

## STARK BROADENING PARAMETER TABLES FOR C V AND P V

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(Received: October 20, 1994)

**SUMMARY:** Using a semiclassical approach, we have calculated electron–, proton–, and He III–impact line widths and shifts for 25 C V and 51 P V multiplets as a function of temperature and perturber density.

### 1. INTRODUCTION

Spectral lines of neutral and ionized carbon are of particular astrophysical interest, since such lines are present in stellar atmospheres. Stark broadening parameters for these lines are needed especially for hot and dense stellar plasma analysis. A good example are PG 1159 pre-white dwarfs with effective temperature 100,000 - 140,000 K where carbon and helium are the dominant constituents (C/He = 0.5, Werner *et al.* 1991). Other astrophysical applications have been pointed out in more detail in Dimitrijević *et al.* 1991). Stark broadening of C V lines are as well of interest for the diagnostic of laser-produced plasma and for the research of regularities and systematic trends. For such research are of interest P V lines as well. Recently e.g., estimates of the Stark widths for P V 4s-4p and 4p-4d transitions have been performed within a study on Stark broadening regularities within successive ionization

stages of phosphorus (Srećković *et al.* 1990). Such investigations are of astrophysical importance since they provide a tool for a simple interpolation and prediction of new data needed in astrophysics.

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 He III-impact line widths and shifts for 25 C V and 51 P V multiplets.

### 2. RESULTS AND DISCUSSION

Analysis of obtained results and all details of calculations as well as the comparison with available experimental data will be published elsewhere (Dimitrijević and Sahal–Bréchet, 1995). Here, we present only tables of Stark broadening parameters for astrophysical and laboratory plasma diagnostic

