}	A_{ji}	i	j	ΔE_{ij}	f_{ij}	A_{ji}
19	55	3.962+02	2.062-05	1.460+06	20	49	4.696+02	5.803-03	1.053+08
19	56	3.948+02	1.280-04	5.480+06	20	50	4.503+02	2.760-03	9.078+07
19	57	3.919+02	5.970-04	1.852+07	20	51	4.380+02	3.471-03	3.620+08
19	59	3.678+02	2.155-02	7.591+08	20	55	4.064+02	2.218-03	8.958+07
19	60	3.546+02	2.410-03	1.279+08	20	56	4.049+02	2.889-04	7.054+06
19	61	3.482+02	8.502-03	3.341+08	20	60	3.627+02	1.976-03	6.011+07
19	62	3.464+02	1.468-03	1.360+08	20	62	3.542+02	2.002-02	1.064+09
19	63	3.433+02	1.392-02	7.879+08	20	63	3.510+02	2.132-02	6.927+08
19	66	3.373+02	3.276-02	1.372+09	20	65	3.448+02	1.776-02	2.989+09
19	67	3.353+02	1.430-02	1.413+09	20	67	3.426+02	8.585-05	4.878+06
19	68	3.315+02	1.171-02	7.112+08	20	68	3.386+02	1.059-02	3.697+08
19	69	3.286+02	9.645-03	9.932+08	20	69	3.355+02	4.010-04	2.376+07
19	70	3.146+02	1.068-02	1.199+09	20	70	3.210+02	1.961-02	1.269+09
19	71	3.075+02	3.104-05	3.648+06	20	71	3.137+02	2.995-03	2.031+08
19	72	3.070+02	9.816-04	6.950+07	20	72	3.130+02	7.738-06	3.160+05
19	73	3.008+02	1.733-02	9.126+08	20	74	3.000+02	1.197-01	5.322+09
19	74	2.945+02	7.908-03	6.084+08	20	77	2.907+02	6.560-03	3.107+08
19	75	2.906+02	7.549-02	4.259+09	20	79	2.695+02	3.435-01	1.892+10
19	77	2.854+02	7.874-03	6.447+08	20	80	2.676+02	3.484-02	3.245+09
19	78	2.674+02	3.701-01	2.467+10	20	81	2.668+02	3.762-02	2.115+09
19	79	2.650+02	3.934-02	3.735+09	20	82	2.552+02	2.342-03	2.399+08
19	80	2.632+02	7.424-04	1.192+08	20	83	2.551+02	7.721-04	2.375+08
19	81	2.624+02	3.054-02	2.959+09	20	84	2.379+02	6.042-02	4.272+09
19	82	2.511+02	7.641-03	1.347+09	20	85	2.350+02	1.306-01	1.577+10
19	84	2.344+02	1.345-01	1.633+10	20	86	2.336+02	3.215-04	1.179+08
19	85	2.315+02	5.456-05	1.132+07	20	88	2.168+02	2.095-01	1.784+10
19	87	2.205+02	6.607-02	6.475+09	20	91	2.042+02	6.062-04	5.819+07
19	88	2.138+02	1.270-02	1.853+09	20	93	2.000+02	3.251-01	1.627+11
19	89	2.133+02	8.009-02	8.384+09	20	94	1.997+02	2.906-02	4.863+09
19	91	2.016+02	5.825-02	9.562+09	20	95	1.990+02	1.529-01	1.544+10
19	94	1.972+02	2.342-01	6.696+10	20	96	1.949+02	5.582-04	5.880+07
19	95	1.966+02	2.447-01	4.225+10	20	97	1.712+02	2.756-03	1.880+09
19	96	1.925+02	7.493-02	1.348+10	21	29	1.166+03	1.817-04	2.972+05
20	27	1.258+03	4.680-05	1.183+05	21	31	1.017+03	8.119-06	1.746+04
20	29	1.093+03	4.056-04	2.264+06	21	38	8.176+02	1.921-04	6.388+05
20	30	1.056+03	3.002-05	5.390+05	21	47	5.536+02	2.947-04	2.138+06
20	31	9.610+02	1.722-06	1.244+04	21	50	4.622+02	1.411-02	1.468+08
20	32	9.415+02	5.804-05	2.620+05	21	55	4.161+02	1.218-03	1.564+07
20	33	9.385+02	2.009-05	9.131+04	21	62	3.615+02	4.416-02	7.514+08
20	37	7.848+02	1.812-05	5.886+05	21	67	3.495+02	2.321-02	4.226+08
20	38	7.811+02	1.228-06	1.343+04	21	69	3.421+02	4.298-03	8.166+07
20	39	7.742+02	9.677-05	6.462+05	21	70	3.270+02	1.940-02	4.034+08
20	42	6.342+02	1.571-03	1.563+07	21	71	3.194+02	1.462-02	3.187+08
20	46	5.429+02	7.812-06	1.061+05	21	80	2.718+02	5.868-01	1.766+10
20	47	5.366+02	3.776-05	8.747+05	21	82	2.590+02	1.955-02	6.479+08
20	48	5.104+02	4.081-04	3.134+07	21	85	2.382+02	1.576-01	6.176+09

Table 2. Transition energies ($\AA$), oscillator strengths, and radiative rates (s^{-1}) for allowed transitions in Fe XIII.

