Table 1. Energy levels for the lowest three configurations in Fe XII

Conf	Level	E Obs	E Th
$3s^2\,3p^3$	$^4S^\circ_{3/2}$	0	0
	$^2D^\circ_{3/2}$	41555	44477
	$^2D^\circ_{5/2}$	46088	49049
	$^2P^\circ_{1/2}$	74108	77755
	$^2P^\circ_{3/2}$	80515	84059
$3s\,3p^4$	$^4P_{5/2}$	274373	274093
	$^4P_{3/2}$	284005	283799
	$^4P_{1/2}$	288307	288194
	$^2D_{3/2}$	339761	343277
	$^2D_{5/2}$	341703	345171
	$^2P_{3/2}$	389668	396678
	$^2P_{1/2}$	394352	401278
	$^2S_{1/2}$	410401	417216
$3s^2\,3p^2\,3d$	$(^3P)\,^4F_{3/2}$	*420258*	435809
	$(^3P)\,^4F_{5/2}$	*424022*	439573
	$(^3P)\,^4F_{7/2}$	*429530*	445081
	$(^3P)\,^4F_{9/2}$	*436385*	451936
	$(^1D)\,^2F_{5/2}$	*437194*	452611
	$(^3P)\,^4D_{1/2}$	*440316*	455867
	$(^3P)\,^4D_{7/2}$	*440941*	456492
	$(^3P)\,^4D_{3/2}$	*441414*	456966
	$(^3P)\,^4D_{5/2}$	*446055*	461606
	$(^1D)\,^2F_{7/2}$	*455887*	471304
	$(^1D)\,^2G_{7/2}$	*491903*	507320
	$(^1D)\,^2G_{9/2}$	*494879*	510296
	$(^3P)\,^2P_{3/2}$	501800	513685
	$(^3P)\,^4P_{5/2}$	512510	524880
	$(^3P)\,^2P_{1/2}$	513850	525739
	$(^3P)\,^4P_{3/2}$	516740	528938
	$(^3P)\,^4P_{1/2}$	519770	531540
	$(^1S)\,^2D_{3/2}$	526120	539623
	$(^1S)\,^2D_{5/2}$	538040	550427
	$(^1D)\,^2D_{3/2}$	554030	567870
	$(^1D)\,^2D_{5/2}$	554610	569025
	$(^1D)\,^2P_{1/2}$	568940	587307
	$(^3P)\,^2F_{5/2}$	576740	593418
	$(^1D)\,^2P_{3/2}$	577740	595306
	$(^1D)\,^2S_{1/2}$	579630	593956
	$(^3P)\,^2F_{7/2}$	581180	597798
	$(^3P)\,^2D_{5/2}$	603930	621026
	$(^3P)\,^2D_{3/2}$	605480	622632

Table 3. Partial R-matrix and Coulomb-Bethe collision strengths for l=14,15,16 at E=100Ry

Trans	R14	C14	R15	C15	R16	C16
$3s^2\,3p^3\,{}^4S^o_{3/2} - 3s^2\,3p^2\,3d\,(^3P)\,{}^4P_{5/2}$	0.38716	0.39590	0.36047	0.36560	0.33675	0.33866
$3s^2\,3p^3\,{}^4S^o_{3/2} - 3s^2\,3p^2\,3d\,(^3P)\,{}^4P_{3/2}$	0.25832	0.26422	0.24053	0.24400	0.22473	0.22602
$3s^2\,3p^3\,{}^2D^o_{3/2} - 3s^2\,3p^2\,3d\,(^1D)\,{}^2D_{3/2}$	0.17466	0.17877	0.16261	0.16513	0.15166	0.15301
$3s^2\,3p^3\,{}^2D^o_{3/2} - 3s^2\,3p^2\,3d\,(^3P)\,{}^2F_{5/2}$	0.39483	0.40446	0.36736	0.37307	0.34285	0.34516
$3s^2\,3p^3\,{}^2D^o_{5/2} - 3s\,3p^4\,{}^2D_{5/2}$	0.06577	0.06681	0.06168	0.06232	0.05827	0.05836
$3s^2\,3p^3\,{}^2D^o_{5/2} - 3s\,3p^4\,{}^2P_{3/2}$	0.07828	0.07945	0.07330	0.07398	0.06882	0.06913
$3s^2\,3p^3\,{}^2D^o_{5/2} - 3s^2\,3p^2\,3d\,(^3P)\,{}^2P_{3/2}$	0.19621	0.19947	0.18303	0.18475	0.17080	0.17167
$3s^2\,3p^3\,{}^2D^o_{5/2} - 3s^2\,3p^2\,3d\,(^1D)\,{}^2D_{5/2}$	0.20486	0.20813	0.19060	0.19226	0.17793	0.17815
$3s^2\,3p^3\,{}^2D^o_{5/2} - 3s^2\,3p^2\,3d\,(^3P)\,{}^2F_{7/2}$	0.55998	0.57367	0.52110	0.52914	0.48617	0.48956
$3s^2\,3p^3\,{}^2P^o_{1/2} - 3s^2\,3p^2\,3d\,(^1D)\,{}^2S_{1/2}$	0.10689	0.10982	0.09960	0.10153	0.09322	0.09416
$3s^2\,3p^3\,{}^2P^o_{1/2} - 3s^2\,3p^2\,3d\,(^3P)\,{}^2D_{3/2}$	0.18992	0.19515	0.17675	0.18010	0.16508	0.16672
$3s^2\,3p^3\,{}^2P^o_{3/2} - 3s^2\,3p^2\,3d\,(^1D)\,{}^2P_{3/2}$	0.16892	0.17266	0.15741	0.15961	0.14747	0.14802
$3s^2\,3p^3\,{}^2P^o_{3/2} - 3s^2\,3p^2\,3d\,(^3P)\,{}^2D_{5/2}$	0.38133	0.38938	0.35488	0.35935	0.33116	0.33265

Table 4. Collision strengths for all electric dipole fine-structure transitions between the ground $3s^2\,3p^3$ and the first excited $3s\,3p^4$ configurations in FeXII