Table 1. This table shows electron-, proton-, and He III- impact broadening parameters for C V and P V, for perturber densities of  $10^{17} - 10^{22} \text{ cm}^{-3}$  and temperatures from 50,000 up to 1,000,000 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 = $1 \times 10^{17} \text{ cm}^{-3}$		ELECTRONS		PROTONS		He III	
PERTURBERS ARE:	T(K)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
TRANSITION							
C V 1S 2P 40.3 Å C= 0.47E+17	50000.	0.297E-05	-0.126E-06	0.121E-07	-0.203E-07	0.218E-07	-0.396E-07
	100000.	0.211E-05	-0.483E-07	0.333E-07	-0.402E-07	0.614E-07	-0.801E-07
	150000.	0.174E-05	-0.196E-07	0.558E-07	-0.574E-07	0.105E-06	-0.116E-06
	200000.	0.152E-05	-0.163E-07	0.748E-07	-0.710E-07	0.142E-06	-0.144E-06
	300000.	0.127E-05	-0.117E-07	0.108E-06	-0.929E-07	0.209E-06	-0.189E-06
	500000.	0.102E-05	-0.115E-07	0.151E-06	-0.119E-06	0.290E-06	-0.243E-06
C V 2S 2P 3478.6 Å C= 0.35E+21	50000.	0.343E-01	-0.114E-02	0.153E-03	-0.686E-03	0.280E-03	-0.134E-02
	100000.	0.249E-01	-0.108E-02	0.550E-03	-0.125E-02	0.105E-02	-0.250E-02
	150000.	0.208E-01	-0.120E-02	0.967E-03	-0.165E-02	0.186E-02	-0.336E-02
	200000.	0.185E-01	-0.121E-02	0.133E-02	-0.190E-02	0.264E-02	-0.389E-02
	300000.	0.156E-01	-0.114E-02	0.181E-02	-0.231E-02	0.361E-02	-0.473E-02
	500000.	0.129E-01	-0.111E-02	0.269E-02	-0.276E-02	0.533E-02	-0.570E-02
C V 2P 3S 272.2 Å C= 0.61E+18	50000.	0.609E-03	0.516E-04	0.258E-04	0.539E-04	0.499E-04	0.106E-03
	100000.	0.463E-03	0.567E-04	0.521E-04	0.760E-04	0.105E-03	0.154E-03
	150000.	0.400E-03	0.560E-04	0.750E-04	0.886E-04	0.151E-03	0.182E-03
	200000.	0.362E-03	0.547E-04	0.863E-04	0.950E-04	0.175E-03	0.195E-03
	300000.	0.316E-03	0.533E-04	0.104E-03	0.106E-03	0.209E-03	0.218E-03
	500000.	0.269E-03	0.503E-04	0.127E-03	0.121E-03	0.253E-03	0.250E-03
C V 2P 3D 267.6 Å C= 0.13E+18	50000.	0.459E-03	0.238E-04	0.318E-04	0.568E-04	0.610E-04	0.112E-03
	100000.	0.345E-03	0.263E-04	0.621E-04	0.800E-04	0.118E-03	0.161E-03
	150000.	0.294E-03	0.270E-04	0.903E-04	0.921E-04	0.167E-03	0.190E-03
	200000.	0.264E-03	0.249E-04	0.105E-03	0.994E-04	0.190E-03	0.204E-03
	300000.	0.227E-03	0.238E-04	0.130E-03	0.111E-03	0.228E-03	0.227E-03
	500000.	0.191E-03	0.223E-04	0.167E-03	0.127E-03	0.274E-03	0.260E-03
C V 2S 2P 2274.6 Å C= 0.23E+21	50000.	0.131E-01	-0.255E-03	0.412E-04	-0.173E-03	0.750E-04	-0.337E-03
	100000.	0.939E-02	-0.317E-03	0.142E-03	-0.328E-03	0.265E-03	-0.655E-03
	150000.	0.780E-02	-0.364E-03	0.248E-03	-0.441E-03	0.480E-03	-0.892E-03
	200000.	0.688E-02	-0.386E-03	0.364E-03	-0.533E-03	0.709E-03	-0.109E-02
	300000.	0.580E-02	-0.386E-03	0.501E-03	-0.643E-03	0.995E-03	-0.131E-02
	500000.	0.473E-02	-0.374E-03	0.763E-03	-0.809E-03	0.150E-02	-0.166E-02
C V 2S 3P 227.2 Å C= 0.30E+18	50000.	0.506E-03	0.680E-05	0.118E-04	0.148E-04	0.224E-04	0.291E-04
	100000.	0.380E-03	0.617E-05	0.226E-04	0.228E-04	0.443E-04	0.463E-04
	150000.	0.325E-03	0.665E-05	0.299E-04	0.277E-04	0.582E-04	0.568E-04
	200000.	0.293E-03	0.575E-05	0.364E-04	0.313E-04	0.706E-04	0.643E-04
	300000.	0.254E-03	0.594E-05	0.431E-04	0.348E-04	0.821E-04	0.714E-04
	500000.	0.214E-03	0.515E-05	0.531E-04	0.398E-04	0.975E-04	0.823E-04
C V 2S 4P 173.3 Å C= 0.73E+17	50000.	0.900E-03	0.279E-04	0.610E-04	0.679E-04	0.119E-03	0.132E-03
	100000.	0.703E-03	0.303E-04	0.935E-04	0.876E-04	0.188E-03	0.178E-03
	150000.	0.614E-03	0.301E-04	0.111E-03	0.984E-04	0.217E-03	0.202E-03
	200000.	0.559E-03	0.291E-04	0.123E-03	0.105E-03	0.240E-03	0.218E-03
	300000.	0.492E-03	0.255E-04	0.145E-03	0.117E-03	0.269E-03	0.240E-03
	500000.	0.421E-03	0.213E-04	0.174E-03	0.131E-03	0.314E-03	0.270E-03
C V 2S 5P 156.2 Å C= 0.31E+17	50000.	0.182E-02	0.818E-04	0.200E-03	0.188E-03	*0.404E-03	*0.363E-03
	100000.	0.146E-02	0.821E-04	0.260E-03	0.232E-03	*0.517E-03	*0.465E-03
	150000.	0.128E-02	0.773E-04	0.298E-03	0.259E-03	*0.588E-03	*0.531E-03
	200000.	0.118E-02	0.700E-04	0.336E-03	0.276E-03	*0.642E-03	*0.565E-03
	300000.	0.104E-02	0.625E-04	0.382E-03	0.297E-03	*0.722E-03	*0.618E-03
	500000.	0.891E-03	0.537E-04	0.451E-03	0.330E-03	*0.795E-03	*0.679E-03