i	j	ΔE_{ij}	f_{ij}	A_{ji}	i	j	ΔE_{ij}	f_{ij}	A_{ji}
21	94	2.020+02	6.021-01	3.282+10	22	89	2.217+02	8.889-02	8.614+09
22	27	1.469+03	7.427-05	2.296+05	22	91	2.091+02	1.335-01	2.038+10
22	29	1.249+03	7.380-05	5.261+05	22	94	2.043+02	6.381-02	1.699+10
22	31	1.079+03	1.663-06	1.588+04	22	95	2.036+02	4.437-03	7.136+08
22	32	1.055+03	2.154-04	1.292+06	22	96	1.993+02	5.842-01	9.806+10
22	33	1.051+03	4.726-03	2.854+07	23	27	1.495+03	1.025-05	1.835+04
22	34	1.017+03	1.998-05	9.207+04	23	29	1.268+03	1.974-04	8.195+05
22	38	8.575+02	9.663-07	1.461+04	23	30	1.217+03	5.671-04	7.656+06
22	39	8.491+02	9.632-07	8.911+03	23	31	1.093+03	2.137-05	1.192+05
22	40	8.364+02	6.006-06	4.091+04	23	32	1.068+03	2.672-05	9.375+04
22	42	6.836+02	1.591-05	2.271+05	23	33	1.064+03	2.057-05	7.269+04
22	43	6.640+02	1.575-03	1.702+07	23	37	8.708+02	6.100-07	1.610+04
22	45	5.910+02	5.856-06	7.989+04	23	38	8.663+02	3.517-07	3.126+03
22	46	5.787+02	5.827-06	1.160+05	23	39	8.578+02	1.111-04	6.041+05
22	47	5.716+02	2.676-06	9.105+04	23	42	6.892+02	2.883-03	2.429+07
22	49	4.962+02	1.073-03	2.905+07	23	46	5.827+02	8.980-05	1.058+06
22	50	4.746+02	2.189-05	1.080+06	23	47	5.755+02	1.737-04	3.499+06
22	52	4.384+02	5.570-04	1.381+07	23	48	5.455+02	5.056-05	3.400+06
22	55	4.262+02	1.709-06	1.046+05	23	49	4.992+02	9.816-04	1.577+07
22	56	4.245+02	1.003-03	3.714+07	23	50	4.774+02	4.560-04	1.335+07
22	57	4.211+02	9.787-04	2.629+07	23	51	4.636+02	4.766-04	4.437+07
22	59	3.935+02	4.638-02	1.428+09	23	55	4.284+02	1.010-02	3.670+08
22	60	3.784+02	3.218-04	1.499+07	23	56	4.266+02	6.674-03	1.468+08
22	61	3.711+02	5.828-04	2.016+07	23	60	3.801+02	1.643-03	4.551+07
22	62	3.691+02	3.661-08	2.987+03	23	62	3.707+02	4.654-04	2.259+07
22	63	3.656+02	1.633-03	8.149+07	23	63	3.672+02	1.570-02	4.660+08
22	66	3.587+02	1.180-02	4.369+08	23	65	3.604+02	2.255-03	3.473+08
22	67	3.565+02	6.264-03	5.478+08	23	67	3.581+02	9.023-03	4.694+08
22	68	3.522+02	6.129-05	3.296+06	23	68	3.536+02	6.100-03	1.952+08
22	69	3.489+02	2.094-02	1.913+09	23	69	3.504+02	3.213-04	1.746+07
22	70	3.332+02	2.023-03	2.025+08	23	70	3.346+02	7.289-03	4.343+08
22	71	3.253+02	6.656-03	6.993+08	23	71	3.266+02	1.984-05	1.241+06
22	72	3.246+02	5.830-04	3.690+07	23	72	3.259+02	6.482-03	2.443+08
22	73	3.178+02	1.822-03	8.595+07	23	74	3.118+02	1.428-01	5.878+09
22	74	3.107+02	3.660-03	2.529+08	23	77	3.017+02	7.387-03	3.247+08
22	75	3.064+02	3.098-02	1.572+09	23	79	2.790+02	6.261-02	3.219+09
22	77	3.006+02	5.084-03	3.752+08	23	80	2.770+02	1.890-01	1.643+10
22	78	2.807+02	2.651-02	1.603+09	23	81	2.761+02	2.325-03	1.220+08
22	79	2.781+02	1.906-02	1.644+09	23	82	2.637+02	8.178-03	7.846+08
22	80	2.760+02	8.733-04	1.274+08	23	83	2.635+02	1.009-02	2.907+09
22	81	2.752+02	1.669-01	1.470+10	23	84	2.453+02	2.246-03	1.494+08
22	82	2.629+02	5.454-02	8.775+09	23	85	2.421+02	2.622-02	2.983+09
22	84	2.446+02	4.963-02	5.534+09	23	86	2.406+02	1.967-01	6.796+10
22	85	2.414+02	6.428-03	1.226+09	23	88	2.229+02	6.136-01	4.944+10
22	87	2.295+02	5.443-01	4.925+10	23	91	2.096+02	7.586-05	6.912+06
22	88	2.223+02	6.560-03	8.857+08	23	93	2.052+02	4.444-03	2.113+09

Table 2. Transition energies ($\AA$), oscillator strengths, and radiative rates (s^{-1}) for allowed transitions in Fe XIII.

