

STARK BROADENING PARAMETER TABLES FOR Sr I

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SUMMARY: Using a semiclassical approach, we have calculated electron-, proton-, and ionized helium-impact line widths and shifts for 33 Sr I multiplets as a function of temperature and perturber density.

1. INTRODUCTION

Strontium lines are present in solar and stellar spectra (see e.g. Komarov and Basak, 1993). They are also of interest since Sr is one of thermonuclear s - processes product in stars and its overabundance is observed in metal deficient barium stars (Šleivyte and Bartkevičius, 1995). In order to provide to astrophysicists the needed Stark broadening data, we have calculated within the semiclassical-perturbation formalism (Sahal–Bréchet, 1969ab) electron-, proton-, and ionized helium-impact line widths and shifts for 33 Sr I multiplets.

2. RESULTS AND DISCUSSION

We will publish elsewhere the analysis of obtained results and all details of calculations (Dimitrijević and Sahal–Bréchet, 1996). Here, we present only tables of Stark broadening parameters for astrophysical and laboratory plasma diagnostic purposes. Our results for 33 Sr I multiplets are shown in Table 1, for perturber densities 10^{13} cm⁻³ (for stellar plasma research) and 10^{15} – 10^{18} cm⁻³ (for laboratory plasma research) and temperatures $T = 2,500 - 50,000$ K. We also specify a parameter c (Dimitrijević and Sahal–Bréchet 1984), which gives an estimate

Table 1. This table shows electron-, proton-, and He II- impact broadening parameters for Sr I, for perturber densities of 10^{13} cm^{-3} and $10^{15} - 10^{18}$ cm^{-3} and temperatures from 2,500 up to 50,000 K. Transitions and averaged wavelengths for the multiplet (in Å) are also given. By using c [see Eq. (5) in Dimitrijević *et al.*, 1991], we obtain an estimate for the maximum perturber density for which the line may be treated as isolated and tabulated data may be used. The asterisk identifies cases for which the collision volume multiplied by the perturber density (the condition for validity of the impact approximation) lies between 0.1 and 0.5.

PERTURBER DENSITY= 1.E+13cm-3							
PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
7S - 7P	2500.	2.23	-1.41	0.440	-0.357	0.376	-0.284
216052.7Å	5000.	2.62	-1.39	0.481	-0.402	0.407	-0.321
C= 0.22E+19	10000.	3.03	-1.09	0.530	-0.453	0.442	-0.361
	20000.	3.61	-0.854	0.587	-0.509	0.484	-0.407
	30000.	3.85	-0.706	0.626	-0.545	0.511	-0.436
	50000.	4.00	-0.532	0.681	-0.594	0.548	-0.475
5P - 8S	2500.	0.450E-02	0.325E-02	0.988E-03	0.905E-03	0.789E-03	0.718E-03
5166.9Å	5000.	0.462E-02	0.302E-02	0.111E-02	0.103E-02	0.885E-03	0.818E-03
C= 0.32E+15	10000.	0.472E-02	0.238E-02	0.125E-02	0.116E-02	0.994E-03	0.928E-03
	20000.	0.466E-02	0.180E-02	0.142E-02	0.131E-02	0.112E-02	0.105E-02
	30000.	0.450E-02	0.142E-02	0.152E-02	0.141E-02	0.119E-02	0.112E-02
	50000.	0.427E-02	0.977E-03	0.168E-02	0.153E-02	0.130E-02	0.122E-02
6P - 8S	2500.	0.349E-01	0.244E-01	0.759E-02	0.695E-02	0.606E-02	0.551E-02
14380.1Å	5000.	0.363E-01	0.215E-01	0.854E-02	0.789E-02	0.680E-02	0.628E-02
C= 0.25E+16	10000.	0.378E-01	0.157E-01	0.961E-02	0.894E-02	0.764E-02	0.712E-02
	20000.	0.380E-01	0.111E-01	0.109E-01	0.101E-01	0.857E-02	0.803E-02
	30000.	0.369E-01	0.868E-02	0.117E-01	0.108E-01	0.917E-02	0.861E-02
	50000.	0.352E-01	0.524E-02	0.129E-01	0.118E-01	0.999E-02	0.940E-02
7P - 8S	2500.	0.378	0.259	0.805E-01	0.732E-01	0.646E-01	0.581E-01
46607.0Å	5000.	0.399	0.234	0.905E-01	0.832E-01	0.723E-01	0.662E-01
C= 0.26E+17	10000.	0.425	0.172	0.102	0.942E-01	0.810E-01	0.750E-01
	20000.	0.445	0.111	0.115	0.106	0.908E-01	0.846E-01
	30000.	0.441	0.866E-01	0.124	0.114	0.971E-01	0.908E-01
	50000.	0.429	0.465E-01	0.137	0.124	0.106	0.990E-01
5P - 6D	2500.	0.123E-02	-0.696E-03	0.283E-03	-0.231E-03	0.241E-03	-0.184E-03
5544.9Å	5000.	0.129E-02	-0.549E-03	0.311E-03	-0.260E-03	0.261E-03	-0.208E-03
C= 0.60E+15	10000.	0.141E-02	-0.356E-03	0.343E-03	-0.293E-03	0.284E-03	-0.234E-03
	20000.	0.150E-02	-0.207E-03	0.383E-03	-0.330E-03	0.311E-03	-0.264E-03
	30000.	0.154E-02	-0.130E-03	0.410E-03	-0.353E-03	0.329E-03	-0.282E-03
	50000.	0.158E-02	-0.672E-04	0.451E-03	-0.385E-03	0.353E-03	-0.308E-03
5P - 7D	2500.	0.124E-02	-0.632E-03	0.351E-03	-0.200E-03	0.330E-03	-0.159E-03
4966.9Å	5000.	0.142E-02	-0.506E-03	0.366E-03	-0.225E-03	0.340E-03	-0.180E-03
C= 0.77E+15	10000.	0.176E-02	-0.323E-03	0.386E-03	-0.254E-03	0.352E-03	-0.203E-03
	20000.	0.213E-02	-0.184E-03	0.411E-03	-0.285E-03	0.367E-03	-0.228E-03
	30000.	0.231E-02	-0.119E-03	0.428E-03	-0.306E-03	0.378E-03	-0.244E-03
	50000.	0.252E-02	-0.395E-04	0.454E-03	-0.333E-03	0.393E-03	-0.266E-03
5P - 8D	2500.	0.236E-02	-0.973E-03	0.645E-03	-0.364E-03	0.607E-03	-0.289E-03
4689.9Å	5000.	0.295E-02	-0.636E-03	0.673E-03	-0.412E-03	0.625E-03	-0.328E-03
C= 0.40E+15	10000.	0.372E-02	-0.387E-03	0.708E-03	-0.465E-03	0.647E-03	-0.371E-03
	20000.	0.440E-02	-0.169E-03	0.750E-03	-0.523E-03	0.675E-03	-0.418E-03
	30000.	0.477E-02	-0.772E-04	0.779E-03	-0.560E-03	0.695E-03	-0.448E-03
	50000.	0.510E-02	0.247E-04	0.821E-03	-0.611E-03	0.723E-03	-0.488E-03
6P - 6D	2500.	0.147E-01	-0.844E-02	0.316E-02	-0.258E-02	0.269E-02	-0.205E-02
17747.3Å	5000.	0.159E-01	-0.743E-02	0.347E-02	-0.290E-02	0.292E-02	-0.232E-02
C= 0.61E+16	10000.	0.172E-01	-0.522E-02	0.383E-02	-0.327E-02	0.317E-02	-0.261E-02
	20000.	0.187E-01	-0.348E-02	0.427E-02	-0.368E-02	0.348E-02	-0.294E-02
	30000.	0.191E-01	-0.230E-02	0.458E-02	-0.394E-02	0.367E-02	-0.315E-02
	50000.	0.195E-01	-0.141E-02	0.504E-02	-0.429E-02	0.394E-02	-0.343E-02