## STARK BROADENING PARAMETER TABLES FOR C V AND P V

PERTURBER DENSITY = $1 \times 10^{17} \text{cm}^{-3}$							
PERTURBERS ARE:		ELECTRONS		PROTONS		He III	
TRANSITION	T(K)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
C V 3S 3P 8434.5 Å C= 0.42E+21	50000.	1.02	-0.230E-01	0.150E-01	-0.165E-01	0.284E-01	-0.323E-01
	100000.	0.777	-0.337E-01	0.287E-01	-0.261E-01	0.559E-01	-0.529E-01
	150000.	0.670	-0.306E-01	0.377E-01	-0.317E-01	0.725E-01	-0.647E-01
	200000.	0.605	-0.311E-01	0.455E-01	-0.360E-01	0.867E-01	-0.738E-01
	300000.	0.529	-0.299E-01	0.546E-01	-0.403E-01	0.102	-0.832E-01
	500000.	0.449	-0.299E-01	0.689E-01	-0.464E-01	0.120	-0.957E-01
C V 3S 4P 672.1 Å C= 0.11E+19	50000.	0.156E-01	0.214E-03	0.831E-03	0.897E-03	0.162E-02	0.175E-02
	100000.	0.122E-01	0.187E-03	0.130E-02	0.118E-02	0.259E-02	0.240E-02
	150000.	0.106E-01	0.200E-03	0.152E-02	0.132E-02	0.299E-02	0.272E-02
	200000.	0.969E-02	0.190E-03	0.169E-02	0.142E-02	0.330E-02	0.294E-02
	300000.	0.854E-02	0.142E-03	0.198E-02	0.158E-02	0.376E-02	0.326E-02
	500000.	0.731E-02	0.846E-04	0.242E-02	0.177E-02	0.426E-02	0.364E-02
C V 3S 5P 472.2 Å C= 0.28E+18	50000.	0.176E-01	0.644E-03	0.180E-02	0.169E-02	*0.363E-02	*0.326E-02
	100000.	0.141E-01	0.616E-03	0.235E-02	0.209E-02	*0.465E-02	*0.417E-02
	150000.	0.124E-01	0.581E-03	0.268E-02	0.231E-02	*0.526E-02	*0.474E-02
	200000.	0.114E-01	0.517E-03	0.300E-02	0.248E-02	*0.582E-02	*0.509E-02
	300000.	0.101E-01	0.451E-03	0.344E-02	0.267E-02	*0.649E-02	*0.560E-02
	500000.	0.862E-02	0.375E-03	0.406E-02	0.298E-02	*0.720E-02	*0.610E-02
C V 4S 4P 20755.5 Å C= 0.10E+22	50000.	21.0	-0.799	0.543	-0.343	1.05	-0.677
	100000.	16.5	-0.722	0.813	-0.483	1.55	-0.974
	150000.	14.4	-0.703	0.944	-0.556	1.76	-1.15
	200000.	13.2	-0.686	1.06	-0.601	1.92	-1.23
	300000.	11.7	-0.715	1.25	-0.669	2.13	-1.37
	500000.	9.99	-0.638	1.58	-0.765	2.41	-1.57
C V 4S 5P 1475.1 Å C= 0.27E+19	50000.	0.203	0.124E-02	0.154E-01	0.140E-01	*0.308E-01	*0.271E-01
	100000.	0.162	0.149E-02	0.199E-01	0.171E-01	*0.394E-01	*0.344E-01
	150000.	0.143	0.116E-02	0.230E-01	0.191E-01	*0.446E-01	*0.392E-01
	200000.	0.131	0.668E-03	0.255E-01	0.203E-01	*0.492E-01	*0.423E-01
	300000.	0.116	0.112E-03	0.294E-01	0.219E-01	*0.545E-01	*0.459E-01
	500000.	0.994E-01	0.264E-04	0.346E-01	0.242E-01	0.609E-01	0.498E-01
C V 2P 3S 260.2 Å C= 0.80E+18	50000.	0.491E-03	0.346E-04	0.135E-04	0.340E-04	0.263E-04	0.666E-04
	100000.	0.367E-03	0.445E-04	0.312E-04	0.496E-04	0.627E-04	0.999E-04
	150000.	0.316E-03	0.428E-04	0.456E-04	0.595E-04	0.912E-04	0.122E-03
	200000.	0.285E-03	0.423E-04	0.569E-04	0.641E-04	0.116E-03	0.133E-03
	300000.	0.247E-03	0.413E-04	0.683E-04	0.715E-04	0.139E-03	0.147E-03
	500000.	0.209E-03	0.402E-04	0.833E-04	0.814E-04	0.168E-03	0.168E-03
C V 2P 4S 189.3 Å C= 0.17E+18	50000.	0.784E-03	0.104E-03	0.674E-04	0.976E-04	0.136E-03	0.191E-03
	100000.	0.609E-03	0.993E-04	0.112E-03	0.124E-03	0.229E-03	0.251E-03
	150000.	0.531E-03	0.976E-04	0.134E-03	0.139E-03	0.274E-03	0.287E-03
	200000.	0.484E-03	0.949E-04	0.148E-03	0.149E-03	0.305E-03	0.307E-03
	300000.	0.426E-03	0.929E-04	0.171E-03	0.166E-03	0.345E-03	0.342E-03
	500000.	0.364E-03	0.812E-04	0.203E-03	0.186E-03	0.404E-03	0.376E-03
C V 2P 5S 168.4 Å C= 0.68E+17	50000.	0.159E-02	0.243E-03	0.229E-03	0.249E-03	*0.471E-03	*0.477E-03
	100000.	0.126E-02	0.236E-03	0.307E-03	0.307E-03	*0.617E-03	*0.616E-03
	150000.	0.111E-02	0.235E-03	0.350E-03	0.341E-03	*0.721E-03	*0.700E-03
	200000.	0.101E-02	0.225E-03	0.391E-03	0.366E-03	*0.778E-03	*0.747E-03
	300000.	0.896E-03	0.203E-03	0.444E-03	0.398E-03	*0.878E-03	*0.811E-03
	500000.	0.763E-03	0.172E-03	0.519E-03	0.439E-03	*0.971E-03	*0.895E-03
C V 3P 4S 756.9 Å C= 0.28E+19	50000.	0.165E-01	0.153E-02	0.103E-02	0.148E-02	0.206E-02	0.289E-02
	100000.	0.128E-01	0.148E-02	0.171E-02	0.188E-02	0.352E-02	0.381E-02
	150000.	0.112E-01	0.144E-02	0.207E-02	0.211E-02	0.417E-02	0.434E-02
	200000.	0.102E-01	0.141E-02	0.229E-02	0.226E-02	0.463E-02	0.468E-02
	300000.	0.895E-02	0.137E-02	0.268E-02	0.252E-02	0.530E-02	0.515E-02
	500000.	0.765E-02	0.120E-02	0.317E-02	0.277E-02	0.635E-02	0.576E-02