i	j	ΔE_{ij}	f_{ij}	A_{ji}	i	j	ΔE_{ij}	f_{ij}	A_{ji}
23	94	2.048+02	2.183-01	3.471+10	24	85	2.441+02	2.284-01	4.263+10
23	95	2.041+02	1.049-01	1.007+10	24	87	2.318+02	2.698-02	2.392+09
23	96	1.998+02	3.501-03	3.510+08	24	88	2.245+02	6.882-02	9.109+09
23	97	1.750+02	8.927-04	5.832+08	24	89	2.239+02	5.624-01	5.344+10
24	27	1.572+03	1.844-04	4.979+05	24	91	2.110+02	1.744-04	2.613+07
24	29	1.322+03	5.807-04	3.693+06	24	94	2.062+02	3.362-02	8.791+09
24	31	1.134+03	8.349-06	7.222+04	24	95	2.055+02	2.531-01	3.997+10
24	32	1.107+03	8.716-07	4.748+03	24	96	2.011+02	5.710-02	9.415+09
24	33	1.102+03	2.242-04	1.231+06	25	27	1.573+03	6.659-04	2.513+06
24	34	1.065+03	4.515-05	1.897+05	25	32	1.107+03	1.132-09	8.622-00
24	38	8.915+02	5.762-08	8.060+02	25	33	1.103+03	9.742-05	7.476+05
24	39	8.824+02	1.116-05	9.557+04	25	34	1.066+03	1.273-06	7.480+03
24	40	8.687+02	1.686-04	1.064+06	25	35	1.012+03	6.683-05	3.385+05
24	42	7.050+02	3.251-04	4.363+06	25	39	8.829+02	1.259-06	1.509+04
24	43	6.842+02	2.592-03	2.638+07	25	40	8.691+02	2.537-05	2.240+05
24	45	6.069+02	2.182-05	2.822+05	25	41	8.477+02	2.930-04	2.116+06
24	46	5.940+02	2.459-04	4.650+06	25	42	7.053+02	3.052-06	5.729+04
24	47	5.865+02	4.070-05	1.316+06	25	43	6.844+02	2.244-04	3.195+06
24	49	5.074+02	1.109-03	2.873+07	25	44	6.555+02	5.440-03	6.568+07
24	50	4.849+02	1.323-05	6.258+05	25	45	6.071+02	2.609-04	4.722+06
24	52	4.471+02	2.714-07	6.469+03	25	46	5.942+02	6.128-05	1.621+06
24	55	4.344+02	1.464-03	8.628+07	25	49	5.076+02	1.932-04	7.003+06
24	56	4.326+02	8.872-03	3.162+08	25	52	4.472+02	4.365-05	1.456+06
24	57	4.292+02	5.866-03	1.517+08	25	53	4.440+02	4.035-05	1.062+06
24	59	4.005+02	8.026-04	2.385+07	25	56	4.328+02	6.497-04	3.240+07
24	60	3.848+02	1.662-03	7.487+07	25	57	4.293+02	1.180-02	4.269+08
24	61	3.773+02	3.338-03	1.117+08	25	58	4.211+02	1.752-04	5.126+06
24	62	3.753+02	3.754-04	2.963+07	25	59	4.005+02	2.718-04	1.130+07
24	63	3.716+02	1.095-04	5.288+06	25	60	3.849+02	1.442-04	9.091+06
24	66	3.645+02	1.370-02	4.912+08	25	61	3.774+02	2.853-03	1.336+08
24	67	3.623+02	4.099-03	3.472+08	25	63	3.717+02	3.474-04	2.348+07
24	68	3.578+02	9.363-03	4.879+08	25	64	3.672+02	1.789-03	6.884+07
24	69	3.544+02	1.227-03	1.086+08	25	66	3.646+02	1.557-03	7.815+07
24	70	3.383+02	3.890-03	3.779+08	25	68	3.578+02	1.565-02	1.142+09
24	71	3.301+02	1.019-03	1.040+08	25	72	3.294+02	6.577-09	5.659+02
24	72	3.294+02	5.938-04	3.651+07	25	73	3.224+02	2.528-05	1.622+06
24	73	3.223+02	1.888-02	8.660+08	25	74	3.151+02	2.410-04	2.267+07
24	74	3.150+02	1.024-02	6.882+08	25	75	3.107+02	1.377-02	9.514+08
24	75	3.106+02	1.148-01	5.671+09	25	76	3.069+02	2.283-01	1.258+10
24	77	3.047+02	4.910-03	3.527+08	25	77	3.048+02	8.883-05	8.931+06
24	78	2.842+02	6.603-02	3.895+09	25	78	2.843+02	1.148-01	9.479+09
24	79	2.816+02	1.219-01	1.026+10	25	79	2.816+02	1.227-02	1.444+09
24	80	2.795+02	1.934-02	2.752+09	25	81	2.786+02	1.713-03	2.060+08
24	81	2.786+02	3.935-02	3.382+09	25	84	2.473+02	2.554-01	3.900+10
24	82	2.660+02	1.623-04	2.550+07	25	87	2.319+02	2.873-03	3.564+08
24	84	2.473+02	2.402-03	2.621+08	25	88	2.245+02	1.425-03	2.640+08

Table 2. Transition energies ($\AA$), oscillator strengths, and radiative rates (s^{-1}) for allowed transitions in Fe XIII.