PERTURBER DENSITY= 1.E+13cm-3							
PERTURBERS ARE:							
TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
6P - 7D	2500.	0.937E-02	-0.517E-02	0.249E-02	-0.146E-02	0.232E-02	-0.116E-02
12931.2Å	5000.	0.109E-01	-0.427E-02	0.260E-02	-0.165E-02	0.240E-02	-0.132E-02
C= 0.52E+16	10000.	0.133E-01	-0.280E-02	0.275E-02	-0.186E-02	0.249E-02	-0.148E-02
	20000.	0.161E-01	-0.175E-02	0.294E-02	-0.209E-02	0.261E-02	-0.167E-02
	30000.	0.174E-01	-0.120E-02	0.307E-02	-0.224E-02	0.269E-02	-0.179E-02
	50000.	0.188E-01	-0.582E-03	0.327E-02	-0.244E-02	0.281E-02	-0.195E-02
6P - 8D	2500.	0.141E-01	-0.593E-02	0.375E-02	-0.213E-02	0.351E-02	-0.170E-02
11207.7Å	5000.	0.176E-01	-0.379E-02	0.391E-02	-0.242E-02	0.362E-02	-0.193E-02
C= 0.23E+16	10000.	0.222E-01	-0.247E-02	0.412E-02	-0.273E-02	0.376E-02	-0.218E-02
	20000.	0.263E-01	-0.691E-03	0.437E-02	-0.307E-02	0.392E-02	-0.245E-02
	30000.	0.285E-01	-0.206E-03	0.454E-02	-0.329E-02	0.404E-02	-0.263E-02
	50000.	0.304E-01	0.392E-03	0.479E-02	-0.358E-02	0.421E-02	-0.286E-02
7P - 7D	2500.	0.754E-01	-0.357E-01	0.185E-01	-0.994E-02	0.176E-01	-0.791E-02
34190.4Å	5000.	0.907E-01	-0.340E-01	0.192E-01	-0.112E-01	0.180E-01	-0.896E-02
C= 0.37E+17	10000.	0.112	-0.253E-01	0.202E-01	-0.126E-01	0.186E-01	-0.101E-01
	20000.	0.137	-0.196E-01	0.213E-01	-0.142E-01	0.193E-01	-0.114E-01
	30000.	0.150	-0.156E-01	0.222E-01	-0.152E-01	0.198E-01	-0.122E-01
	50000.	0.162	-0.108E-01	0.235E-01	-0.166E-01	0.205E-01	-0.133E-01
7P - 8D	2500.	0.704E-01	-0.280E-01	0.180E-01	-0.994E-02	0.170E-01	-0.790E-02
24307.2Å	5000.	0.888E-01	-0.202E-01	0.188E-01	-0.113E-01	0.175E-01	-0.897E-02
C= 0.11E+17	10000.	0.113	-0.153E-01	0.197E-01	-0.127E-01	0.181E-01	-0.101E-01
	20000.	0.136	-0.798E-02	0.208E-01	-0.143E-01	0.188E-01	-0.114E-01
	30000.	0.148	-0.549E-02	0.216E-01	-0.153E-01	0.193E-01	-0.122E-01
	50000.	0.158	-0.147E-02	0.228E-01	-0.167E-01	0.201E-01	-0.133E-01
5D - 6P	2500.	0.420	0.245	0.880E-01	0.667E-01	0.773E-01	0.532E-01
158972.4Å	5000.	0.460	0.236	0.952E-01	0.751E-01	0.823E-01	0.599E-01
C= 0.16E+19	10000.	0.489	0.175	0.104	0.844E-01	0.884E-01	0.674E-01
	20000.	0.531	0.136	0.114	0.949E-01	0.955E-01	0.758E-01
	30000.	0.540	0.114	0.121	0.102	0.100	0.812E-01
	50000.	0.540	0.834E-01	0.132	0.111	0.107	0.884E-01
6D - 7P	2500.	0.834	0.410	0.161	0.116	0.143	0.926E-01
121034.6Å	5000.	0.946	0.378	0.174	0.131	0.152	0.105
C= 0.28E+18	10000.	1.06	0.316	0.189	0.148	0.162	0.118
	20000.	1.19	0.225	0.207	0.166	0.174	0.133
	30000.	1.26	0.195	0.220	0.178	0.182	0.142
	50000.	1.31	0.155	0.241	0.194	0.193	0.155
6P - 5D	2500.	0.956E-01	-0.577E-01	0.232E-01	-0.146E-01	0.214E-01	-0.116E-01
90508.4Å	5000.	0.106	-0.542E-01	0.244E-01	-0.164E-01	0.222E-01	-0.131E-01
C= 0.91E+18	10000.	0.118	-0.478E-01	0.259E-01	-0.184E-01	0.233E-01	-0.147E-01
	20000.	0.136	-0.350E-01	0.278E-01	-0.207E-01	0.245E-01	-0.166E-01
	30000.	0.148	-0.298E-01	0.291E-01	-0.222E-01	0.254E-01	-0.177E-01
	50000.	0.156	-0.253E-01	0.309E-01	-0.241E-01	0.266E-01	-0.193E-01
4D - 7P	2500.	0.113E-02	0.818E-03	0.269E-03	0.222E-03	0.227E-03	0.177E-03
4719.6Å	5000.	0.119E-02	0.794E-03	0.295E-03	0.251E-03	0.247E-03	0.200E-03
C= 0.56E+15	10000.	0.125E-02	0.675E-03	0.326E-03	0.283E-03	0.270E-03	0.226E-03
	20000.	0.130E-02	0.515E-03	0.363E-03	0.318E-03	0.296E-03	0.254E-03
	30000.	0.130E-02	0.421E-03	0.387E-03	0.341E-03	0.314E-03	0.272E-03
	50000.	0.128E-02	0.311E-03	0.423E-03	0.371E-03	0.337E-03	0.297E-03
5D - 7P	2500.	0.279E-01	0.190E-01	0.631E-02	0.518E-02	0.536E-02	0.412E-02
22664.1Å	5000.	0.298E-01	0.183E-01	0.692E-02	0.585E-02	0.581E-02	0.467E-02
C= 0.13E+17	10000.	0.316E-01	0.156E-01	0.764E-02	0.659E-02	0.634E-02	0.526E-02
	20000.	0.331E-01	0.114E-01	0.849E-02	0.741E-02	0.695E-02	0.592E-02
	30000.	0.336E-01	0.924E-02	0.906E-02	0.794E-02	0.735E-02	0.634E-02
	50000.	0.337E-01	0.689E-02	0.990E-02	0.865E-02	0.790E-02	0.691E-02