PERTURBER DENSITY = $1 \times 10^{17} \text{cm}^{-3}$							
PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS WIDTH(Å)	SHIFT(Å)	PROTONS WIDTH(Å)	SHIFT(Å)	He III WIDTH(Å)	SHIFT(Å)
C V 3P 5S 506.3 Å C= 0.62E+18	50000.	0.160E-01	0.213E-02	0.205E-02	0.222E-02	*0.421E-02	*0.427E-02
	100000.	0.127E-01	0.208E-02	0.274E-02	0.276E-02	*0.554E-02	*0.549E-02
	150000.	0.112E-01	0.206E-02	0.312E-02	0.305E-02	*0.646E-02	*0.628E-02
	200000.	0.102E-01	0.198E-02	0.349E-02	0.328E-02	*0.699E-02	*0.668E-02
	300000.	0.904E-02	0.179E-02	0.393E-02	0.356E-02	*0.785E-02	*0.726E-02
	500000.	0.771E-02	0.151E-02	0.469E-02	0.394E-02	*0.876E-02	*0.801E-02
C V 4P 5S 1651.0 Å C= 0.66E+19	50000.	0.223	0.202E-01	0.199E-01	0.212E-01	*0.406E-01	*0.409E-01
	100000.	0.178	0.196E-01	0.264E-01	0.263E-01	*0.533E-01	*0.525E-01
	150000.	0.157	0.195E-01	0.305E-01	0.293E-01	*0.614E-01	*0.598E-01
	200000.	0.144	0.187E-01	0.345E-01	0.311E-01	*0.673E-01	*0.639E-01
	300000.	0.127	0.170E-01	0.391E-01	0.334E-01	*0.765E-01	*0.695E-01
	500000.	0.109	0.144E-01	0.461E-01	0.370E-01	0.848E-01	0.766E-01
C V 2P 3D 248.7 Å C= 0.36E+18	50000.	0.370E-03	-0.976E-05	0.890E-05	-0.162E-04	0.169E-04	-0.318E-04
	100000.	0.272E-03	-0.608E-05	0.200E-04	-0.252E-04	0.394E-04	-0.513E-04
	150000.	0.230E-03	-0.515E-05	0.271E-04	-0.307E-04	0.528E-04	-0.628E-04
	200000.	0.205E-03	-0.556E-05	0.340E-04	-0.348E-04	0.654E-04	-0.712E-04
	300000.	0.176E-03	-0.473E-05	0.423E-04	-0.386E-04	0.811E-04	-0.795E-04
	500000.	0.147E-03	-0.248E-05	0.534E-04	-0.445E-04	0.987E-04	-0.915E-04
C V 2P 4D 186.7 Å C= 0.51E+16	50000.	0.101E-02	0.175E-05	0.546E-03	0.455E-03	*0.918E-03	*0.862E-03
	100000.	0.798E-03	0.348E-05	0.783E-03	0.564E-03	*0.121E-02	*0.112E-02
	150000.	0.698E-03	0.830E-05	0.966E-03	0.616E-03	*0.140E-02	*0.127E-02
	200000.	0.636E-03	0.752E-05	0.109E-02	0.647E-03	*0.158E-02	*0.136E-02
	300000.	0.557E-03	0.127E-04	0.129E-02	0.725E-03	*0.173E-02	*0.145E-02
	500000.	0.471E-03	0.945E-05	0.157E-02	0.777E-03	*0.213E-02	*0.166E-02
C V 3D 4P 763.1 Å C= 0.14E+19	50000.	0.185E-01	0.662E-03	0.127E-02	0.140E-02	0.249E-02	0.274E-02
	100000.	0.145E-01	0.680E-03	0.192E-02	0.180E-02	0.385E-02	0.364E-02