i	j	ΔE_{ij}	f_{ij}	A_{ji}	i	j	ΔE_{ij}	f_{ij}	A_{ji}
25	89	2.240+02	5.666-02	7.534+09	26	91	2.361+02	3.661-01	6.130+10
25	90	2.235+02	7.446-01	7.735+10	26	92	2.319+02	8.112-01	7.826+10
25	91	2.110+02	6.584-03	1.380+09	26	95	2.293+02	1.301-02	2.311+09
25	92	2.076+02	4.618-03	5.557+08	26	96	2.238+02	2.703-02	5.038+09
25	95	2.055+02	2.332-01	5.155+10	27	28	1.866+04	1.102-06	3.520+01
25	96	2.011+02	3.580-07	8.263+04	28	29	1.504+04	3.348-08	9.866-01
26	27	7.586+03	8.506-06	1.380+03	28	30	1.010+04	1.805-06	3.538+02
26	32	2.505+03	3.195-06	4.755+03	28	31	5.203+03	9.807-09	2.416-00
26	33	2.484+03	7.319-05	1.108+05	28	32	4.677+03	9.900-06	1.811+03
26	34	2.301+03	9.747-09	1.228+01	28	33	4.604+03	2.117-04	3.997+04
26	35	2.065+03	2.046-08	2.488+01	28	37	2.348+03	3.533-07	1.282+03
26	39	1.590+03	1.602-09	5.913-00	28	38	2.316+03	4.091-10	5.089-01
26	40	1.546+03	5.021-08	1.401+02	28	39	2.256+03	3.573-07	2.810+02
26	41	1.480+03	1.242-08	2.943+01	28	42	1.373+03	7.425-06	1.577+04
26	42	1.094+03	2.642-06	2.060+04	28	46	1.006+03	2.901-08	1.147+02
26	43	1.045+03	5.930-09	3.624+01	28	47	9.850+02	1.761-08	1.210+02
26	44	9.789+02	3.128-06	1.693+04	28	48	9.003+02	3.389-03	8.367+07
26	45	8.747+02	6.620-07	5.771+03	28	49	7.807+02	2.012-05	1.321+05
26	46	8.481+02	2.164-07	2.809+03	28	50	7.286+02	3.716-06	4.668+04
26	49	6.820+02	5.359-07	1.076+04	28	51	6.971+02	1.330-04	5.477+06
26	52	5.773+02	1.201-04	2.404+06	28	55	6.203+02	3.339-07	5.787+03
26	53	5.719+02	6.077-04	9.641+06	28	56	6.167+02	1.782-04	1.875+06
26	56	5.534+02	2.252-05	6.866+05	28	60	5.239+02	1.500-04	2.187+06
26	57	5.478+02	1.720-05	3.823+05	28	62	5.064+02	1.281-04	3.334+06
26	58	5.345+02	1.394-02	2.532+08	28	63	4.998+02	6.644-04	1.065+07
26	59	5.018+02	1.505-03	3.986+07	28	65	4.873+02	3.061-04	2.580+07
26	60	4.775+02	1.577-04	6.458+06	28	67	4.830+02	1.905-04	5.448+06
26	61	4.661+02	3.220-05	9.889+05	28	68	4.750+02	1.185-04	2.102+06
26	63	4.574+02	2.833-07	1.264+04	28	69	4.691+02	5.190-05	1.573+06
26	64	4.506+02	3.031-04	7.744+06	28	70	4.412+02	7.396-05	2.534+06
26	66	4.467+02	7.714-05	2.579+06	28	71	4.274+02	9.215-07	3.365+04
26	68	4.366+02	2.309-05	1.131+06	28	72	4.262+02	8.660-04	1.908+07
26	72	3.950+02	2.863-04	1.714+07	28	74	4.025+02	1.147-03	2.833+07
26	73	3.849+02	2.853-04	1.284+07	28	77	3.858+02	3.410-02	9.167+08
26	74	3.746+02	1.231-06	8.196+04	28	79	3.495+02	4.077-05	1.336+06
26	75	3.684+02	7.475-05	3.674+06	28	80	3.462+02	9.989-04	5.558+07
26	76	3.631+02	2.103-03	8.276+07	28	81	3.449+02	4.339-02	1.460+09
26	77	3.601+02	4.362-03	3.142+08	28	82	3.257+02	5.702-02	3.584+09
26	78	3.318+02	7.698-05	4.665+06	28	83	3.255+02	2.568-02	4.850+09
26	79	3.282+02	1.593-04	1.381+07	28	84	2.981+02	2.452-03	1.104+08
26	81	3.241+02	1.101-03	9.784+07	28	85	2.935+02	4.376-03	3.389+08
26	84	2.825+02	2.407-04	2.817+07	28	86	2.913+02	4.104-03	9.681+08
26	87	2.625+02	4.353-01	4.213+10	28	88	2.656+02	2.463-05	1.397+06
26	88	2.532+02	1.575-03	2.295+08	28	91	2.470+02	5.979-01	3.923+10
26	89	2.524+02	3.053-03	3.196+08	28	93	2.409+02	1.766-03	6.093+08
26	90	2.518+02	3.107-03	2.542+08	28	94	2.404+02	5.583-05	6.444+06
28	95	2.395+02	2.206-02	1.539+09	28	97	2.004+02	4.056-01	2.022+11
28	96	2.335+02	5.245-01	3.849+10					

Table 3. Comparison of oscillator strengths for some transitions of Fe XIII. ($a - b \equiv a \times 10^{-b}$).