PERTURBER DENSITY= 1.E+15cm-3							
PERTURBERS ARE:							
TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
5S - 5P 4608.6Å C= 0.33E+18	2500.	0.227E-02	0.326E-04	0.780E-03	-0.119E-03	0.778E-03	-0.944E-04
	5000.	0.229E-02	0.267E-03	0.782E-03	-0.133E-03	0.779E-03	-0.107E-03
	10000.	0.236E-02	0.419E-03	0.785E-03	-0.150E-03	0.780E-03	-0.120E-03
	20000.	0.258E-02	0.504E-03	0.791E-03	-0.175E-03	0.781E-03	-0.135E-03
	30000.	0.279E-02	0.430E-03	0.797E-03	-0.181E-03	0.781E-03	-0.145E-03
	50000.	0.316E-02	0.337E-03	0.809E-03	-0.197E-03	0.782E-03	-0.158E-03
5S - 6P 2932.7Å C= 0.54E+17	2500.	0.828E-02	0.623E-02	0.228E-02	0.160E-02	0.200E-02	0.125E-02
	5000.	0.901E-02	0.608E-02	0.246E-02	0.185E-02	0.213E-02	0.146E-02
	10000.	0.983E-02	0.473E-02	0.268E-02	0.211E-02	0.229E-02	0.168E-02
	20000.	0.108E-01	0.365E-02	0.294E-02	0.240E-02	0.247E-02	0.191E-02
	30000.	0.111E-01	0.316E-02	0.311E-02	0.258E-02	0.259E-02	0.206E-02
	50000.	0.112E-01	0.238E-02	0.337E-02	0.282E-02	0.276E-02	0.225E-02
5S - 7P 2570.2Å C= 0.31E+17	2500.	0.146E-01	0.421E-02	0.350E-02	0.921E-03	*0.345E-02	*0.724E-03
	5000.	0.183E-01	0.573E-02	0.354E-02	0.106E-02	0.349E-02	0.839E-03
	10000.	0.220E-01	0.673E-02	0.358E-02	0.121E-02	0.351E-02	0.960E-03
	20000.	0.252E-01	0.667E-02	0.365E-02	0.137E-02	0.354E-02	0.109E-02
	30000.	0.268E-01	0.603E-02	0.370E-02	0.148E-02	0.356E-02	0.117E-02
	50000.	0.283E-01	0.515E-02	0.378E-02	0.161E-02	0.359E-02	0.128E-02
6S - 6P 28517.3Å C= 0.51E+19	2500.	0.750	0.417	0.193	0.127	0.174	0.995E-01
	5000.	0.896	0.280	0.207	0.146	0.183	0.116
	10000.	1.12	0.148	0.223	0.167	0.194	0.132
	20000.	1.28	0.592E-01	0.243	0.189	0.208	0.151
	30000.	1.35	0.625E-02	0.256	0.204	0.216	0.162
	50000.	1.42	-0.203E-01	0.276	0.222	0.229	0.178
6S - 7P 12026.3Å C= 0.67E+18	2500.	0.312	0.810E-01	0.758E-01	0.149E-01	*0.751E-01	*0.117E-01
	5000.	0.393	0.105	0.764E-01	0.171E-01	0.758E-01	0.135E-01
	10000.	0.482	0.118	0.770E-01	0.194E-01	0.762E-01	0.154E-01
	20000.	0.572	0.974E-01	0.778E-01	0.220E-01	0.765E-01	0.175E-01
	30000.	0.623	0.910E-01	0.786E-01	0.237E-01	0.766E-01	0.188E-01
	50000.	0.672	0.876E-01	0.799E-01	0.262E-01	0.769E-01	0.205E-01
5P - 6S 11244.4Å C= 0.20E+19	2500.	0.538E-01	0.355E-01	0.113E-01	0.948E-02	0.935E-02	0.749E-02
	5000.	0.608E-01	0.423E-01	0.125E-01	0.108E-01	0.103E-01	0.860E-02
	10000.	0.663E-01	0.486E-01	0.139E-01	0.123E-01	0.114E-01	0.979E-02
	20000.	0.707E-01	0.491E-01	0.155E-01	0.139E-01	0.126E-01	0.111E-01
	30000.	0.734E-01	0.452E-01	0.165E-01	0.149E-01	0.134E-01	0.119E-01
	50000.	0.790E-01	0.375E-01	0.179E-01	0.163E-01	0.144E-01	0.130E-01
5P - 7S 5971.7Å C= 0.17E+18	2500.	0.149	0.107	*0.308E-01	*0.247E-01	*0.246E-01	*0.189E-01
	5000.	0.161	0.118	0.346E-01	0.296E-01	*0.276E-01	*0.230E-01
	10000.	0.166	0.114	0.389E-01	0.345E-01	*0.310E-01	*0.272E-01
	20000.	0.170	0.969E-01	0.438E-01	0.397E-01	0.348E-01	0.314E-01
	30000.	0.172	0.828E-01	0.470E-01	0.428E-01	0.373E-01	0.340E-01
	50000.	0.172	0.666E-01	0.515E-01	0.471E-01	0.406E-01	0.374E-01
5P - 8S 5166.9Å C= 0.32E+17	2500.	0.450	0.299				
	5000.	0.462	0.287				
	10000.	0.472	0.236	*0.125	*0.103		
	20000.	0.466	0.179	*0.141	*0.122		
	30000.	0.450	0.142	*0.152	*0.133		
	50000.	0.427	0.977E-01	*0.168	*0.147	*0.130	*0.117
6P - 7S 23011.7Å C= 0.25E+19	2500.	2.23	1.45	0.427	0.339	*0.344	*0.260
	5000.	2.55	1.56	0.478	0.405	*0.385	*0.316
	10000.	2.79	1.51	0.536	0.471	0.430	0.371
	20000.	3.00	1.28	0.603	0.541	0.481	0.428
	30000.	3.09	1.11	0.647	0.584	0.514	0.464
	50000.	3.12	0.900	0.710	0.641	0.558	0.510