	150000.	0.126E-01	0.674E-03	0.227E-02	0.201E-02	0.446E-02	0.415E-02
	200000.	0.115E-01	0.660E-03	0.253E-02	0.217E-02	0.493E-02	0.446E-02
	300000.	0.102E-01	0.583E-03	0.294E-02	0.239E-02	0.563E-02	0.498E-02
	500000.	0.869E-02	0.478E-03	0.360E-02	0.265E-02	0.650E-02	0.556E-02
C V 3D 5P 515.4 Å C= 0.33E+18	50000.	0.203E-01	0.945E-03	0.220E-02	0.207E-02	*0.445E-02	*0.399E-02
	100000.	0.162E-01	0.936E-03	0.288E-02	0.256E-02	*0.569E-02	*0.512E-02
	150000.	0.143E-01	0.882E-03	0.331E-02	0.286E-02	*0.649E-02	*0.584E-02
	200000.	0.131E-01	0.805E-03	0.371E-02	0.303E-02	*0.705E-02	*0.623E-02
	300000.	0.116E-01	0.720E-03	0.416E-02	0.326E-02	*0.790E-02	*0.679E-02
	500000.	0.993E-02	0.615E-03	0.493E-02	0.362E-02	*0.868E-02	*0.748E-02
C V 4D 5P 1651.4 Å C= 0.40E+18	50000.	0.260	0.913E-02	0.323E-01	-0.228E-01	*0.503E-01	-0.437E-01
	100000.	0.210	0.906E-02	0.489E-01	-0.282E-01	*0.664E-01	-0.562E-01
	150000.	0.185	0.818E-02	0.610E-01	-0.310E-01	*0.771E-01	-0.646E-01
	200000.	0.170	0.744E-02	0.701E-01	-0.333E-01	*0.874E-01	-0.687E-01
	300000.	0.150	0.619E-02	0.847E-01	-0.361E-01	*0.999E-01	-0.736E-01
	500000.	0.129	0.546E-02	0.104	-0.404E-01	*0.120	-0.818E-01
C V 3D 4F 748.4 Å C= 0.82E+17	50000.	0.107E-01	-0.157E-03	0.711E-02	-0.605E-02	*0.118E-01	-0.114E-01
	100000.	0.837E-02	-0.133E-03	0.105E-01	-0.742E-02	*0.160E-01	-0.149E-01
	150000.	0.728E-02	-0.194E-03	0.128E-01	-0.819E-02	*0.188E-01	-0.169E-01
	200000.	0.661E-02	-0.126E-03	0.147E-01	-0.872E-02	*0.205E-01	-0.180E-01
	300000.	0.579E-02	-0.130E-03	0.175E-01	-0.943E-02	*0.236E-01	-0.195E-01
	500000.	0.493E-02	-0.815E-04	0.201E-01	-0.103E-01	*0.283E-01	-0.212E-01
PERTURBER DENSITY = $1 \times 10^{18} \text{cm}^{-3}$							
C V 1S 2P 40.3 Å C= 0.47E+18	50000.	0.297E-04	-0.168E-05	0.120E-06	-0.192E-06	0.216E-06	-0.359E-06
	100000.	0.211E-04	-0.283E-06	0.333E-06	-0.398E-06	0.613E-06	-0.775E-06
	150000.	0.174E-04	-0.206E-06	0.558E-06	-0.570E-06	0.105E-05	-0.114E-05
	200000.	0.152E-04	-0.175E-06	0.748E-06	-0.709E-06	0.142E-05	-0.142E-05
	300000.	0.127E-04	-0.119E-06	0.108E-05	-0.929E-06	0.209E-05	-0.189E-05
	500000.	0.102E-04	-0.114E-06	0.151E-05	-0.119E-05	0.290E-05	-0.243E-05