Trans	OP6	OT6	OF6	OP3	OT3
$^4S^o_{3/2} - {}^4P_{5/2}$	0.942	0.700	1.110	1.267	1.160
$^4S^o_{3/2} - {}^4P_{3/2}$	0.610	0.490	0.760	0.822	0.780
$^4S^o_{3/2} - {}^4P_{1/2}$	0.306	0.260	0.390	0.413	0.400
$^4S^o_{3/2} - {}^2D_{3/2}$	0.004	0.007	0.003	0.002	0.007
$^4S^o_{3/2} - {}^2D_{5/2}$	0.002	0.030	0.005	0.003	0.041
$^4S^o_{3/2} - {}^2P_{3/2}$	0.068	0.074	0.066	0.028	0.028
$^4S^o_{3/2} - {}^2P_{1/2}$	0.023	0.019	0.025	0.011	0.006
$^4S^o_{3/2} - {}^2S_{1/2}$	0.012	0.028	0.013	0.008	0.016
$^2D^o_{3/2} - {}^4P_{5/2}$	0.034	0.035	0.036	0.024	0.013
$^2D^o_{3/2} - {}^4P_{3/2}$	0.021	0.028	0.017	0.007	0.013
$^2D^o_{3/2} - {}^4P_{1/2}$	0.010	0.013	0.008	0.005	0.003
$^2D^o_{3/2} - {}^2D_{3/2}$	0.957	0.820	1.030	1.346	1.280
$^2D^o_{3/2} - {}^2D_{5/2}$	0.059	0.085	0.068	0.037	0.040
$^2D^o_{3/2} - {}^2P_{3/2}$	0.172	0.200	0.130	0.238	0.290
$^2D^o_{3/2} - {}^2P_{1/2}$	0.566	0.460	0.650	0.821	0.660
$^2D^o_{3/2} - {}^2S_{1/2}$	0.037	0.110	0.030	0.047	0.150
$^2D^o_{5/2} - {}^4P_{5/2}$	0.063	0.072	0.055	0.046	0.042
$^2D^o_{5/2} - {}^4P_{3/2}$	0.017	0.023	0.014	0.008	0.009
$^2D^o_{5/2} - {}^2D_{3/2}$	0.070	0.098	0.076	0.041	0.055
$^2D^o_{5/2} - {}^2D_{5/2}$	1.278	1.130	1.480	1.748	1.760
$^2D^o_{5/2} - {}^2P_{3/2}$	1.336	1.270	1.370	1.911	1.830
$^2P^o_{1/2} - {}^4P_{3/2}$	0.014	0.025	0.013	0.005	0.007
$^2P^o_{1/2} - {}^4P_{1/2}$	0.015	0.014	0.014	0.010	0.004
$^2P^o_{1/2} - {}^2D_{3/2}$	0.129	0.130	0.069	0.171	0.200
$^2P^o_{1/2} - {}^2P_{3/2}$	0.094	0.100	0.043	0.122	0.130
$^2P^o_{1/2} - {}^2P_{1/2}$	0.388	0.410	0.330	0.554	0.620
$^2P^o_{1/2} - {}^2S_{1/2}$	0.080	0.030	0.150	0.116	0.035
$^2P^o_{3/2} - {}^4P_{5/2}$	0.026	0.090	0.026	0.013	0.079
$^2P^o_{3/2} - {}^4P_{3/2}$	0.032	0.050	0.034	0.022	0.032
$^2P^o_{3/2} - {}^4P_{1/2}$	0.013	0.020	0.012	0.005	0.005
$^2P^o_{3/2} - {}^2D_{3/2}$	0.040	0.054	0.081	0.026	0.021
$^2P^o_{3/2} - {}^2D_{5/2}$	0.403	0.340	0.260	0.538	0.540
$^2P^o_{3/2} - {}^2P_{3/2}$	0.177	0.210	0.058	0.237	0.280
$^2P^o_{3/2} - {}^2P_{1/2}$	0.010	0.038	0.025	0.003	0.035
$^2P^o_{3/2} - {}^2S_{1/2}$	0.763	0.740	0.840	1.067	1.110

Table 5. Collision strengths for all electric dipole fine-structure transitions between the ground $3s^2\,3p^3$and the second excited $3s^2\,3p^2\,3d$configurations in FeXII