PERTURBER DENSITY= 1.E+15cm-3							
PERTURBERS ARE:		ELECTRONS		PROTONS		IONIZED HELIUM	
TRANSITION	T(K)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
6P - 8S	2500.	3.49	2.27				
14380.1Å	5000.	3.63	2.08				
C= 0.25E+18	10000.	3.78	1.56	*0.961	*0.792		
	20000.	3.80	1.10	* 1.09	*0.935		
	30000.	3.69	0.861	* 1.17	* 1.02		
	50000.	3.52	0.524	* 1.29	* 1.13	*0.998	*0.895
5P - 5D	2500.	0.498E-01	-0.233E-01	0.107E-01	-0.717E-02	0.958E-02	-0.564E-02
7675.2Å	5000.	0.516E-01	-0.162E-01	0.115E-01	-0.824E-02	0.101E-01	-0.652E-02
C= 0.37E+18	10000.	0.564E-01	-0.988E-02	0.124E-01	-0.939E-02	0.107E-01	-0.746E-02
	20000.	0.582E-01	-0.530E-02	0.135E-01	-0.106E-01	0.115E-01	-0.847E-02
	30000.	0.590E-01	-0.366E-02	0.143E-01	-0.114E-01	0.120E-01	-0.911E-02
	50000.	0.600E-01	-0.242E-02	0.155E-01	-0.125E-01	0.127E-01	-0.996E-02
5P - 6D	2500.	0.123	-0.666E-01	*0.282E-01	-0.200E-01	*0.239E-01	-0.153E-01
5544.9Å	5000.	0.129	-0.531E-01	0.310E-01	-0.239E-01	*0.260E-01	-0.186E-01
C= 0.60E+17	10000.	0.141	-0.350E-01	0.343E-01	-0.278E-01	*0.284E-01	-0.219E-01
	20000.	0.150	-0.206E-01	0.383E-01	-0.319E-01	0.311E-01	-0.253E-01
	30000.	0.154	-0.129E-01	0.410E-01	-0.344E-01	0.329E-01	-0.273E-01
	50000.	0.158	-0.668E-02	0.451E-01	-0.378E-01	0.353E-01	-0.301E-01
5P - 7D	2500.	0.124	-0.605E-01	*0.347E-01	-0.172E-01		
4966.9Å	5000.	0.142	-0.490E-01	*0.365E-01	-0.206E-01	*0.337E-01	-0.160E-01
C= 0.77E+17	10000.	0.176	-0.317E-01	0.385E-01	-0.240E-01	*0.351E-01	-0.189E-01
	20000.	0.213	-0.183E-01	0.410E-01	-0.276E-01	*0.367E-01	-0.218E-01
	30000.	0.231	-0.118E-01	0.428E-01	-0.298E-01	*0.378E-01	-0.236E-01
	50000.	0.252	-0.390E-02	0.454E-01	-0.327E-01	0.393E-01	-0.260E-01
5P - 8D	2500.	0.236	-0.910E-01				
4689.9Å	5000.	0.295	-0.594E-01	*0.667E-01	-0.360E-01		
C= 0.40E+17	10000.	0.372	-0.382E-01	*0.706E-01	-0.428E-01		
	20000.	0.440	-0.166E-01	*0.749E-01	-0.497E-01	*0.674E-01	-0.392E-01
	30000.	0.477	-0.750E-02	*0.778E-01	-0.539E-01	*0.694E-01	-0.427E-01
	50000.	0.510	0.247E-02	0.820E-01	-0.595E-01	*0.722E-01	-0.472E-01
6P - 6D	2500.	1.47	-0.809	*0.315	-0.221	*0.267	-0.169
17747.3Å	5000.	1.59	-0.721	0.347	-0.265	*0.291	-0.206
C= 0.61E+18	10000.	1.72	-0.511	0.383	-0.309	*0.317	-0.243
	20000.	1.87	-0.345	0.427	-0.355	0.347	-0.281
	30000.	1.91	-0.229	0.458	-0.384	0.367	-0.304
	50000.	1.95	-0.140	0.504	-0.421	0.394	-0.335
6P - 7D	2500.	0.937	-0.497	*0.245	-0.125		
12931.2Å	5000.	1.09	-0.415	*0.259	-0.150	*0.238	-0.117
C= 0.52E+18	10000.	1.33	-0.275	0.275	-0.175	*0.248	-0.138
	20000.	1.61	-0.175	0.294	-0.201	*0.261	-0.159
	30000.	1.74	-0.119	0.307	-0.218	*0.269	-0.173
	50000.	1.88	-0.579E-01	0.327	-0.239	0.281	-0.190
6P - 8D	2500.	1.41	-0.557				
11207.7Å	5000.	1.76	-0.363	*0.388	-0.211		
C= 0.23E+18	10000.	2.22	-0.237	*0.410	-0.251		
	20000.	2.63	-0.674E-01	*0.436	-0.292	*0.391	-0.230
	30000.	2.85	-0.193E-01	*0.454	-0.316	*0.403	-0.250
	50000.	3.04	0.399E-01	*0.479	-0.349	*0.420	-0.277
7P - 7D	2500.	7.54	-3.50	* 1.82	-0.852		
34190.4Å	5000.	9.07	-3.36	* 1.91	-1.02	* 1.78	-0.795
C= 0.37E+19	10000.	11.2	-2.52	* 2.01	-1.19	* 1.85	-0.938
	20000.	13.7	-1.96	2.13	-1.37	* 1.92	-1.09
	30000.	15.0	-1.56	2.22	-1.48	* 1.97	-1.18
	50000.	16.2	-1.08	2.35	-1.63	2.05	-1.29