Transition			GRASP	GRASP6	GRASP13	CIV3
1	-	7	0.0676	0.0649	0.0678	0.069
1	-	11	0.0524	0.0695	0.0525	0.053
1	-	15	0.1167	0.1917	0.1896	0.187
1	-	18	0.1099	0.0194	0.0193	0.025
1	-	20	0.8184	0.9485	0.8106	0.818
1	-	23	0.2185	0.2434	0.2121	0.202
1	-	28	0.0072	0.0081	0.0056	0.003
2	-	7	0.0068	0.0051	0.0063	0.007
2	-	8	0.0466	0.0443	0.0461	0.048
2	-	10	0.0209	0.0264	0.0204	0.020
2	-	11	0.0262	0.0328	0.0273	0.027
2	-	12	0.0118	0.0161	0.0109	0.011
2	-	13	0.0012	0.0019	0.0014	0.001
2	-	14	0.0013	0.0017	0.0014	1.4-3
2	-	15	0.0956	0.1615	0.1636	0.163
2	-	18	0.1206	0.0421	0.0414	0.045
2	-	19	0.3077	0.2618	0.2244	0.197
2	-	20	3.95-5	4.62-7	9.48-8	1.0-4
2	-	21	0.1009	0.1166	0.0993	0.098
2	-	22	0.1361	0.1905	0.1610	0.195
2	-	23	0.2599	0.2991	0.2553	0.255
2	-	24	0.2400	0.3290	0.2833	0.276
2	-	28	5.17-4	8.61-4	7.10-4	7.0-4
3	-	7	1.25-4	6.45-5	1.31-4	1.0-4
3	-	8	0.0011	4.85-4	9.95-4	0.001
3	-	9	0.0355	0.0317	0.0348	0.037
3	-	11	0.0100	0.0121	0.0089	0.009
3	-	12	0.0510	0.0620	0.0507	0.051
3	-	13	0.0012	2.76-4	9.77-4	0.001
3	-	14	8.34-4	0.0011	0.0010	1.1-3
3	-	15	0.1509	0.2040	0.1969	0.198
3	-	16	0.0030	0.0039	0.0034	0.003
3	-	18	0.0576	0.0050	0.0054	7.6-3
3	-	19	0.1259	0.1463	0.1300	0.126
3	-	20	0.0372	0.0041	0.0359	0.034
3	-	22	0.0325	2.83-5	2.83-4	0.000
3	-	23	0.0457	0.0522	0.0437	0.045
3	-	24	0.1928	0.2534	0.2136	0.214
3	-	25	0.6014	0.6865	0.5850	0.586
3	-	26	0.0211	0.0245	0.0233	0.023
3	-	28	3.27-5	2.23-4	1.47-6	0.000

Transition			GRASP	GRASP6	GRASP13	CIV3
4	-	7	3.87-4	5.26-4	4.11-4	4.0-4
4	-	8	2.08-4	1.39-4	2.23-4	2.0-4
4	-	9	0.0027	0.0023	0.0028	2.9-3
4	-	11	6.17-4	6.59-4	5.39-4	5.0-4
4	-	12	1.52-6	1.71-5	1.35-4	1.0-4
4	-	13	0.0760	0.0705	0.0790	0.084
4	-	14	0.0024	0.0032	0.0030	0.003
4	-	15	0.0509	0.0068	0.0045	5.6-3
4	-	16	3.15-4	3.88-4	3.02-4	2.0-4
4	-	18	0.1374	0.2050	0.1826	0.177
4	-	19	0.0317	0.1128	0.1007	0.127
4	-	20	0.0052	0.0049	0.0038	3.8-3
4	-	22	0.3634	0.3580	0.3247	0.292
4	-	23	0.0041	0.0048	0.0049	4.5-3
4	-	24	0.0873	0.0379	0.0347	0.038
4	-	25	0.0205	0.0229	0.0221	0.022
4	-	26	0.5849	0.6818	0.5759	0.573
4	-	28	0.0036	0.0056	3.10-4	8.0-4
5	-	7	4.10-4	4.44-4	2.67-4	2.0-4
5	-	11	0.0016	0.0026	0.0017	1.5-3
5	-	15	0.0432	0.0109	0.0164	0.018
5	-	18	0.0706	0.1452	0.1697	0.159
5	-	20	0.0019	0.0047	0.0018	0.001
5	-	23	2.80-4	0.0011	4.82-4	3.0-4
5	-	28	1.2380	1.2156	1.1314	1.106

GRASP: present results with $3s^2 3p^2$, $3s3p^3$, $3s^2 3p3d$, $3p^4$,$3s3p^2 3d$ and $3s^2 3d^2$ configurations
*GRASP*6: present results with $3s^2 3p^2$, $3s3p^3$, $3s^2 3p3d$, $3p^4$, $3s3p3d^2$ and $3p^3 3d$ configurations
*GRASP*13: present results with 13 configurations
*CIV*3: Gupta & Tayal (1998)

Table 4. Comparison of collision strengths for some transitions of Fe XIII. ($a\pm b \equiv 10^{a\pm b}$).