## STARK BROADENING PARAMETER TABLES FOR C V AND P V

PERTURBER DENSITY = $1 \times 10^{18} \text{cm}^{-3}$							
PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS WIDTH(Å)	SHIFT(Å)	PROTONS WIDTH(Å)	SHIFT(Å)	He III WIDTH(Å)	SHIFT(Å)
C V 2S 2P 3478.6 Å C= 0.35E+22	50000.	0.343	-0.113E-01	0.153E-02	-0.647E-02	0.279E-02	-0.121E-01
	100000.	0.249	-0.104E-01	0.550E-02	-0.123E-01	0.105E-01	-0.241E-01
	150000.	0.209	-0.119E-01	0.967E-02	-0.164E-01	0.186E-01	-0.330E-01
	200000.	0.185	-0.120E-01	0.133E-01	-0.190E-01	0.264E-01	-0.385E-01
	300000.	0.156	-0.114E-01	0.181E-01	-0.231E-01	0.361E-01	-0.472E-01
	500000.	0.129	-0.111E-01	0.269E-01	-0.276E-01	0.533E-01	-0.570E-01
C V 2P 3S 272.2 Å C= 0.61E+19	50000.	0.608E-02	0.472E-03	0.258E-03	0.501E-03	0.500E-03	0.930E-03
	100000.	0.463E-02	0.541E-03	0.521E-03	0.744E-03	0.105E-02	0.145E-02
	150000.	0.400E-02	0.538E-03	0.750E-03	0.872E-03	0.151E-02	0.177E-02
	200000.	0.362E-02	0.531E-03	0.863E-03	0.948E-03	0.175E-02	0.191E-02
	300000.	0.316E-02	0.524E-03	0.104E-02	0.106E-02	0.209E-02	0.218E-02
	500000.	0.269E-02	0.502E-03	0.127E-02	0.121E-02	0.253E-02	0.249E-02
C V 2P 3D 267.6 Å C= 0.13E+19	50000.	0.459E-02	0.189E-03	0.318E-03	0.527E-03	0.609E-03	0.979E-03
	100000.	0.345E-02	0.237E-03	0.621E-03	0.782E-03	0.118E-02	0.151E-02
	150000.	0.294E-02	0.244E-03	0.902E-03	0.906E-03	0.167E-02	0.184E-02
	200000.	0.263E-02	0.232E-03	0.105E-02	0.992E-03	0.190E-02	0.199E-02
	300000.	0.227E-02	0.227E-03	0.130E-02	0.110E-02	0.228E-02	0.227E-02
	500000.	0.190E-02	0.221E-03	0.167E-02	0.127E-02	0.274E-02	0.259E-02
C V 2S 2P 2274.6 Å C= 0.23E+22	50000.	0.131	-0.199E-02	0.411E-03	-0.163E-02	0.746E-03	-0.305E-02
	100000.	0.939E-01	-0.318E-02	0.142E-02	-0.324E-02	0.265E-02	-0.632E-02
	150000.	0.781E-01	-0.360E-02	0.248E-02	-0.438E-02	0.480E-02	-0.879E-02
	200000.	0.688E-01	-0.385E-02	0.364E-02	-0.532E-02	0.709E-02	-0.107E-01
	300000.	0.580E-01	-0.385E-02	0.501E-02	-0.643E-02	0.995E-02	-0.131E-01
	500000.	0.473E-01	-0.373E-02	0.763E-02	-0.809E-02	0.150E-01	-0.166E-01
C V 2S 3P 227.2 Å C= 0.30E+19	50000.	0.506E-02	0.533E-04	0.117E-03	0.139E-03	0.222E-03	0.260E-03
	100000.	0.380E-02	0.572E-04	0.226E-03	0.224E-03	0.442E-03	0.441E-03
	150000.	0.325E-02	0.611E-04	0.299E-03	0.274E-03	0.582E-03	0.555E-03
	200000.	0.293E-02	0.542E-04	0.364E-03	0.313E-03	0.706E-03	0.632E-03
	300000.	0.254E-02	0.568E-04	0.431E-03	0.347E-03	0.821E-03	0.712E-03
	500000.	0.214E-02	0.512E-04	0.531E-03	0.397E-03	0.975E-03	0.821E-03
C V 2S 4P 173.3 Å C= 0.73E+18	50000.	0.900E-02	0.218E-03	0.608E-03	0.614E-03	*0.118E-02	*0.110E-02
	100000.	0.703E-02	0.258E-03	0.935E-03	0.848E-03	*0.187E-02	*0.162E-02
	150000.	0.614E-02	0.261E-03	0.111E-02	0.962E-03	*0.217E-02	*0.193E-02
	200000.	0.559E-02	0.262E-03	0.123E-02	0.105E-02	*0.240E-02	*0.211E-02
	300000.	0.492E-02	0.239E-03	0.145E-02	0.117E-02	*0.269E-02	*0.239E-02
	500000.	0.421E-02	0.210E-03	0.174E-02	0.131E-02	*0.314E-02	*0.269E-02
C V 2S 5P 156.2 Å C= 0.31E+18	50000.	0.181E-01	0.542E-03	*0.198E-02	*0.160E-02		
	100000.	0.145E-01	0.619E-03	*0.260E-02	*0.221E-02		
	150000.	0.128E-01	0.592E-03	*0.299E-02	*0.250E-02		
	200000.	0.117E-01	0.569E-03	*0.336E-02	*0.275E-02		
	300000.	0.104E-01	0.551E-03	*0.382E-02	*0.295E-02		
	500000.	0.890E-02	0.528E-03	*0.451E-02	*0.328E-02		
C V 3S 3P 8434.5 Å C= 0.42E+22	50000.	10.2	-0.219	0.150	-0.155	0.281	-0.289
	100000.	7.77	-0.330	0.287	-0.257	0.558	-0.505
	150000.	6.70	-0.301	0.377	-0.314	0.725	-0.633
	200000.	6.05	-0.306	0.455	-0.359	0.867	-0.727
	300000.	5.29	-0.297	0.546	-0.402	1.02	-0.830
	500000.	4.49	-0.299	0.689	-0.463	1.20	-0.954
C V 3S 4P 672.1 Å C= 0.11E+20	50000.	0.156	0.141E-02	0.829E-02	0.814E-02	*0.161E-01	*0.147E-01
	100000.	0.122	0.128E-02	0.130E-01	0.115E-01	*0.258E-01	*0.220E-01
	150000.	0.106	0.147E-02	0.152E-01	0.129E-01	*0.299E-01	*0.261E-01
	200000.	0.969E-01	0.152E-02	0.169E-01	0.141E-01	*0.330E-01	*0.284E-01
	300000.	0.854E-01	0.122E-02	0.198E-01	0.157E-01	*0.376E-01	*0.324E-01
	500000.	0.731E-01	0.817E-03	0.242E-01	0.177E-01	*0.426E-01	*0.363E-01