PERTURBER DENSITY= 1.E+15cm-3							
PERTURBERS ARE:							
TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
7P - 8D	2500.	7.04	-2.63				
24307.2Å	5000.	8.88	-1.95	* 1.86	-0.983		
C= 0.11E+19	10000.	11.3	-1.51	* 1.96	-1.17		
	20000.	13.6	- 0.791	* 2.08	-1.36	* 1.88	-1.07
	30000.	14.8	- 0.549	* 2.16	-1.47	* 1.93	-1.17
	50000.	15.8	- 0.147	* 2.28	-1.62	* 2.01	-1.29
4D - 5P	2500.	0.535	-0.197E-01	0.161	-0.337E-01	0.160	-0.268E-01
64566.9Å	5000.	0.590	0.310E-01	0.162	-0.380E-01	0.161	-0.304E-01
C= 0.65E+20	10000.	0.637	0.970E-01	0.163	-0.428E-01	0.161	-0.342E-01
	20000.	0.669	0.154	0.166	-0.482E-01	0.161	-0.385E-01
	30000.	0.684	0.174	0.168	-0.516E-01	0.162	-0.412E-01
	50000.	0.702	0.179	0.173	-0.562E-01	0.162	-0.449E-01
4D - 6P	2500.	0.502E-01	0.371E-01	0.136E-01	0.954E-02	0.120E-01	0.747E-02
7169.1Å	5000.	0.551E-01	0.365E-01	0.147E-01	0.110E-01	0.128E-01	0.870E-02
C= 0.32E+18	10000.	0.603E-01	0.292E-01	0.160E-01	0.126E-01	0.137E-01	0.100E-01
	20000.	0.660E-01	0.234E-01	0.176E-01	0.143E-01	0.148E-01	0.114E-01
	30000.	0.673E-01	0.209E-01	0.186E-01	0.154E-01	0.155E-01	0.123E-01
	50000.	0.675E-01	0.160E-01	0.202E-01	0.168E-01	0.165E-01	0.134E-01
4D - 7P	2500.	0.631E-01	0.180E-01	0.151E-01	0.395E-02	*0.149E-01	*0.310E-02
5331.3Å	5000.	0.796E-01	0.244E-01	0.152E-01	0.454E-02	0.150E-01	0.360E-02
C= 0.13E+18	10000.	0.954E-01	0.287E-01	0.154E-01	0.518E-02	0.152E-01	0.412E-02
	20000.	0.109	0.288E-01	0.157E-01	0.588E-02	0.153E-01	0.468E-02
	30000.	0.116	0.281E-01	0.159E-01	0.632E-02	0.153E-01	0.503E-02
	50000.	0.122	0.242E-01	0.163E-01	0.691E-02	0.155E-01	0.551E-02
5D - 7P	2500.	1.63	0.531	0.330	0.117	*0.321	*0.916E-01
23926.8Å	5000.	1.99	0.680	0.337	0.136	0.327	0.107
C= 0.26E+19	10000.	2.33	0.675	0.345	0.155	0.332	0.123
	20000.	2.62	0.656	0.357	0.176	0.337	0.140
	30000.	2.77	0.588	0.366	0.190	0.341	0.151
	50000.	2.91	0.515	0.380	0.207	0.347	0.165
6D - 7P	2500.	83.4	39.6	* 16.0	* 10.0	* 14.1	* 7.66
121034.6Å	5000.	94.6	37.2	17.3	12.0	* 15.1	* 9.33
C= 0.28E+20	10000.	106.	31.4	18.8	14.0	* 16.1	* 11.0
	20000.	119.	22.4	20.7	16.1	17.4	12.7
	30000.	126.	19.5	22.0	17.3	18.2	13.8
	50000.	131.	15.5	24.1	19.0	19.3	15.1
5P - 4D	2500.	0.358E-01	-0.166E-01	0.172E-01	-0.461E-02	0.170E-01	-0.367E-02
28160.1Å	5000.	0.353E-01	-0.185E-01	0.173E-01	-0.519E-02	0.171E-01	-0.415E-02
C= 0.28E+20	10000.	0.364E-01	-0.204E-01	0.174E-01	-0.584E-02	0.172E-01	-0.466E-02
	20000.	0.382E-01	-0.217E-01	0.177E-01	-0.657E-02	0.173E-01	-0.525E-02
	30000.	0.395E-01	-0.216E-01	0.179E-01	-0.703E-02	0.174E-01	-0.562E-02
	50000.	0.415E-01	-0.205E-01	0.182E-01	-0.766E-02	0.175E-01	-0.613E-02
5P - 5D	2500.	0.130E-01	-0.392E-02	0.347E-02	-0.145E-02	0.336E-02	-0.115E-02
4919.5Å	5000.	0.152E-01	-0.178E-02	0.355E-02	-0.165E-02	0.341E-02	-0.131E-02
C= 0.27E+18	10000.	0.182E-01	0.304E-04	0.365E-02	-0.188E-02	0.347E-02	-0.149E-02
	20000.	0.204E-01	0.177E-02	0.379E-02	-0.212E-02	0.355E-02	-0.169E-02
	30000.	0.217E-01	0.263E-02	0.390E-02	-0.227E-02	0.361E-02	-0.181E-02
	50000.	0.230E-01	0.248E-02	0.407E-02	-0.248E-02	0.369E-02	-0.198E-02
6P - 5D	2500.	9.56	-5.69	2.31	-1.36	2.13	-1.07
90508.4Å	5000.	10.6	-5.36	2.44	-1.57	2.22	-1.24
C= 0.91E+20	10000.	11.8	-4.76	2.59	-1.80	2.32	-1.43
	20000.	13.6	-3.50	2.78	-2.04	0.45	-1.62
	30000.	14.8	-2.98	2.91	-2.19	2.54	-1.75
	50000.	15.6	-2.53	3.09	-2.40	2.66	-1.91