Trans.	OP	OF	Trans.	OP	OF
$^4S^o_{3/2} - (^3P)\,^4F_{3/2}$	0.035	0.033	$^2D^o_{5/2} - (^1D)\,^2F_{7/2}$	0.061	0.057
$^4S^o_{3/2} - (^3P)\,^4F_{5/2}$	0.050	0.047	$^2D^o_{5/2} - (^1D)\,^2G_{7/2}$	0.074	0.069
$^4S^o_{3/2} - (^1D)\,^2F_{5/2}$	0.038	0.025	$^2D^o_{5/2} - (^3P)\,^2P_{3/2}$	2.775	3.450
$^4S^o_{3/2} - (^3P)\,^4D_{1/2}$	0.007	0.006	$^2D^o_{5/2} - (^3P)\,^4P_{5/2}$	0.113	0.110
$^4S^o_{3/2} - (^3P)\,^4D_{3/2}$	0.025	0.023	$^2D^o_{5/2} - (^3P)\,^4P_{3/2}$	0.036	0.037
$^4S^o_{3/2} - (^3P)\,^4D_{5/2}$	0.026	0.037	$^2D^o_{5/2} - (^1S)\,^2D_{3/2}$	0.281	0.490
$^4S^o_{3/2} - (^3P)\,^2P_{3/2}$	0.017	0.100	$^2D^o_{5/2} - (^1S)\,^2D_{5/2}$	1.840	1.460
$^4S^o_{3/2} - (^3P)\,^4P_{5/2}$	5.089	6.600	$^2D^o_{5/2} - (^1D)\,^2D_{3/2}$	0.416	0.400
$^4S^o_{3/2} - (^3P)\,^2P_{1/2}$	0.056	0.790	$^2D^o_{5/2} - (^1D)\,^2D_{5/2}$	2.673	4.450
$^4S^o_{3/2} - (^3P)\,^4P_{3/2}$	3.397	3.950	$^2D^o_{5/2} - (^3P)\,^2F_{5/2}$	0.324	0.064
$^4S^o_{3/2} - (^3P)\,^4P_{1/2}$	1.698	1.510	$^2D^o_{5/2} - (^1D)\,^2P_{3/2}$	0.049	0.280
$^4S^o_{3/2} - (^1S)\,^2D_{3/2}$	0.118	0.540	$^2D^o_{5/2} - (^3P)\,^2F_{7/2}$	7.027	9.130
$^4S^o_{3/2} - (^1S)\,^2D_{5/2}$	0.122	0.150	$^2D^o_{5/2} - (^3P)\,^2D_{5/2}$	0.217	0.740
$^4S^o_{3/2} - (^1D)\,^2D_{3/2}$	0.001	0.001	$^2D^o_{5/2} - (^3P)\,^2D_{3/2}$	0.023	0.021
$^4S^o_{3/2} - (^1D)\,^2D_{5/2}$	0.005	0.009	$^2P^o_{1/2} - (^3P)\,^4F_{3/2}$	0.009	0.007
$^4S^o_{3/2} - (^1D)\,^2P_{1/2}$	0.001	0.005	$^2P^o_{1/2} - (^3P)\,^4D_{1/2}$	0.011	0.008
$^4S^o_{3/2} - (^3P)\,^2F_{5/2}$	0.033	0.026	$^2P^o_{1/2} - (^3P)\,^4D_{3/2}$	0.014	0.012
$^4S^o_{3/2} - (^1D)\,^2P_{3/2}$	0.007	0.008	$^2P^o_{1/2} - (^3P)\,^2P_{3/2}$	0.120	0.050
$^4S^o_{3/2} - (^1D)\,^2S_{1/2}$	0.005	0.0009	$^2P^o_{1/2} - (^3P)\,^2P_{1/2}$	0.299	0.052
$^4S^o_{3/2} - (^3P)\,^2D_{5/2}$	0.022	0.033	$^2P^o_{1/2} - (^3P)\,^4P_{3/2}$	0.004	0.009
$^4S^o_{3/2} - (^3P)\,^2D_{3/2}$	0.008	0.008	$^2P^o_{1/2} - (^3P)\,^4P_{1/2}$	0.012	0.031
$^2D^o_{3/2} - (^3P)\,^4F_{3/2}$	0.051	0.046	$^2P^o_{1/2} - (^1S)\,^2D_{3/2}$	0.014	0.014
$^2D^o_{3/2} - (^3P)\,^4F_{5/2}$	0.048	0.043	$^2P^o_{1/2} - (^1D)\,^2D_{3/2}$	0.313	0.127
$^2D^o_{3/2} - (^1D)\,^2F_{5/2}$	0.022	0.038	$^2P^o_{1/2} - (^1D)\,^2P_{1/2}$	0.005	1.630
$^2D^o_{3/2} - (^3P)\,^4D_{1/2}$	0.025	0.023	$^2P^o_{1/2} - (^1D)\,^2P_{3/2}$	0.762	0.850
$^2D^o_{3/2} - (^3P)\,^4D_{3/2}$	0.015	0.013	$^2P^o_{1/2} - (^1D)\,^2S_{1/2}$	1.392	0.310
$^2D^o_{3/2} - (^3P)\,^4D_{5/2}$	0.038	0.020	$^2P^o_{1/2} - (^3P)\,^2D_{3/2}$	2.379	3.240
$^2D^o_{3/2} - (^3P)\,^2P_{3/2}$	1.077	1.070	$^2P^o_{3/2} - (^3P)\,^4F_{3/2}$	0.003	0.003
$^2D^o_{3/2} - (^3P)\,^4P_{5/2}$	0.044	0.056	$^2P^o_{3/2} - (^3P)\,^4F_{5/2}$	0.007	0.006
$^2D^o_{3/2} - (^3P)\,^2P_{1/2}$	1.182	1.190	$^2P^o_{3/2} - (^1D)\,^2F_{5/2}$	0.033	0.005
$^2D^o_{3/2} - (^3P)\,^4P_{3/2}$	0.018	0.140	$^2P^o_{3/2} - (^3P)\,^4D_{1/2}$	0.015	0.012
$^2D^o_{3/2} - (^3P)\,^4P_{1/2}$	0.065	0.490	$^2P^o_{3/2} - (^3P)\,^4D_{3/2}$	0.018	0.014
$^2D^o_{3/2} - (^1S)\,^2D_{3/2}$	0.396	0.230	$^2P^o_{3/2} - (^3P)\,^4D_{5/2}$	0.007	0.029
$^2D^o_{3/2} - (^1S)\,^2D_{5/2}$	0.057	0.079	$^2P^o_{3/2} - (^3P)\,^2P_{3/2}$	0.369	0.064
$^2D^o_{3/2} - (^1D)\,^2D_{3/2}$	2.284	3.510	$^2P^o_{3/2} - (^3P)\,^4P_{5/2}$	0.011	0.017
$^2D^o_{3/2} - (^1D)\,^2D_{5/2}$	0.137	0.350	$^2P^o_{3/2} - (^3P)\,^2P_{1/2}$	0.556	0.270
$^2D^o_{3/2} - (^1D)\,^2P_{1/2}$	0.161	0.024	$^2P^o_{3/2} - (^3P)\,^4P_{3/2}$	0.017	0.023
$^2D^o_{3/2} - (^3P)\,^2F_{5/2}$	4.948	0.029	$^2P^o_{3/2} - (^3P)\,^4P_{1/2}$	0.015	0.190
$^2D^o_{3/2} - (^1D)\,^2P_{3/2}$	0.066	0.100	$^2P^o_{3/2} - (^1S)\,^2D_{3/2}$	0.056	0.049
$^2D^o_{3/2} - (^1D)\,^2S_{1/2}$	0.048	0.130	$^2P^o_{3/2} - (^1S)\,^2D_{5/2}$	0.235	0.100
$^2D^o_{3/2} - (^3P)\,^2D_{5/2}$	0.016	6.170	$^2P^o_{3/2} - (^1D)\,^2D_{3/2}$	0.026	0.030
$^2D^o_{3/2} - (^3P)\,^2D_{3/2}$	0.017	0.047	$^2P^o_{3/2} - (^1D)\,^2D_{5/2}$	0.406	0.380
$^2D^o_{5/2} - (^3P)\,^4F_{3/2}$	0.004	0.003	$^2P^o_{3/2} - (^1D)\,^2P_{1/2}$	1.302	0.440
$^2D^o_{5/2} - (^3P)\,^4F_{5/2}$	0.021	0.022	$^2P^o_{3/2} - (^3P)\,^2F_{5/2}$	0.024	6.280
$^2D^o_{5/2} - (^3P)\,^4F_{7/2}$	0.045	0.045	$^2P^o_{3/2} - (^1D)\,^2P_{3/2}$	2.212	2.760
$^2D^o_{5/2} - (^1D)\,^2F_{5/2}$	0.044	0.061	$^2P^o_{3/2} - (^1D)\,^2S_{1/2}$	0.012	1.660
$^2D^o_{5/2} - (^3P)\,^4D_{7/2}$	0.081	0.072	$^2P^o_{3/2} - (^3P)\,^2D_{5/2}$	4.801	0.031
$^2D^o_{5/2} - (^3P)\,^4D_{3/2}$	0.043	0.038	$^2P^o_{3/2} - (^3P)\,^2D_{3/2}$	0.772	0.720
$^2D^o_{5/2} - (^3P)\,^4D_{5/2}$	0.065	0.041			

Table 6. Effective collision strengths for all electric dipole fine-structure transitions between the ground $3s^2\,3p^3$ and the first excited $3s\,3p^4$ configurations in FeXII. Temperatures in the range $4x10^5$K-$3x10^6$K