M. S. DIMITRIJEVIĆ AND S. SAHAL-BRÉCHOT

PERTURBER DENSITY = $1 \times 10^{18} \text{cm}^{-3}$							
PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS WIDTH(Å)	SHIFT(Å)	PROTONS WIDTH(Å)	SHIFT(Å)	He III WIDTH(Å)	SHIFT(Å)
C V 3S 5P 472.2 Å C= 0.28E+19	50000.	0.176	0.400E-02	*0.179E-01	*0.143E-01		
	100000.	0.141	0.437E-02	*0.235E-01	*0.198E-01		
	150000.	0.124	0.419E-02	*0.268E-01	*0.223E-01		
	200000.	0.114	0.400E-02	*0.300E-01	*0.247E-01		
	300000.	0.100	0.386E-02	*0.344E-01	*0.266E-01		
	500000.	0.861E-01	0.366E-02	*0.406E-01	*0.296E-01		
C V 4S 5P 1475.1 Å C= 0.27E+20	50000.	2.02	-0.649E-02	*0.154	*0.121		
	100000.	1.62	0.848E-03	*0.199	*0.163		
	150000.	1.43	-0.106E-02	*0.230	*0.184		
	200000.	1.31	-0.247E-02	*0.255	*0.202		
	300000.	1.16	-0.400E-02	*0.294	*0.218		
	500000.	0.992	-0.411E-03	*0.346	*0.241		
C V 2P 3S 260.2 Å C= 0.80E+19	50000.	0.490E-02	0.311E-03	0.135E-03	0.317E-03	0.264E-03	0.588E-03
	100000.	0.367E-02	0.432E-03	0.312E-03	0.487E-03	0.627E-03	0.945E-03
	150000.	0.316E-02	0.415E-03	0.457E-03	0.587E-03	0.912E-03	0.119E-02
	200000.	0.285E-02	0.414E-03	0.569E-03	0.640E-03	0.116E-02	0.130E-02
	300000.	0.247E-02	0.408E-03	0.683E-03	0.714E-03	0.139E-02	0.147E-02
	500000.	0.209E-02	0.401E-03	0.833E-03	0.813E-03	0.168E-02	0.168E-02
C V 2P 4S 189.3 Å C= 0.17E+19	50000.	0.783E-02	0.938E-03	0.674E-03	0.877E-03	*0.135E-02	*0.157E-02
	100000.	0.609E-02	0.928E-03	0.112E-02	0.120E-02	*0.229E-02	*0.227E-02
	150000.	0.531E-02	0.918E-03	0.134E-02	0.136E-02	*0.274E-02	*0.273E-02
	200000.	0.484E-02	0.908E-03	0.148E-02	0.149E-02	*0.305E-02	*0.295E-02
	300000.	0.426E-02	0.904E-03	0.171E-02	0.165E-02	*0.345E-02	*0.340E-02
	500000.	0.364E-02	0.809E-03	0.203E-02	0.185E-02	*0.404E-02	*0.374E-02
C V 2P 5S 168.4 Å C= 0.68E+18	50000.	0.159E-01	0.206E-02	*0.228E-02	*0.209E-02		
	100000.	0.126E-01	0.209E-02	*0.307E-02	*0.291E-02		
	150000.	0.111E-01	0.211E-02	*0.350E-02	*0.328E-02		
	200000.	0.101E-01	0.208E-02	*0.391E-02	*0.364E-02		
	300000.	0.896E-02	0.194E-02	*0.444E-02	*0.395E-02		
	500000.	0.763E-02	0.171E-02	*0.519E-02	*0.437E-02		
C V 3P 4S 756.9 Å C= 0.28E+20	50000.	0.165	0.140E-01	0.103E-01	0.133E-01	*0.206E-01	*0.239E-01
	100000.	0.128	0.138E-01	0.171E-01	0.182E-01	*0.351E-01	*0.346E-01
	150000.	0.112	0.135E-01	0.207E-01	0.206E-01	*0.417E-01	*0.414E-01
	200000.	0.102	0.134E-01	0.229E-01	0.226E-01	*0.463E-01	*0.451E-01
	300000.	0.895E-01	0.134E-01	0.268E-01	0.251E-01	*0.530E-01	*0.512E-01
	500000.	0.765E-01	0.119E-01	0.317E-01	0.277E-01	*0.635E-01	*0.573E-01
C V 3P 5S 506.3 Å C= 0.62E+19	50000.	0.160	0.181E-01	*0.205E-01	*0.187E-01		
	100000.	0.127	0.184E-01	*0.274E-01	*0.261E-01		
	150000.	0.112	0.185E-01	*0.312E-01	*0.294E-01		
	200000.	0.102	0.183E-01	*0.349E-01	*0.326E-01		
	300000.	0.904E-01	0.170E-01	*0.393E-01	*0.353E-01		
	500000.	0.771E-01	0.150E-01	*0.469E-01	*0.392E-01		
C V 4P 5S 1651.0 Å C= 0.66E+20	50000.	2.23	0.173	*0.198	*0.180		
	100000.	1.78	0.174	*0.264	*0.249		
	150000.	1.57	0.176	*0.306	*0.283		
	200000.	1.44	0.173	*0.345	*0.309		
	300000.	1.27	0.162	*0.391	*0.332		
	500000.	1.09	0.143	*0.461	*0.369		
C V 2P 3D 248.7 Å C= 0.36E+19	50000.	0.369E-02	-0.104E-03	0.889E-04	-0.152E-03	0.168E-03	-0.284E-03
	100000.	0.272E-02	-0.503E-04	0.200E-03	-0.248E-03	0.393E-03	-0.489E-03
	150000.	0.230E-02	-0.464E-04	0.271E-03	-0.304E-03	0.528E-03	-0.615E-03
	200000.	0.205E-02	-0.506E-04	0.340E-03	-0.347E-03	0.654E-03	-0.700E-03
	300000.	0.176E-02	-0.450E-04	0.423E-03	-0.385E-03	0.811E-03	-0.793E-03
	500000.	0.147E-02	-0.245E-04	0.534E-03	-0.444E-03	0.987E-03	-0.913E-03