PERTURBER DENSITY= 1.E+15cm-3							
PERTURBERS ARE:							
TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
4D - 6P	2500.	0.322E-01	0.233E-01	0.917E-02	0.587E-02	0.830E-02	0.461E-02
6381.2Å	5000.	0.356E-01	0.258E-01	0.976E-02	0.676E-02	0.872E-02	0.535E-02
C= 0.45E+18	10000.	0.385E-01	0.255E-01	0.105E-01	0.771E-02	0.921E-02	0.612E-02
	20000.	0.416E-01	0.225E-01	0.113E-01	0.875E-02	0.980E-02	0.696E-02
	30000.	0.436E-01	0.203E-01	0.118E-01	0.941E-02	0.102E-01	0.749E-02
	50000.	0.455E-01	0.170E-01	0.126E-01	0.103E-01	0.108E-01	0.820E-02
4D - 7P	2500.	0.113	0.785E-01	*0.267E-01	*0.188E-01	*0.225E-01	*0.143E-01
4719.6Å	5000.	0.119	0.776E-01	*0.295E-01	*0.227E-01	*0.246E-01	*0.176E-01
C= 0.56E+17	10000.	0.125	0.668E-01	0.326E-01	0.266E-01	*0.270E-01	*0.209E-01
	20000.	0.130	0.514E-01	0.362E-01	0.306E-01	*0.296E-01	*0.242E-01
	30000.	0.130	0.420E-01	0.387E-01	0.331E-01	0.313E-01	0.262E-01
	50000.	0.128	0.310E-01	0.423E-01	0.364E-01	0.337E-01	0.289E-01
5D - 7P	2500.	2.79	1.83	*0.628	*0.437	*0.530	*0.332
22664.1Å	5000.	2.98	1.79	*0.691	*0.528	*0.579	*0.409
C= 0.13E+19	10000.	3.16	1.55	0.764	0.619	*0.633	*0.486
	20000.	3.31	1.14	0.849	0.713	*0.695	*0.564
	30000.	3.36	0.922	0.906	0.771	0.735	0.611
	50000.	3.37	0.689	0.990	0.847	0.790	0.673
PERTURBER DENSITY= 1.E+16cm-3							
5S - 5P	2500.	0.227E-01	0.374E-03	0.777E-02	-0.115E-02	0.772E-02	-0.910E-03
4608.6Å	5000.	0.229E-01	0.269E-02	0.781E-02	-0.131E-02	0.777E-02	-0.104E-02
C= 0.33E+19	10000.	0.236E-01	0.419E-02	0.785E-02	-0.149E-02	0.779E-02	-0.118E-02
	20000.	0.258E-01	0.505E-02	0.791E-02	-0.174E-02	0.780E-02	-0.134E-02
	30000.	0.279E-01	0.430E-02	0.797E-02	-0.180E-02	0.781E-02	-0.144E-02
	50000.	0.316E-01	0.337E-02	0.808E-02	-0.196E-02	0.782E-02	-0.157E-02
5S - 6P	2500.	0.827E-01	0.595E-01	*0.225E-01	*0.132E-01	*0.194E-01	*0.972E-02
2932.7Å	5000.	0.901E-01	0.589E-01	*0.245E-01	*0.165E-01	*0.211E-01	*0.126E-01
C= 0.54E+18	10000.	0.983E-01	0.462E-01	0.267E-01	0.197E-01	*0.228E-01	*0.154E-01
	20000.	0.108	0.362E-01	0.294E-01	0.230E-01	*0.247E-01	*0.181E-01
	30000.	0.111	0.316E-01	0.311E-01	0.250E-01	0.259E-01	0.197E-01
	50000.	0.112	0.238E-01	0.337E-01	0.276E-01	0.276E-01	0.219E-01
5S - 7P	2500.	0.146	0.407E-01	*0.331E-01	*0.783E-02		
2570.2Å	5000.	0.183	0.564E-01	*0.347E-01	*0.963E-02		
C= 0.31E+18	10000.	0.220	0.667E-01	*0.356E-01	*0.114E-01	*0.347E-01	*0.891E-02
	20000.	0.252	0.666E-01	*0.364E-01	*0.132E-01	*0.352E-01	*0.104E-01
	30000.	0.268	0.603E-01	0.369E-01	0.143E-01	*0.355E-01	*0.113E-01
	50000.	0.283	0.515E-01	0.378E-01	0.158E-01	*0.358E-01	*0.125E-01
6S - 6P	2500.	7.50	3.98	* 1.91	* 1.07	* 1.68	*0.794
28517.3Å	5000.	8.96	2.66	2.06	1.32	* 1.81	* 1.01
C= 0.51E+20	10000.	11.2	1.40	2.23	1.57	* 1.94	* 1.22
	20000.	12.8	0.552	2.42	1.82	2.07	1.44
	30000.	13.5	0.550E-01	2.56	1.97	2.16	1.56
	50000.	14.2	-0.209	2.76	2.18	2.29	1.73
6S - 7P	2500.	3.12	0.789	*0.716	*0.130		
12026.3Å	5000.	3.93	1.04	*0.749	*0.157		
C= 0.67E+19	10000.	4.82	1.18	*0.765	*0.185	*0.752	*0.145
	20000.	5.72	0.973	*0.776	*0.213	*0.761	*0.168
	30000.	6.23	0.910	0.785	0.231	*0.764	*0.182
	50000.	6.72	0.876	0.798	0.257	*0.768	*0.201
5P - 6S	2500.	0.538	0.344	0.113	0.847E-01	0.931E-01	0.648E-01
11244.4Å	5000.	0.608	0.416	0.125	0.101	0.103	0.788E-01
C= 0.20E+20	10000.	0.663	0.484	0.139	0.118	0.113	0.928E-01
	20000.	0.707	0.491	0.155	0.135	0.126	0.107
	30000.	0.734	0.452	0.165	0.146	0.133	0.116
	50000.	0.790	0.375	0.179	0.161	0.144	0.128

PERTURBER DENSITY= 1.E+16cm-3							
PERTURBERS ARE:		ELECTRONS		PROTONS		IONIZED HELIUM	
TRANSITION	T(K)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
5P - 7S	2500.	1.49	0.970				
5971.7Å	5000.	1.61	1.11				
C= 0.17E+19	10000.	1.66	1.10				
	20000.	1.70	0.960	*0.438	*0.363		
	30000.	1.72	0.825	*0.470	*0.401		
	50000.	1.72	0.663	*0.515	*0.449	*0.406	*0.353
5P - 8S	2500.	* 4.40	* 2.30				
5166.9Å	5000.	* 4.55	* 2.38				
C= 0.32E+18	10000.	* 4.67	* 2.10				
	20000.	4.63	1.71				
	30000.	4.47	1.39				
	50000.	4.25	0.977				
5P - 5D	2500.	0.497	-0.223	0.106	-0.618E-01	*0.936E-01	-0.465E-01
7675.2Å	5000.	0.516	-0.155	0.114	-0.754E-01	*0.100	-0.582E-01
C= 0.37E+19	10000.	0.564	-0.954E-01	0.124	-0.889E-01	0.107	-0.696E-01
	20000.	0.582	-0.526E-01	0.135	-0.103	0.115	-0.812E-01
	30000.	0.590	-0.363E-01	0.143	-0.111	0.120	-0.881E-01
	50000.	0.600	-0.239E-01	0.155	-0.122	0.127	-0.973E-01
5P - 6D	2500.	1.22	-0.589				
5544.9Å	5000.	1.29	-0.480				
C= 0.60E+18	10000.	1.41	-0.330				
	20000.	1.50	-0.202	*0.382	-0.293		
	30000.	1.54	-0.126	*0.410	-0.323		
	50000.	1.57	-0.646E-01	*0.451	-0.361	*0.353	-0.284
5P - 7D	2500.	1.24	-0.537				
4966.9Å	5000.	1.42	-0.444				
C= 0.77E+18	10000.	1.76	-0.292				
	20000.	2.13	-0.180				
	30000.	2.31	-0.115	*0.427	-0.278		
	50000.	2.52	-0.371E-01	*0.454	-0.312		
5P - 8D	2500.	* 2.34	-0.717				
4689.9Å	5000.	* 2.94	-0.461				
C= 0.40E+18	10000.	* 3.71	-0.314				
	20000.	4.40	-0.146				
	30000.	4.76	-0.684E-01				
	50000.	5.10	0.247E-01				
6P - 6D	2500.	14.7	-7.20				
17747.3Å	5000.	15.9	-6.60				
C= 0.61E+19	10000.	17.2	-4.74				
	20000.	18.7	-3.29	* 4.27	-3.25		
	30000.	19.1	-2.26	* 4.57	-3.59		
	50000.	19.5	-1.38	* 5.03	-4.02		
6P - 7D	2500.	9.36	-4.48				
12931.2Å	5000.	10.9	-3.85				
C= 0.52E+19	10000.	13.3	-2.62				
	20000.	16.1	-1.72				
	30000.	17.4	-1.18				
	50000.	18.8	-0.565	* 3.26	-2.28		
4D - 5P	2500.	5.35	-0.182	1.60	-0.326	1.59	-0.257
64566.9Å	5000.	5.90	0.318	1.62	-0.372	1.60	-0.295
C= 0.65E+21	10000.	6.37	0.975	1.63	-0.423	1.61	-0.336
	20000.	6.69	1.55	1.66	-0.479	1.61	-0.381
	30000.	6.84	1.74	1.68	-0.513	1.62	-0.409
	50000.	7.02	1.79	1.73	-0.559	1.62	-0.447