Trans.	U04	U06	U08	U10	U12	U14	U16	U18	U20	U25	U30
$^4S^o_{3/2} - {}^4P_{5/2}$	0.8614	0.8920	0.9203	0.9457	0.9688	0.9898	1.0090	1.0270	1.0440	1.0820	1.1150
$^4S^o_{3/2} - {}^4P_{3/2}$	0.5652	0.5835	0.6009	0.6167	0.6312	0.6445	0.6568	0.6683	0.6790	0.7034	0.7248
$^4S^o_{3/2} - {}^4P_{1/2}$	0.2837	0.2930	0.3018	0.3098	0.3171	0.3238	0.3299	0.3357	0.3411	0.3533	0.3640
$^4S^o_{3/2} - {}^2D_{3/2}$	0.0049	0.0045	0.0042	0.0040	0.0038	0.0037	0.0036	0.0034	0.0033	0.0031	0.0030
$^4S^o_{3/2} - {}^2D_{5/2}$	0.0045	0.0039	0.0036	0.0034	0.0033	0.0032	0.0031	0.0031	0.0031	0.0030	0.0030
$^4S^o_{3/2} - {}^2P_{3/2}$	0.0771	0.0716	0.0675	0.0641	0.0612	0.0587	0.0565	0.0545	0.0527	0.0488	0.0456
$^4S^o_{3/2} - {}^2P_{1/2}$	0.0264	0.0244	0.0230	0.0219	0.0209	0.0201	0.0194	0.0188	0.0182	0.0170	0.0161
$^4S^o_{3/2} - {}^2S_{1/2}$	0.0124	0.0120	0.0116	0.0113	0.0111	0.0109	0.0107	0.0106	0.0104	0.0101	0.0099
$^2D^o_{3/2} - {}^4P_{5/2}$	0.0457	0.0418	0.0394	0.0376	0.0362	0.0351	0.0342	0.0334	0.0327	0.0313	0.0302
$^2D^o_{3/2} - {}^4P_{3/2}$	0.0331	0.0289	0.0262	0.0242	0.0226	0.0213	0.0202	0.0192	0.0183	0.0166	0.0152
$^2D^o_{3/2} - {}^4P_{1/2}$	0.0163	0.0142	0.0129	0.0120	0.0112	0.0106	0.0101	0.0097	0.0093	0.0085	0.0080
$^2D^o_{3/2} - {}^2D_{3/2}$	0.8267	0.8769	0.9183	0.9535	0.9841	1.0110	1.0360	1.0590	1.0790	1.1260	1.1660
$^2D^o_{3/2} - {}^2D_{5/2}$	0.0844	0.0758	0.0703	0.0664	0.0633	0.0609	0.0589	0.0571	0.0556	0.0525	0.0502
$^2D^o_{3/2} - {}^2P_{3/2}$	0.1869	0.1856	0.1869	0.1892	0.1918	0.1946	0.1973	0.2000	0.2026	0.2088	0.2145
$^2D^o_{3/2} - {}^2P_{1/2}$	0.5174	0.5445	0.5672	0.5869	0.6045	0.6204	0.6349	0.6484	0.6610	0.6893	0.7141
$^2D^o_{3/2} - {}^2S_{1/2}$	0.0463	0.0441	0.0432	0.0429	0.0428	0.0429	0.0430	0.0432	0.0435	0.0441	0.0448
$^2D^o_{5/2} - {}^4P_{5/2}$	0.0824	0.0757	0.0715	0.0685	0.0662	0.0643	0.0628	0.0615	0.0603	0.0580	0.0563
$^2D^o_{5/2} - {}^4P_{3/2}$	0.0305	0.0262	0.0235	0.0217	0.0203	0.0191	0.0182	0.0174	0.0167	0.0154	0.0143
$^2D^o_{5/2} - {}^2D_{3/2}$	0.1041	0.0922	0.0848	0.0796	0.0756	0.0724	0.0697	0.0674	0.0655	0.0615	0.0584
$^2D^o_{5/2} - {}^2D_{5/2}$	1.1570	1.2060	1.2500	1.2890	1.3230	1.3540	1.3830	1.4090	1.4330	1.4880	1.5360
$^2D^o_{5/2} - {}^2P_{3/2}$	1.2540	1.3060	1.3530	1.3950	1.4320	1.4670	1.4990	1.5280	1.5560	1.6190	1.6740
$^2P^o_{1/2} - {}^4P_{3/2}$	0.0213	0.0188	0.0171	0.0159	0.0149	0.0141	0.0133	0.0127	0.0122	0.0110	0.0101
$^2P^o_{1/2} - {}^4P_{1/2}$	0.0170	0.0163	0.0157	0.0152	0.0148	0.0145	0.0142	0.0139	0.0136	0.0131	0.0127
$^2P^o_{1/2} - {}^2D_{3/2}$	0.1308	0.1312	0.1330	0.1352	0.1375	0.1396	0.1417	0.1437	0.1456	0.1499	0.1538
$^2P^o_{1/2} - {}^2P_{3/2}$	0.0932	0.0945	0.0962	0.0978	0.0994	0.1010	0.1024	0.1038	0.1051	0.1081	0.1108
$^2P^o_{1/2} - {}^2P_{1/2}$	0.3362	0.3600	0.3782	0.3932	0.4061	0.4175	0.4277	0.4371	0.4457	0.4648	0.4812
$^2P^o_{1/2} - {}^2S_{1/2}$	0.0742	0.0779	0.0810	0.0837	0.0861	0.0883	0.0903	0.0922	0.0940	0.0979	0.1014
$^2P^o_{3/2} - {}^4P_{5/2}$	0.0480	0.0413	0.0371	0.0342	0.0320	0.0302	0.0288	0.0275	0.0265	0.0243	0.0227
$^2P^o_{3/2} - {}^4P_{3/2}$	0.0440	0.0400	0.0375	0.0356	0.0342	0.0331	0.0322	0.0314	0.0306	0.0292	0.0281
$^2P^o_{3/2} - {}^4P_{1/2}$	0.0222	0.0192	0.0174	0.0160	0.0150	0.0141	0.0134	0.0128	0.0122	0.0111	0.0103
$^2P^o_{3/2} - {}^2D_{3/2}$	0.0719	0.0617	0.0557	0.0516	0.0487	0.0463	0.0445	0.0429	0.0416	0.0391	0.0372
$^2P^o_{3/2} - {}^2D_{5/2}$	0.3843	0.3927	0.4026	0.4122	0.4211	0.4293	0.4370	0.4441	0.4507	0.4657	0.4789
$^2P^o_{3/2} - {}^2P_{3/2}$	0.1752	0.1783	0.1820	0.1857	0.1892	0.1925	0.1956	0.1985	0.2012	0.2075	0.2131
$^2P^o_{3/2} - {}^2P_{1/2}$	0.0377	0.0287	0.0238	0.0206	0.0183	0.0166	0.0152	0.0141	0.0132	0.0114	0.0101
$^2P^o_{3/2} - {}^2S_{1/2}$	0.7153	0.7455	0.7716	0.7944	0.8148	0.8333	0.8504	0.8662	0.8810	0.9143	0.9436

Table 7. Effective collision strengths for all electric dipole fine-structure transitions between the ground $3s^2\,3p^3$ and the first excited $3s\,3p^4$ configurations in FeXII. Temperatures in the range $4x10^6$K-10^7K