Index		15.0 Ryd			30.0 Ryd			45.0 Ryd		
i	j	AK	GT	FM	AK	GT	FM	AK	GT	FM
1	2	2.099-2	2.13-2	2.05-2	1.189-2	1.20-2	1.12-2	7.643-3	7.70-3	7.00-3
1	3	9.349-2	9.72-2	9.80-2	9.320-2	9.36-2	8.42-2	9.608-2	9.19-2	7.47-2
1	4	8.695-3	6.79-3	5.50-3	6.359-3	3.83-3	3.00-3	5.816-3	2.52-3	1.90-3
1	5	4.450-4	5.62-2	4.70-4	2.155-4	5.15-2	2.10-4	1.305-4	4.13-2	1.10-4
1	6	5.961-3	.....	5.50-3	3.404-3	.....	2.90-3	2.167-3	.....	1.70-3
1	7	3.263-1	3.61-1	4.73-1	3.839-1	3.97-1	5.44-1	4.224-1	4.25-1	5.96-1
1	8	8.787-3	9.86-3	8.40-3	5.014-3	5.32-3	4.50-3	3.174-3	3.29-3	2.70-3
1	9	1.832-3	1.87-3	1.00-3	1.896-3	1.96-3	9.00-4	2.004-3	2.08-3	8.00-4
1	10	5.967-4	7.19-4	6.00-4	3.411-4	3.83-4	3.00-4	2.148-4	2.34-4	2.00-4
1	11	2.017-1	2.25-1	2.89-1	2.380-1	2.50-1	3.34-1	2.630-1	2.68-1	3.67-1
1	12	2.904-3	3.86-3	2.80-3	1.640-3	2.07-3	1.40-3	1.038-3	1.28-3	9.00-4
1	13	5.740-3	5.52-3	4.90-3	3.159-3	3.00-3	2.60-3	1.964-3	1.85-3	1.60-3
1	14	6.923-3	6.59-3	6.30-3	3.631-3	3.44-3	3.20-3	2.226-3	2.07-3	1.90-3
1	15	3.014-1	5.52-1	6.88-1	3.574-1	6.24-1	8.03-1	3.970-1	6.67-1	8.90-1
1	16	1.753-2	1.70-2	1.58-2	1.884-2	1.88-2	1.47-2	2.031-2	2.04-2	1.35-2
1	17	1.894-3	1.97-3	1.80-3	1.000-3	1.07-3	9.00-4	6.141-4	6.63-4	6.00-4
1	18	2.591-1	6.87-2	7.37-2	3.082-1	7.80-2	8.64-2	3.436-1	8.35-2	9.58-2
1	19	6.875-3	6.04-3	5.00-3	3.404-3	2.99-3	2.50-3	2.060-3	1.78-3	1.40-3
1	20	1.662-0	1.82-0	2.71-0	1.980-0	2.12-0	3.20-0	2.216-0	2.28-0	3.57-0
1	21	3.465-4	3.69-4	2.50-4	1.651-4	1.87-4	1.30-4	9.500-5	1.11-4	8.00-5
1	22	1.736-3	1.97-3	2.30-3	9.186-4	9.87-4	1.20-3	5.661-4	5.81-4	7.00-4
1	23	4.017-1	4.38-1	1.69-1	4.775-1	5.08-1	1.99-1	5.343-1	5.47-1	2.23-1
1	24	2.599-3	3.10-3	1.40-3	1.353-3	1.68-3	7.00-4	8.449-4	1.07-3	4.00-4
1	25	8.073-3	8.30-3	6.80-3	7.265-3	7.69-3	5.70-3	7.131-3	7.59-3	5.00-3
1	26	3.915-3	4.12-3	3.60-3	2.051-3	2.18-3	1.90-3	1.310-3	1.38-3	1.20-3
1	27	4.054-2	.....	.....	4.422-2	.....	.....	4.618-2	.....	.....
1	28	1.232-2	7.51-3	8.30-3	1.416-2	7.92-3	9.00-3	1.578-2	8.25-3	9.70-3
2	3	2.178-1	2.13-1	2.08-1	2.175-1	1.95-1	1.70-1	2.390-1	1.86-1	1.47-1
2	4	3.948-2	3.97-2	3.99-2	2.864-2	2.79-2	2.70-2	2.416-2	2.25-2	2.08-2
2	5	2.414-3	2.32-3	2.60-3	1.166-3	1.11-3	1.20-3	6.833-4	6.36-4	7.00-4
2	6	2.198-2	.....	2.77-2	1.608-2	.....	2.28-2	1.342-2	.....	2.13-2
2	7	1.120-1	1.26-1	1.31-1	1.241-1	1.33-1	1.43-1	1.336-1	1.40-1	1.54-1
2	8	7.102-1	7.92-1	1.01-0	8.332-1	8.64-1	1.16-0	9.155-1	9.22-1	1.27-0
2	9	1.351-2	1.43-2	1.10-2	9.385-3	9.59-3	6.50-3	7.519-3	7.64-3	4.40-3
2	10	2.535-1	2.69-1	3.57-1	2.969-1	3.01-1	4.11-1	3.297-1	3.23-1	4.51-1
2	11	3.237-1	3.59-1	5.02-1	3.784-1	3.97-1	5.76-1	4.182-1	4.25-1	6.33-1
2	12	1.452-1	1.59-1	1.78-1	1.678-1	1.70-1	2.01-1	1.835-1	1.79-1	2.19-1

Index		15.0 Ryd			30.0 Ryd			45.0 Ryd		
i	j	AK	GT	FM	AK	GT	FM	AK	GT	FM
2	13	3.265-2	3.48-2	4.18-2	2.610-2	2.71-2	3.73-2	2.365-2	2.41-2	3.65-2
2	14	3.932-2	3.96-2	4.52-2	4.145-2	4.19-2	4.56-2	4.426-2	4.44-2	4.58-2
2	15	7.653-1	1.49-0	1.82-0	9.048-1	1.69-0	2.13-0	1.007-0	1.81-0	2.36-0
2	16	1.796-2	1.72-2	1.62-2	1.090-2	1.05-2	9.40-3	8.037-3	7.79-3	6.30-3
2	17	2.978-2	2.87-2	2.64-2	2.893-2	2.86-2	2.45-2	2.983-2	2.67-2	1.97-2
2	18	8.816-1	3.78-1	4.84-1	1.046-0	4.30-1	5.64-1	1.168-0	4.62-1	6.25-1
2	19	1.941-0	1.39-0	1.83-0	2.312-0	1.60-0	2.16-0	2.581-0	1.72-0	2.40-0
2	20	9.454-3	8.95-3	1.37-1	5.408-3	4.83-3	1.58-1	3.915-3	3.18-3	1.74-1
2	21	6.094-1	6.60-1	8.23-1	7.267-1	7.73-1	9.72-1	8.166-1	8.37-1	1.08-0
2	22	8.587-1	1.32-0	2.48-0	1.024-0	1.53-0	2.93-0	1.144-0	1.64-0	3.27-0
2	23	1.546-0	1.69-0	2.03-0	1.840-0	1.97-0	2.39-0	2.062-0	2.12-0	2.67-0
2	24	1.379-0	1.82-0	1.51-0	1.644-0	2.10-0	1.79-0	1.837-0	2.25-0	1.99-0
2	25	2.589-2	2.64-2	2.18-2	2.031-2	2.15-2	1.64-2	1.852-2	1.98-2	1.34-2
2	26	1.311-2	1.35-2	1.25-2	6.553-3	6.87-3	6.30-3	3.938-3	4.12-3	3.70-3
2	27	7.964-2	.....	.....	8.717-2	.....	.....	9.119-2	.....	.....