PERTURBER DENSITY= 1.E+16cm-3							
PERTURBERS ARE:		ELECTRONS		PROTONS		IONIZED HELIUM	
TRANSITION	T(K)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
4D - 6P	2500.	0.502	0.355	*0.134	*0.787E-01	*0.116	*0.580E-01
7169.1Å	5000.	0.551	0.354	*0.146	*0.984E-01	*0.126	*0.752E-01
C= 0.32E+19	10000.	0.603	0.286	0.160	0.118	*0.136	*0.916E-01
	20000.	0.660	0.232	0.176	0.137	*0.148	*0.108
	30000.	0.673	0.209	0.186	0.149	0.155	0.118
	50000.	0.675	0.160	0.202	0.164	0.165	0.130
4D - 7P	2500.	0.631	0.174	*0.143	*0.336E-01		
5331.3Å	5000.	0.796	0.240	*0.150	*0.413E-01		
C= 0.13E+19	10000.	0.954	0.285	*0.153	*0.489E-01	*0.149	*0.382E-01
	20000.	1.09	0.287	*0.157	*0.567E-01	*0.152	*0.447E-01
	30000.	1.16	0.280	0.159	0.614E-01	*0.153	*0.486E-01
	50000.	1.22	0.242	0.163	0.678E-01	*0.154	*0.537E-01
5P - 4D	2500.	0.358	-0.165	0.171	-0.447E-01	0.170	-0.354E-01
28160.1Å	5000.	0.353	-0.184	0.173	-0.510E-01	0.171	-0.405E-01
C= 0.28E+21	10000.	0.364	-0.203	0.174	-0.578E-01	0.172	-0.460E-01
	20000.	0.382	-0.217	0.177	-0.653E-01	0.173	-0.521E-01
	30000.	0.395	-0.216	0.179	-0.700E-01	0.174	-0.558E-01
	50000.	0.415	-0.205	0.182	-0.764E-01	0.175	-0.610E-01
5P - 5D	2500.	0.130	-0.388E-01	0.342E-01	-0.131E-01	*0.327E-01	-0.101E-01
4919.5Å	5000.	0.152	-0.171E-01	0.353E-01	-0.156E-01	*0.338E-01	-0.122E-01
C= 0.27E+19	10000.	0.182	0.790E-03	0.364E-01	-0.181E-01	0.346E-01	-0.142E-01
	20000.	0.204	0.179E-01	0.379E-01	-0.207E-01	0.355E-01	-0.164E-01
	30000.	0.217	0.263E-01	0.390E-01	-0.223E-01	0.360E-01	-0.177E-01
	50000.	0.230	0.248E-01	0.407E-01	-0.245E-01	0.369E-01	-0.195E-01
4D - 6P	2500.	0.322	0.224	*0.904E-01	*0.498E-01	*0.805E-01	*0.372E-01
6381.2Å	5000.	0.356	0.251	0.971E-01	0.613E-01	*0.863E-01	*0.472E-01
C= 0.45E+19	10000.	0.385	0.251	0.104	0.727E-01	*0.918E-01	*0.568E-01
	20000.	0.416	0.223	0.113	0.843E-01	0.979E-01	0.664E-01
	30000.	0.436	0.203	0.118	0.913E-01	0.102	0.723E-01
	50000.	0.455	0.170	0.126	0.101	0.108	0.799E-01
4D - 7P	2500.	1.13	0.700				
4719.6Å	5000.	1.19	0.717				
C= 0.56E+18	10000.	1.25	0.636				
	20000.	1.30	0.500				
	30000.	1.30	0.417	*0.387	*0.307		
	50000.	1.28	0.308	*0.423	*0.345		
PERTURBER DENSITY= 1. E+17cm-3							
5S - 5P	2500.	0.227	0.460E-02	0.747E-01	-0.105E-01	*0.714E-01	-0.807E-02
4608.6Å	5000.	0.229	0.276E-01	0.770E-01	-0.124E-01	*0.756E-01	-0.969E-02
C= 0.33E+20	10000.	0.236	0.425E-01	0.781E-01	-0.143E-01	0.771E-01	-0.113E-01
	20000.	0.258	0.508E-01	0.790E-01	-0.170E-01	0.778E-01	-0.130E-01
	30000.	0.279	0.431E-01	0.796E-01	-0.177E-01	0.780E-01	-0.141E-01
	50000.	0.316	0.337E-01	0.808E-01	-0.194E-01	0.782E-01	-0.154E-01
5S - 6P	2500.	0.825	0.502				
2932.7Å	5000.	0.900	0.524				
C= 0.54E+19	10000.	0.982	0.415				
	20000.	1.08	0.329				
	30000.	1.11	0.294	*0.311	*0.224		
	50000.	1.12	0.229	*0.337	*0.256		
5S - 7P	2500.	* 1.43	*0.372				
2570.2Å	5000.	* 1.82	*0.539				
C= 0.31E+19	10000.	2.19	0.650				
	20000.	2.52	0.654				
	30000.	2.68	0.595				
	50000.	2.83	0.511				