Trans.	U04	U05	U06	U07	U 08	U09	U10
$^4S^o_{3/2} - {}^4P_{5/2}$	1.1720	1.2190	1.2590	1.2950	1.3260	1.3550	1.3810
$^4S^o_{3/2} - {}^4P_{3/2}$	0.7613	0.7918	0.8180	0.8410	0.8615	0.8800	0.8969
$^4S^o_{3/2} - {}^4P_{1/2}$	0.3823	0.3976	0.4107	0.4223	0.4325	0.4418	0.4502
$^4S^o_{3/2} - {}^2D_{3/2}$	0.0028	0.0026	0.0025	0.0024	0.0023	0.0022	0.0022
$^4S^o_{3/2} - {}^2D_{5/2}$	0.0030	0.0031	0.0031	0.0032	0.0032	0.0032	0.0033
$^4S^o_{3/2} - {}^2P_{3/2}$	0.0408	0.0372	0.0344	0.0322	0.0304	0.0289	0.0277
$^4S^o_{3/2} - {}^2P_{1/2}$	0.0146	0.0135	0.0127	0.0120	0.0115	0.0110	0.0107
$^4S^o_{3/2} - {}^2S_{1/2}$	0.0095	0.0093	0.0091	0.0090	0.0089	0.0088	0.0088
$^2D^o_{3/2} - {}^4P_{5/2}$	0.0287	0.0277	0.0269	0.0264	0.0260	0.0257	0.0254
$^2D^o_{3/2} - {}^4P_{3/2}$	0.0132	0.0117	0.0106	0.0098	0.0091	0.0085	0.0080
$^2D^o_{3/2} - {}^4P_{1/2}$	0.0071	0.0065	0.0060	0.0057	0.0054	0.0051	0.0049
$^2D^o_{3/2} - {}^2D_{3/2}$	1.2330	1.2870	1.3340	1.3750	1.4110	1.4430	1.4730
$^2D^o_{3/2} - {}^2D_{5/2}$	0.0468	0.0445	0.0428	0.0415	0.0404	0.0397	0.0390
$^2D^o_{3/2} - {}^2P_{3/2}$	0.2247	0.2334	0.2410	0.2477	0.2537	0.2592	0.2642
$^2D^o_{3/2} - {}^2P_{1/2}$	0.7561	0.7910	0.8208	0.8469	0.8702	0.8911	0.9101
$^2D^o_{3/2} - {}^2S_{1/2}$	0.0460	0.0472	0.0483	0.0492	0.0501	0.0510	0.0517
$^2D^o_{5/2} - {}^4P_{5/2}$	0.0539	0.0522	0.0511	0.0503	0.0497	0.0492	0.0489
$^2D^o_{5/2} - {}^4P_{3/2}$	0.0128	0.0118	0.0110	0.0104	0.0100	0.0096	0.0093
$^2D^o_{5/2} - {}^2D_{3/2}$	0.0540	0.0510	0.0487	0.0470	0.0457	0.0446	0.0438
$^2D^o_{5/2} - {}^2D_{5/2}$	1.6160	1.6830	1.7400	1.7900	1.8350	1.8750	1.9110
$^2D^o_{5/2} - {}^2P_{3/2}$	1.7680	1.8460	1.9140	1.9720	2.0250	2.0720	2.1150
$^2P^o_{1/2} - {}^4P_{3/2}$	0.0088	0.0078	0.0070	0.0064	0.0059	0.0055	0.0052
$^2P^o_{1/2} - {}^4P_{1/2}$	0.0121	0.0116	0.0112	0.0110	0.0108	0.0106	0.0105
$^2P^o_{1/2} - {}^2D_{3/2}$	0.1605	0.1662	0.1711	0.1755	0.1794	0.1829	0.1862
$^2P^o_{1/2} - {}^2P_{3/2}$	0.1155	0.1195	0.1230	0.1262	0.1289	0.1315	0.1338
$^2P^o_{1/2} - {}^2P_{1/2}$	0.5087	0.5312	0.5503	0.5669	0.5816	0.5949	0.6069
$^2P^o_{1/2} - {}^2S_{1/2}$	0.1073	0.1121	0.1163	0.1199	0.1231	0.1260	0.1287
$^2P^o_{3/2} - {}^4P_{5/2}$	0.0203	0.0186	0.0174	0.0164	0.0157	0.0150	0.0145
$^2P^o_{3/2} - {}^4P_{3/2}$	0.0266	0.0255	0.0247	0.0242	0.0237	0.0234	0.0231
$^2P^o_{3/2} - {}^4P_{1/2}$	0.0090	0.0082	0.0075	0.0070	0.0065	0.0062	0.0059
$^2P^o_{3/2} - {}^2D_{3/2}$	0.0345	0.0327	0.0314	0.0305	0.0298	0.0292	0.0287
$^2P^o_{3/2} - {}^2D_{5/2}$	0.5012	0.5198	0.5357	0.5497	0.5622	0.5734	0.5836
$^2P^o_{3/2} - {}^2P_{3/2}$	0.2227	0.2308	0.2378	0.2439	0.2495	0.2545	0.2591
$^2P^o_{3/2} - {}^2P_{1/2}$	0.0084	0.0072	0.0063	0.0057	0.0052	0.0048	0.0044
$^2P^o_{3/2} - {}^2S_{1/2}$	0.9934	1.0350	1.0710	1.1020	1.1300	1.1550	1.1780

Table 8. Effective collision strengths for all electric dipole fine-structure transitions between the ground $3s^2\,3p^3$and the second excited $3s^2\,3p^2\,3d$configurations in FeXII. Temperatures in the range $4x10^5$K-$3x10^6$K