2	28	5.907-3	7.26-3	9.50-3	4.620-3	5.99-3	8.60-3	4.381-3	5.63-3	8.60-3
3	4	1.483-1	2.59-1	1.55-1	1.285-1	2.23-1	1.20-1	1.235-1	1.92-1	1.01-1
3	5	2.388-2	1.46-2	1.76-2	2.306-2	1.27-2	1.40-2	2.461-2	1.21-2	1.21-2
3	6	3.572-2	.....	4.60-2	2.749-2	.....	3.97-2	2.393-2	.....	3.79-2
3	7	7.201-3	8.46-3	7.10-3	7.493-3	8.73-3	7.30-3	7.936-3	9.11-3	7.40-3
3	8	4.403-2	4.98-2	3.79-2	4.317-2	4.73-2	3.55-2	4.413-2	4.75-2	3.55-2
3	9	9.490-1	1.08-0	1.31-0	1.099-0	1.15-0	1.49-0	1.202-0	1.22-0	1.62-0
3	10	2.676-3	2.98-3	2.70-3	1.515-3	1.59-3	1.40-3	9.585-4	9.77-4	8.00-4
3	11	2.128-1	2.11-1	2.54-1	2.450-1	2.35-1	2.88-1	2.709-1	2.52-1	3.15-1
3	12	1.080-0	1.18-0	1.55-0	1.265-0	1.32-0	1.78-0	1.399-0	1.41-0	1.95-0
3	13	5.988-2	6.02-2	5.85-2	4.921-2	4.69-2	4.78-2	4.535-2	4.16-2	4.40-2
3	14	3.568-2	3.88-2	4.92-2	3.208-2	3.58-2	4.74-2	3.177-2	3.53-2	4.77-2
3	15	2.072-0	3.10-0	3.91-0	2.446-0	3.54-0	4.55-0	2.740-0	3.82-0	5.04-0
3	16	8.373-2	8.81-2	1.20-1	8.676-2	9.00-2	1.27-1	9.174-2	9.30-2	1.33-1
3	17	5.551-2	5.29-2	4.81-2	4.957-2	4.84-2	3.80-2	4.904-2	4.83-2	3.22-2
3	18	7.100-1	1.23-1	1.26-1	8.342-1	1.33-1	1.41-1	9.331-1	1.41-1	1.53-1
3	19	1.364-0	1.54-0	1.73-0	1.618-0	1.77-0	2.03-0	1.810-0	1.91-0	2.26-0
3	20	3.888-1	4.12-1	2.68-1	4.573-1	4.77-1	3.11-1	5.122-1	5.16-1	3.44-1
3	21	2.553-3	2.49-3	1.70-3	1.338-3	1.22-3	8.00-4	8.600-4	7.32-4	4.00-4
3	22	3.621-1	1.51-2	8.46-2	4.239-1	8.08-3	9.16-2	4.722-1	5.12-3	9.90-2
3	23	4.887-1	5.26-1	8.74-1	5.758-1	6.10-1	1.03-0	6.454-1	6.62-1	1.14-0
3	24	1.949-0	2.42-0	3.25-0	2.317-0	2.91-0	3.83-0	2.594-0	3.03-0	4.27-0
3	25	6.063-0	6.57-0	8.48-0	7.274-0	7.57-0	1.00+1	8.103-0	8.08-0	1.12+1
3	26	2.170-1	2.43-1	3.38-1	2.457-1	2.70-1	3.86-1	2.683-1	2.84-1	4.26-1
3	27	7.317-2	.....	.....	7.934-2	.....	.....	8.239-2	.....	.....