PERTURBER DENSITY= 1. E+17cm-3							
PERTURBERS ARE:		ELECTRONS		PROTONS		IONIZED HELIUM	
TRANSITION	T(K)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
5P - 6S	2500.	5.38	3.12	* 1.09	*0.528		
11244.4Å	5000.	6.08	3.93	* 1.24	*0.787	* 1.01	*0.563
C= 0.20E+21	10000.	6.63	4.67	* 1.38	* 1.02	* 1.13	*0.769
	20000.	7.06	4.81	* 1.54	* 1.24	* 1.25	*0.960
	30000.	7.33	4.47	1.65	1.37	* 1.33	* 1.07
	50000.	7.90	3.74	1.79	1.53	* 1.44	* 1.21
5P - 7S	2500.	* 14.5	* 6.47				
5971.7Å	5000.	* 15.9	* 8.85				
C= 0.17E+20	10000.	* 16.5	* 9.42				
	20000.	* 16.9	* 8.65				
	30000.	17.1	7.78				
	50000.	17.1	6.35				
5P - 5D	2500.	4.96	-1.90				
7675.2Å	5000.	5.15	-1.31				
C= 0.37E+20	10000.	5.63	-0.792	* 1.22	-0.732		
	20000.	5.82	-0.431	* 1.35	-0.917		
	30000.	5.89	-0.318	* 1.43	-1.02		
	50000.	6.00	-0.230	* 1.55	-1.15	* 1.27	-0.903
5P - 6D	2500.	* 10.6	-3.38				
5544.9Å	5000.	* 11.8	-3.02				
C= 0.60E+19	10000.	* 13.4	-2.00				
	20000.	* 14.5	-1.29				
	30000.	15.0	-0.903				
	50000.	15.4	-0.576				
5P - 7D	2500.	* 11.3	-2.99				
4966.9Å	5000.	* 13.5	-2.75				
C= 0.77E+19	10000.	* 17.2	-1.75				
	20000.	* 21.0	-1.07				
	30000.	* 22.9	-0.813				
	50000.	* 25.0	-0.165				
4D - 6P	2500.	5.00	2.99				
7169.1Å	5000.	5.50	3.15				
C= 0.32E+20	10000.	6.02	2.63				
	20000.	6.60	2.22				
	30000.	6.72	2.01	* 1.86	* 1.34		
	50000.	6.75	1.59	* 2.01	* 1.53		
4D - 7P	2500.	* 6.20	* 1.59				
5331.3Å	5000.	* 7.89	* 2.29				
C= 0.13E+20	10000.	* 9.50	* 2.77				
	20000.	10.9	2.84				
	30000.	11.6	2.78				
	50000.	12.2	2.41				
5P - 4D	2500.	3.58	-1.61	1.68	-0.406	* 1.62	-0.313
28160.1Å	5000.	3.53	-1.81	1.71	-0.481	1.68	-0.376
C= 0.28E+22	10000.	3.64	-2.01	1.74	-0.557	1.71	-0.440
	20000.	3.82	-2.15	1.77	-0.638	1.72	- 0.506
	30000.	3.95	-2.16	1.79	-0.688	1.73	- 0.546
	50000.	4.15	-2.04	1.82	-0.755	1.75	- 0.601
5P - 5D	2500.	1.29	-0.343				
4919.5Å	5000.	1.52	-0.139	*0.336	-0.125		
C= 0.27E+20	10000.	1.82	0.300E-01	*0.359	-0.159		
	20000.	2.04	0.187	*0.377	-0.192	*0.351	-0.149
	30000.	2.17	0.265	*0.389	-0.211	*0.358	-0.165
	50000.	2.30	0.250	0.406	-0.235	*0.368	-0.185

STARK BROADENING PARAMETER TABLES FOR Sr I

PERTURBER DENSITY= 1. E+17cm-3							
PERTURBERS ARE:		ELECTRONS		PROTONS		IONIZED HELIUM	
TRANSITION	T(K)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
4D - 6P	2500.	3.21	1.96				
6381.2Å	5000.	3.56	2.31				
C= 0.45E+20	10000.	3.85	2.39				
	20000.	4.16	2.18	* 1.12	*0.743		
	30000.	4.36	1.98	* 1.18	*0.832		
	50000.	4.55	1.69	* 1.26	*0.943		
4D - 7P	2500.	* 10.2	* 4.13				
4719.6Å	5000.	* 11.2	* 5.19				
C= 0.56E+19	10000.	* 12.0	* 5.13				
	20000.	* 12.6	* 4.48				
	30000.	12.7	3.80				
	50000.	12.6	3.00				
PERTURBER DENSITY= 1. E+18cm-3							
5S - 5P	2500.	2.21	0.858E-01	*0.482	-0.722E-01		
4608.6Å	5000.	2.28	0.304	*0.666	-0.101		
C= 0.33E+21	10000.	2.36	0.446	*0.744	-0.127		
	20000.	2.58	0.521	*0.777	-0.153		
	30000.	2.79	0.441	*0.789	-0.167	*0.766	-0.131
	50000.	3.16	0.342	*0.805	-0.187	*0.775	-0.147
5S - 6P	2500.	* 6.37	* 2.03				
2932.7Å	5000.	* 7.84	* 3.10				
C= 0.54E+20	10000.	* 9.00	* 2.64				
	20000.	* 10.2	* 2.24				
	30000.	10.6	2.05				
	50000.	10.8	1.66				

for the maximum perturber density for which the line may be treated as isolated when it is divided by the corresponding full width at half maximum. For each value given in Table 1, the collision volume (V) multiplied by the perturber density (N) is much less than one and the impact approximation is valid (Sahal–Bréchet, 1969ab). Values for $NV > 0.5$ are not given and values for $0.1 < NV < 0.5$ are denoted by an asterisk. When the impact approximation is not valid, the ion broadening contribution may be estimated by using quasistatic approach (Sahal–Bréchet 1991 and Griem 1974). The accuracy of the results obtained decreases when broadening by ion interactions becomes important.

The analysis of present results and comparison with available theoretical data will be published elsewhere (Dimitrijević and Sahal–Bréchet, 1996).

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ТАБЕЛЕ ПАРАМЕТАРА ШТАРКОВОГ ШИРЕЊА Sr I

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Претходно саопштење

Користећи семикласичан прилаз, израчунате су ширине и помераји спектралних линија, проузроковани сударима са електронима,

протонима и јонизованим хелијумом, за 33 мултиплета Sr I. Резултати су дати у функцији температуре и концентрације пертурбера.