Trans.	U04	U06	U08	U10	U12	U14	U16	U18	U20	U35	U 30
$^4S^o_{3/2}$ – (^{3}P) $^4F_{3/2}$	0.0470	0.0426	0.0401	0.0385	0.0373	0.0364	0.0357	0.0352	0.0347	0.0339	0.0333
$^4S^o_{3/2}$ – (^{3}P) $^4F_{5/2}$	0.0684	0.0619	0.0584	0.0560	0.0544	0.0531	0.0522	0.0514	0.0508	0.0498	0.0490
$^4S^o_{3/2}$ – (^{1}D) $^2F_{5/2}$	0.0378	0.0377	0.0377	0.0378	0.0379	0.0381	0.0382	0.0384	0.0386	0.0392	0.0398
$^4S^o_{3/2}$ – (^{3}P) $^4D_{1/2}$	0.0082	0.0074	0.0069	0.0066	0.0063	0.0061	0.0059	0.0058	0.0056	0.0054	0.0052
$^4S^o_{3/2}$ – (^{3}P) $^4D_{3/2}$	0.0258	0.0254	0.0252	0.0251	0.0250	0.0251	0.0251	0.0252	0.0253	0.0255	0.0258
$^4S^o_{3/2}$ – (^{3}P) $^4D_{5/2}$	0.0280	0.0266	0.0257	0.0250	0.0245	0.0240	0.0236	0.0233	0.0230	0.0225	0.0221
$^4S^o_{3/2}$ – (^{3}P) $^2P_{3/2}$	0.0172	0.0171	0.0170	0.0170	0.0171	0.0171	0.0172	0.0173	0.0173	0.0176	0.0178
$^4S^o_{3/2}$ – (^{3}P) $^4P_{5/2}$	5.1850	5.3540	5.5130	5.6620	5.8030	5.9350	6.0610	6.1800	6.2940	6.5570	6.7940
$^4S^o_{3/2}$ – (^{3}P) $^2P_{1/2}$	0.0550	0.0575	0.0596	0.0615	0.0632	0.0649	0.0665	0.0680	0.0695	0.0729	0.0760
$^4S^o_{3/2}$ – (^{3}P) $^4P_{3/2}$	3.4660	3.5780	3.6830	3.7820	3.8750	3.9630	4.0470	4.1270	4.2020	4.3770	4.5350
$^4S^o_{3/2}$ – (^{3}P) $^4P_{1/2}$	1.7320	1.7890	1.8410	1.8910	1.9370	1.9810	2.0230	2.0630	2.1000	2.1880	2.2660
$^4S^o_{3/2}$ – (^{1}S) $^2D_{3/2}$	0.1213	0.1244	0.1273	0.1302	0.1329	0.1355	0.1381	0.1405	0.1427	0.1481	0.1530
$^4S^o_{3/2}$ – (^{1}S) $^2D_{5/2}$	0.1253	0.1285	0.1316	0.1347	0.1376	0.1403	0.1430	0.1455	0.1479	0.1536	0.1588
$^4S^o_{3/2}$ – (^{1}D) $^2D_{3/2}$	0.0011	0.0009	0.0008	0.0008	0.0007	0.0007	0.0006	0.0006	0.0006	0.0005	0.0005
$^4S^o_{3/2}$ – (^{1}D) $^2D_{5/2}$	0.0051	0.0052	0.0054	0.0055	0.0056	0.0057	0.0058	0.0059	0.0060	0.0062	0.0063
$^4S^o_{3/2}$ – (^{1}D) $^2P_{1/2}$	0.0012	0.0011	0.0010	0.0009	0.0009	0.0008	0.0008	0.0008	0.0007	0.0007	0.0006
$^4S^o_{3/2}$ – (^{3}P) $^2F_{5/2}$	0.0304	0.0300	0.0295	0.0290	0.0286	0.0282	0.0278	0.0275	0.0273	0.0267	0.0263
$^4S^o_{3/2}$ – (^{1}D) $^2P_{3/2}$	0.0074	0.0070	0.0066	0.0063	0.0061	0.0058	0.0056	0.0055	0.0053	0.0050	0.0048
$^4S^o_{3/2}$ – (^{1}D) $^2S_{1/2}$	0.0045	0.0042	0.0040	0.0038	0.0037	0.0036	0.0034	0.0033	0.0032	0.0030	0.0029
$^4S^o_{3/2}$ – (^{3}P) $^2D_{5/2}$	0.0220	0.0217	0.0214	0.0213	0.0212	0.0212	0.0211	0.0211	0.0211	0.0212	0.0213
$^4S^o_{3/2}$ – (^{3}P) $^2D_{3/2}$	0.0073	0.0069	0.0066	0.0064	0.0061	0.0059	0.0058	0.0056	0.0055	0.0052	0.0050
$^2D^o_{3/2}$ – (^{3}P) $^4F_{3/2}$	0.0588	0.0550	0.0524	0.0505	0.0489	0.0476	0.0465	0.0456	0.0448	0.0432	0.0419
$^2D^o_{3/2}$ – (^{3}P) $^4F_{5/2}$	0.0639	0.0568	0.0521	0.0485	0.0457	0.0433	0.0413	0.0396	0.0380	0.0348	0.0323
$^2D^o_{3/2}$ – (^{1}D) $^2F_{5/2}$	0.0401	0.0339	0.0302	0.0278	0.0260	0.0247	0.0236	0.0227	0.0219	0.0204	0.0194
$^2D^o_{3/2}$ – (^{3}P) $^4D_{1/2}$	0.0276	0.0270	0.0268	0.0267	0.0268	0.0268	0.0269	0.0270	0.0271	0.0274	0.0278
$^2D^o_{3/2}$ – (^{3}P) $^4D_{3/2}$	0.0246	0.0208	0.0185	0.0169	0.0156	0.0146	0.0137	0.0130	0.0124	0.0111	0.0101
$^2D^o_{3/2}$ – (^{3}P) $^4D_{5/2}$	0.0706	0.0601	0.0542	0.0504	0.0477	0.0457	0.0441	0.0429	0.0419	0.0400	0.0386
$^2D^o_{3/2}$ – (^{3}P) $^2P_{3/2}$	1.0500	1.0990	1.1390	1.1740	1.2060	1.2350	1.2620	1.2880	1.3120	1.3680	1.4170
$^2D^o_{3/2}$ – (^{3}P) $^4P_{5/2}$	0.0589	0.0541	0.0514	0.0497	0.0485	0.0478	0.0472	0.0468	0.0465	0.0461	0.0460
$^2D^o_{3/2}$ – (^{3}P) $^2P_{1/2}$	1.1860	1.2300	1.2690	1.3060	1.3390	1.3710	1.4010	1.4290	1.4550	1.5160	1.5710
$^2D^o_{3/2}$ – (^{3}P) $^4P_{3/2}$	0.0251	0.0229	0.0218	0.0212	0.0208	0.0205	0.0203	0.0202	0.0201	0.0200	0.0200