3	28	7.614-3	8.02-3	1.05-2	4.631-3	4.80-3	7.50-3	3.669-3	3.62-3	6.30-3

Index		15.0 Ryd			30.0 Ryd			45.0 Ryd		
i	j	AK	GT	FM	AK	GT	FM	AK	GT	FM
4	5	2.972-1	3.11-1	3.08-1	3.049-1	3.12-1	2.72-1	3.132-1	3.12-1	2.45-1
4	6	1.867-3	.....	1.60-3	1.377-3	.....	9.00-4	1.159-3	.....	6.00-4
4	7	3.047-2	3.38-2	3.91-2	2.494-2	2.59-2	3.48-2	2.283-2	2.29-2	3.37-2
4	8	3.275-2	3.69-2	3.56-2	2.266-2	2.45-2	2.64-2	1.816-2	1.93-2	2.28-2
4	9	1.199-1	1.32-1	1.84-1	1.211-1	1.23-1	1.92-1	1.247-1	1.22-1	2.02-1
4	10	1.163-3	1.33-3	1.00-3	6.259-4	6.75-4	5.00-4	3.869-4	4.04-4	3.00-4
4	11	2.141-2	2.08-2	2.54-2	2.140-2	1.95-2	2.55-2	2.223-2	1.94-2	2.64-2
4	12	1.606-2	2.12-2	1.90-2	9.484-3	1.36-2	1.08-2	6.456-3	1.05-2	7.00-2
4	13	1.564-0	1.93-0	2.32-0	1.843-0	2.15-0	2.67-0	2.044-0	2.30-0	2.93-0
4	14	6.266-2	7.73-2	1.04-1	5.918-2	7.37-2	1.08-1	5.975-2	7.34-2	1.14-1
4	15	7.459-1	9.97-2	8.10-2	8.789-1	1.14-1	9.30-2	9.830-1	1.23-1	1.02-1
4	16	4.121-2	3.91-2	3.81-2	2.536-2	2.37-2	2.46-2	1.891-2	1.70-2	1.88-2
4	17	5.780-2	5.59-2	5.15-2	3.160-2	3.11-2	2.79-2	2.067-2	2.03-2	1.74-2
4	18	1.975-0	2.85-0	3.47-0	2.334-0	3.26-0	4.03-0	2.615-0	3.52-0	4.45-0
4	19	4.109-1	1.72-0	2.67-0	4.811-1	1.97-0	3.13-0	5.356-1	2.12-0	3.47-0
4	20	7.065-2	5.94-2	5.27-2	7.786-2	6.27-2	5.75-2	8.497-2	6.54-2	6.20-2
4	21	4.534-3	4.59-3	4.10-3	2.328-3	2.38-3	2.10-3	1.394-3	1.42-3	1.20-3
4	22	4.003-0	3.77-0	3.95-0	4.777-0	4.35-0	4.63-0	5.351-0	4.68-0	5.14-0
4	23	5.968-2	6.70-2	1.30-1	6.420-2	7.15-2	1.47-1	6.956-2	7.50-2	1.60-1
4	24	1.028-0	4.82-1	1.09-0	1.216-0	5.48-1	1.27-0	1.359-0	5.86-1	1.41-0
4	25	2.610-1	3.01-1	4.24-1	2.971-1	3.30-1	4.85-1	3.251-1	3.46-1	5.34-1
4	26	5.568-0	5.89-0	7.79-0	6.708-0	6.86-0	9.21-0	7.487-0	7.36-0	1.03+1
4	27	3.944-3	.....	.....	3.789-3	.....	.....	3.695-3	.....	.....
4	28	6.556-2	4.56-2	7.86-2	7.360-2	4.94-2	8.63-2	8.055-2	5.25-2	9.09-2
5	6	1.307-5	.....	0.00-0	7.332-6	.....	0.00-0	4.705-6	.....	0.00-0
5	7	3.651-3	2.28-3	2.80-3	4.194-3	2.44-3	3.10-3	4.585-3	2.58-3	3.40-3
5	8	2.996-4	3.26-4	3.10-4	1.535-4	1.67-4	1.50-4	9.010-5	9.69-5	9.00-5
5	9	3.202-4	3.12-4	2.40-4	1.808-4	1.75-4	1.20-4	1.278-4	1.19-4	7.00-5
5	10	4.111-3	4.42-3	3.70-3	2.334-3	2.36-3	2.00-3	1.473-3	1.45-3	1.20-3
5	11	2.116-2	2.25-2	2.84-2	1.815-2	1.78-2	2.62-2	1.714-2	1.61-2	2.59-2
5	12	1.393-2	1.50-2	1.19-2	7.871-3	8.00-3	6.20-3	4.965-3	4.91-3	3.70-3
5	13	2.996-3	3.17-3	2.30-3	1.746-3	1.82-3	1.20-3	1.122-3	1.20-3	7.00-4
5	14	3.165-3	3.27-3	2.50-3	1.664-3	1.75-3	1.30-3	1.013-3	1.08-3	8.00-4
5	15	1.529-1	7.97-2	1.16-1	1.817-1	8.80-2	1.33-1	2.014-1	9.37-2	1.46-1
5	16	6.035-3	6.05-3	5.00-3	3.355-3	3.39-3	2.70-3	2.224-3	2.23-3	1.70-3
5	17	1.058-2	1.05-2	9.00-3	5.514-3	5.59-3	4.70-3	3.363-3	3.43-3	2.80-3
5	18	2.394-1	6.18-1	8.71-1	2.852-1	6.90-1	1.00-0	3.165-1	7.38-1	1.11-0
5	19	3.406-3	3.65-3	1.60-3	1.813-3	2.12-3	8.00-4	1.148-3	1.45-3	5.00-4
5	20	7.535-3	5.69-3	7.40-3	7.304-3	4.88-3	7.90-3	7.453-3	4.58-3	8.30-3
5	21	1.455-3	1.37-3	1.20-3	7.282-4	7.20-4	6.00-4	4.315-4	4.40-4	4.00-4
5	22	4.092-3	4.45-3	1.90-3	2.630-3	2.60-3	9.00-4	1.979-3	1.81-3	5.00-4
5	23	2.759-3	3.03-3	3.40-3	1.778-3	2.09-3	2.50-3	1.453-3	1.73-3	2.20-3
5	24	3.227-3	2.89-3	2.90-3	1.566-3	1.38-3	1.40-3	9.308-4	7.95-4	8.00-4
5	25	2.239-3	2.37-3	2.20-3	9.121-4	1.01-3	1.00-3	4.648-4	5.21-4	5.00-4
5	26	2.024-2	2.02-2	1.90-2	2.212-2	2.30-2	1.92-2	2.381-2	2.49-2	1.81-2
5	27	1.924-4	.....	.....	1.928-4	.....	.....	1.937-4	.....	.....
5	28	2.503-0	2.56-0	3.21-0	3.002-0	2.99-0	3.77-0	3.367-0	3.22-0	4.20-0