$^2D^o_{3/2}$ – (^{3}P) $^4P_{1/2}$	0.0755	0.0746	0.0750	0.0759	0.0771	0.0783	0.0796	0.0809	0.0821	0.0853	0.0882
$^2D^o_{3/2}$ – (^{1}S) $^2D_{3/2}$	0.4214	0.4294	0.4390	0.4488	0.4585	0.4679	0.4769	0.4855	0.4938	0.5130	0.5304
$^2D^o_{3/2}$ – (^{1}S) $^2D_{5/2}$	0.0604	0.0612	0.0623	0.0634	0.0645	0.0657	0.0667	0.0678	0.0688	0.0712	0.0734
$^2D^o_{3/2}$ – (^{1}D) $^2D_{3/2}$	2.3700	2.4440	2.5140	2.5810	2.6440	2.7040	2.7610	2.8150	2.8670	2.9860	3.0930
$^2D^o_{3/2}$ – (^{1}D) $^2D_{5/2}$	0.1344	0.1391	0.1430	0.1465	0.1497	0.1527	0.1555	0.1582	0.1607	0.1667	0.1721
$^2D^o_{3/2}$ – (^{1}D) $^2P_{1/2}$	0.1682	0.1731	0.1778	0.1823	0.1865	0.1905	0.1943	0.1979	0.2013	0.2091	0.2162
$^2D^o_{3/2}$ – (^{3}P) $^2F_{5/2}$	5.0850	5.2770	5.4500	5.6080	5.7570	5.8960	6.0270	6.1510	6.2700	6.5420	6.7870
$^2D^o_{3/2}$ – (^{1}D) $^2P_{3/2}$	0.0680	0.0688	0.0697	0.0706	0.0715	0.0724	0.0733	0.0741	0.0749	0.0768	0.0786
$^2D^o_{3/2}$ – (^{1}D) $^2S_{1/2}$	0.0501	0.0510	0.0520	0.0530	0.0540	0.0549	0.0559	0.0568	0.0576	0.0597	0.0615
$^2D^o_{3/2}$ – (^{3}P) $^2D_{5/2}$	0.0200	0.0182	0.0172	0.0165	0.0160	0.0156	0.0153	0.0150	0.0148	0.0144	0.0141
$^2D^o_{3/2}$ – (^{3}P) $^2D_{3/2}$	0.0265	0.0233	0.0217	0.0207	0.0201	0.0197	0.0193	0.0191	0.0189	0.0187	0.0185
$^2D^o_{5/2}$ – (^{3}P) $^4F_{3/2}$	0.0101	0.0080	0.0068	0.0060	0.0054	0.0050	0.0046	0.0043	0.0041	0.0036	0.0032
$^2D^o_{5/2}$ – (^{3}P) $^4F_{5/2}$	0.0324	0.0286	0.0262	0.0247	0.0235	0.0226	0.0218	0.0212	0.0207	0.0197	0.0190
$^2D^o_{5/2}$ – (^{3}P) $^4F_{7/2}$	0.0666	0.0582	0.0528	0.0490	0.0460	0.0436	0.0415	0.0398	0.0382	0.0351	0.0327
$^2D^o_{5/2}$ – (^{1}D) $^2F_{5/2}$	0.0633	0.0562	0.0520	0.0491	0.0470	0.0453	0.0439	0.0428	0.0418	0.0399	0.0386
$^2D^o_{5/2}$ – (^{3}P) $^4D_{7/2}$	0.1327	0.1146	0.1040	0.0969	0.0917	0.0877	0.0844	0.0818	0.0795	0.0751	0.0719
$^2D^o_{5/2}$ – (^{3}P) $^4D_{3/2}$	0.0470	0.0459	0.0454	0.0452	0.0451	0.0452	0.0452	0.0454	0.0455	0.0460	0.0465
$^2D^o_{5/2}$ – (^{3}P) $^4D_{5/2}$	0.1043	0.0900	0.0814	0.0754	0.0709	0.0673	0.0643	0.0619	0.0597	0.0554	0.0522
$^2D^o_{5/2}$ – (^{1}D) $^2F_{7/2}$	0.1120	0.0949	0.0851	0.0787	0.0740	0.0705	0.0677	0.0654	0.0634	0.0598	0.0571
$^2D^o_{5/2}$ – (^{1}D) $^2G_{7/2}$	0.0948	0.0862	0.0812	0.0779	0.0755	0.0736	0.0722	0.0710	0.0700	0.0682	0.0670
$^2D^o_{5/2}$ – (^{3}P) $^2P_{3/2}$	2.8410	2.9230	3.0040	3.0800	3.1530	3.2220	3.2870	3.3490	3.4080	3.5440	3.6660
$^2D^o_{5/2}$ – (^{3}P) $^4P_{5/2}$	0.1239	0.1229	0.1233	0.1241	0.1253	0.1266	0.1279	0.1293	0.1307	0.1341	0.1374
$^2D^o_{5/2}$ – (^{3}P) $^4P_{3/2}$	0.0423	0.0397	0.0381	0.0371	0.0363	0.0358	0.0353	0.0350	0.0347	0.0343	0.0341
$^2D^o_{5/2}$ – (^{1}S) $^2D_{3/2}$	0.2907	0.2985	0.3062	0.3137	0.3209	0.3277	0.3342	0.3404	0.3463	0.3601	0.3725
$^2D^o_{5/2}$ – (^{1}S) $^2D_{5/2}$	1.8590	1.9300	1.9940	2.0520	2.1060	2.1560	2.2040	2.2490	2.2920	2.3900	2.4780
$^2D^o_{5/2}$ – (^{1}D) $^2D_{3/2}$	0.4322	0.4428	0.4534	0.4637	0.4736	0.4831	0.4921	0.5008	0.5090	0.5283	0.5458
$^2D^o_{5/2}$ – (^{1}D) $^2D_{5/2}$	2.7760	2.8600	2.9420	3.0200	3.0930	3.1630	3.2300	3.2930	3.3540	3.4930	3.6190
$^2D^o_{5/2}$ – (^{3}P) $^2F_{5/2}$	0.3703	0.3678	0.3701	0.3742	0.3791	0.3843	0.3896	0.3949	0.4002	0.4128	0.4246
$^2D^o_{5/2}$ – (^{1}D) $^2P_{3/2}$	0.0502	0.0500	0.0501	0.0503	0.0505	0.0508	0.0511	0.0514	0.0517	0.0525	0.0533
$^2D^o_{5/2}$ – (^{3}P) $^2F_{7/2}$	7.3750	7.5980	7.8170	8.0250	8.2240	8.4130	8.5930	8.7650	8.9280	9.3070	9.6490
$^2D^o_{5/2}$ – (^{3}P) $^2D_{5/2}$	0.3200	0.2958	0.2860	0.2819	0.2807	0.2810	0.2822	0.2840	0.2861	0.2922	0.2986
$^2D^o_{5/2}$ – (^{3}P) $^2D_{3/2}$	0.0521	0.0430	0.0384	0.0356	0.0338	0.0325	0.0316	0.0309	0.0304	0.0295	0.0290

Table 9. Effective collision strengths for all electric dipole fine-structure transitions between the ground $3s^2\,3p^3$ and the second excited $3s\,3p^4$ configurations in FeXII. Temperatures in the range $4x10^6$K-10^7K

Trans.	U04	U05	U06	U07	U08	U09	U10
$^4S^o_{3/2}$ – (^{3}P) $^4F_{3/2}$	0.0326	0.0322	0.0320	0.0318	0.0318	0.0317	0.0316
$^4S^o_{3/2}$ – (^{3}P) $^4F_{5/2}$	0.0482	0.0478	0.0476	0.0475	0.0475	0.0475	0.0475
$^4S^o_{3/2}$ – (^{1}D) $^2F_{5/2}$	0.0409	0.0419	0.0429	0.0438	0.0447	0.0455	0.0462
$^4S^o_{3/2}$ – (^{3}P) $^4D_{1/2}$	0.0049	0.0048	0.0047	0.0046	0.0045	0.0045	0.0045
$^4S^o_{3/2}$ – (^{3}P) $^4D_{3/2}$	0.0264	0.0270	0.0276	0.0281	0.0286	0.0291	0.0295
$^4S^o_{3/2}$ – (^{3}P) $^4D_{5/2}$	0.0216	0.0213	0.0212	0.0211	0.0211	0.0212	0.0212
$^4S^o_{3/2}$ – (^{3}P) $^2P_{3/2}$	0.0183	0.0187	0.0192	0.0196	0.0200	0.0204	0.0207
$^4S^o_{3/2}$ – (^{3}P) $^4P_{5/2}$	7.2070	7.5590	7.8650	8.1350	8.3780	8.5980	8.8000
$^4S^o_{3/2}$ – (^{3}P) $^2P_{1/2}$	0.0815	0.0863	0.0905	0.0942	0.0976	0.1006	0.1034
$^4S^o_{3/2}$ – (^{3}P) $^4P_{3/2}$	4.8110	5.0450	5.2490	5.4290	5.5910	5.7380	5.8720
$^4S^o_{3/2}$ – (^{3}P) $^4P_{1/2}$	2.4030	2.5190	2.6210	2.7100	2.7900	2.8630	2.9300
$^4S^o_{3/2}$ – (^{1}S) $^2D_{3/2}$	0.1616	0.1690	0.1756	0.1814	0.1866	0.1914	0.1958
$^4S^o_{3/2}$ – (^{1}S) $^2D_{5/2}$	0.1679	0.1758	0.1827	0.1889	0.1944	0.1995	0.2042
$^4S^o_{3/2}$ – (^{1}D) $^2D_{3/2}$	0.0005	0.0004	0.0004	0.0004	0.0004	0.0003	0.0003
$^4S^o_{3/2}$ – (^{1}D) $^2D_{5/2}$	0.0067	0.0069	0.0072	0.0074	0.0076	0.0078	0.0080
$^4S^o_{3/2}$ – (^{1}D) $^2P_{1/2}$	0.0005	0.0005	0.0004	0.0004	0.0004	0.0003	0.0003
$^4S^o_{3/2}$ – (^{3}P) $^2F_{5/2}$	0.0258	0.0256	0.0254	0.0254	0.0254	0.0254	0.0255
$^4S^o_{3/2}$ – (^{1}D) $^2P_{3/2}$	0.0044	0.0041	0.0039	0.0038	0.0037	0.0036	0.0035
$^4S^o_{3/2}$ – (^{1}D) $^2S_{1/2}$	0.0027	0.0025	0.0024	0.0023	0.0022	0.0022	0.0021
$^4S^o_{3/2}$ – (^{3}P) $^2D_{5/2}$	0.0216	0.0219	0.0223	0.0226	0.0230	0.0233	0.0237
$^4S^o_{3/2}$ – (^{3}P) $^2D_{3/2}$	0.0047	0.0044	0.0043	0.0042	0.0041	0.0041	0.0040
$^2D^o_{3/2}$ – (^{3}P) $^4F_{3/2}$	0.0401	0.0390	0.0382	0.0376	0.0372	0.0370	0.0368
$^2D^o_{3/2}$ – (^{3}P) $^4F_{5/2}$	0.0285	0.0258	0.0237	0.0221	0.0208	0.0197	0.0188
$^2D^o_{3/2}$ – (^{1}D) $^2F_{5/2}$	0.0179	0.0169	0.0162	0.0156	0.0152	0.0149	0.0146
$^2D^o_{3/2}$ – (^{3}P) $^4D_{1/2}$	0.0284	0.0291	0.0297	0.0303	0.0308	0.0313	0.0318
$^2D^o_{3/2}$ – (^{3}P) $^4D_{3/2}$	0.0086	0.0076	0.0068	0.0062	0.0057	0.0053	0.0049
$^2D^o_{3/2}$ – (^{3}P) $^4D_{5/2}$	0.0370	0.0360	0.0353	0.0348	0.0345	0.0342	0.0340
$^2D^o_{3/2}$ – (^{3}P) $^2P_{3/2}$	1.5030	1.5750	1.6370	1.6920	1.7410	1.7850	1.8260
$^2D^o_{3/2}$ – (^{3}P) $^4P_{5/2}$	0.0461	0.0466	0.0472	0.0477	0.0484	0.0490	0.0496
$^2D^o_{3/2}$ – (^{3}P) $^2P_{1/2}$	1.6650	1.7440	1.8130	1.8740	1.9280	1.9760	2.0210
$^2D^o_{3/2}$ – (^{3}P) $^4P_{3/2}$	0.0202	0.0204	0.0207	0.0209	0.0212	0.0214	0.0217
$^2D^o_{3/2}$ – (^{3}P) $^4P_{1/2}$	0.0936	0.0983	0.1024	0.1062	0.1095	0.1126	0.1154
$^2D^o_{3/2}$ – (^{1}S) $^2D_{3/2}$	0.5607	0.5865	0.6089	0.6287	0.6464	0.6625	0.6772
$^2D^o_{3/2}$ – (^{1}S) $^2D_{5/2}$	0.0773	0.0806	0.0835	0.0861	0.0884	0.0906	0.0925
$^2D^o_{3/2}$ – (^{1}D) $^2D_{3/2}$	3.2800	3.4400	3.5780	3.7000	3.8100	3.9090	4.0000
$^2D^o_{3/2}$ – (^{1}D) $^2D_{5/2}$	0.1815	0.1896	0.1967	0.2029	0.2086	0.2137	0.2184
$^2D^o_{3/2}$ – (^{1}D) $^2P_{1/2}$	0.2285	0.2389	0.2479	0.2559	0.2631	0.2697	0.2757
$^2D^o_{3/2}$ – (^{3}P) $^2F_{5/2}$	7.2120	7.5740	7.8870	8.1640	8.4130	8.6380	8.8440
$^2D^o_{3/2}$ – (^{1}D) $^2P_{3/2}$	0.0818	0.0845	0.0870	0.0892	0.0912	0.0930	0.0946
$^2D^o_{3/2}$ – (^{1}D) $^2S_{1/2}$	0.0649	0.0678	0.0703	0.0726	0.0747	0.0766	0.0783
$^2D^o_{3/2}$ – (^{3}P) $^2D_{5/2}$	0.0137	0.0134	0.0133	0.0131	0.0131	0.0130	0.0129
$^2D^o_{3/2}$ – (^{3}P) $^2D_{3/2}$	0.0184	0.0184	0.0185	0.0186	0.0188	0.0189	0.0190
$^2D^o_{5/2}$ – (^{3}P) $^4F_{3/2}$	0.0028	0.0024	0.0022	0.0020	0.0019	0.0018	0.0017
$^2D^o_{5/2}$ – (^{3}P) $^4F_{5/2}$	0.0180	0.0174	0.0170	0.0167	0.0165	0.0164	0.0163
$^2D^o_{5/2}$ – (^{3}P) $^4F_{7/2}$	0.0292	0.0267	0.0249	0.0234	0.0223	0.0213	0.0206
$^2D^o_{5/2}$ – (^{1}D) $^2F_{5/2}$	0.0367	0.0355	0.0347	0.0342	0.0338	0.0335	0.0333
$^2D^o_{5/2}$ – (^{3}P) $^4D_{7/2}$	0.0675	0.0646	0.0626	0.0610	0.0598	0.0589	0.0581
$^2D^o_{5/2}$ – (^{3}P) $^4D_{3/2}$	0.0476	0.0486	0.0496	0.0505	0.0514	0.0522	0.0530
$^2D^o_{5/2}$ – (^{3}P) $^4D_{5/2}$	0.0475	0.0443	0.0419	0.0400	0.0385	0.0373	0.0363
$^2D^o_{5/2}$ – (^{1}D) $^2F_{7/2}$	0.0536	0.0512	0.0496	0.0484	0.0475	0.0467	0.0461
$^2D^o_{5/2}$ – (^{1}D) $^2G_{7/2}$	0.0656	0.0649	0.0646	0.0645	0.0646	0.0647	0.0650
$^2D^o_{5/2}$ – (^{3}P) $^2P_{3/2}$	3.8780	4.0570	4.2130	4.3510	4.4740	4.5860	4.6880
$^2D^o_{5/2}$ – (^{3}P) $^4P_{5/2}$	0.1435	0.1489	0.1538	0.1581	0.1621	0.1657	0.1691
$^2D^o_{5/2}$ – (^{3}P) $^4P_{3/2}$	0.0340	0.0341	0.0344	0.0347	0.0350	0.0354	0.0357
$^2D^o_{5/2}$ – (^{1}S) $^2D_{3/2}$	0.3942	0.4127	0.4288	0.4430	0.4558	0.4674	0.4781
$^2D^o_{5/2}$ – (^{1}S) $^2D_{5/2}$	2.6310	2.7600	2.8730	2.9710	3.0600	3.1400	3.2130
$^2D^o_{5/2}$ – (^{1}D) $^2D_{3/2}$	0.5765	0.6028	0.6258	0.6462	0.6645	0.6812	0.6965
$^2D^o_{5/2}$ – (^{1}D) $^2D_{5/2}$	3.8380	4.0240	4.1860	4.3290	4.4570	4.5730	4.6790
$^2D^o_{5/2}$ – (^{3}P) $^2F_{5/2}$	0.4458	0.4644	0.4808	0.4955	0.5088	0.5210	0.5322
$^2D^o_{5/2}$ – (^{1}D) $^2P_{3/2}$	0.0547	0.0561	0.0573	0.0585	0.0595	0.0605	0.0614
$^2D^o_{5/2}$ – (^{3}P) $^2F_{7/2}$	10.250	10.750	11.200	11.590	11.940	12.260	12.550
$^2D^o_{5/2}$ – (^{3}P) $^2D_{5/2}$	0.3112	0.3228	0.3334	0.3430	0.3518	0.3599	0.3673
$^2D^o_{5/2}$ – (^{3}P) $^2D_{3/2}$	0.0285	0.0283	0.0283	0.0284	0.0285	0.0286	0.0287

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