## STARK BROADENING PARAMETER TABLES FOR C V AND P V

PERTURBER DENSITY = $1 \times 10^{18} \text{cm}^{-3}$							
PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS WIDTH(Å)	SHIFT(Å)	PROTONS WIDTH(Å)	SHIFT(Å)	He III WIDTH(Å)	SHIFT(Å)
C V 2P 4D 186.7 Å C= 0.51E+17	50000.	0.920E-02	-0.246E-03				
	100000.	0.738E-02	-0.175E-03				
	150000.	0.650E-02	-0.152E-03				
	200000.	0.594E-02	-0.108E-03				
	300000.	0.523E-02	-0.187E-04				
	500000.	0.445E-02	0.643E-04				
C V 3D 4P 763.1 Å C= 0.14E+20	50000.	0.185	0.544E-02	0.126E-01	0.126E-01	*0.247E-01	*0.227E-01
	100000.	0.145	0.583E-02	0.192E-01	0.174E-01	*0.383E-01	*0.331E-01
	150000.	0.126	0.589E-02	0.227E-01	0.197E-01	*0.446E-01	*0.397E-01
	200000.	0.115	0.599E-02	0.253E-01	0.216E-01	*0.493E-01	*0.430E-01
	300000.	0.102	0.550E-02	0.294E-01	0.238E-01	*0.563E-01	*0.495E-01
	500000.	0.869E-01	0.473E-02	0.360E-01	0.265E-01	*0.650E-01	*0.553E-01
C V 3D 5P 515.4 Å C= 0.33E+19	50000.	0.202	0.644E-02	*0.219E-01	*0.176E-01		
	100000.	0.162	0.712E-02	*0.287E-01	*0.243E-01		
	150000.	0.143	0.682E-02	*0.333E-01	*0.276E-01		
	200000.	0.131	0.661E-02	*0.371E-01	*0.301E-01		
	300000.	0.116	0.639E-02	*0.416E-01	*0.324E-01		
	500000.	0.992E-01	0.604E-02	*0.493E-01	*0.360E-01		
C V 4D 5P 1651.4 Å C= 0.40E+19	50000.	2.53	0.808E-01				
	100000.	2.05	0.845E-01				
	150000.	1.81	0.799E-01				
	200000.	1.66	0.740E-01				
	300000.	1.47	0.651E-01				
	500000.	1.26	0.559E-01				
C V 3D 4F 748.4 Å C= 0.82E+18	50000.	0.972E-01	0.201E-02				
	100000.	0.769E-01	0.152E-02				
	150000.	0.672E-01	0.111E-02				
	200000.	0.613E-01	0.105E-02				
	300000.	0.540E-01	0.534E-03				
	500000.	0.462E-01	-0.447E-03	*0.201	*-0.102		
PERTURBER DENSITY = $1 \times 10^{19} \text{cm}^{-3}$							
C V 1S 2P 40.3 Å C= 0.47E+19	50000.	0.297E-03	-0.128E-04	0.118E-05	-0.166E-05	0.202E-05	-0.261E-05
	100000.	0.211E-03	-0.335E-05	0.332E-05	-0.373E-05	0.607E-05	-0.690E-05
	150000.	0.174E-03	-0.189E-05	0.557E-05	-0.553E-05	0.104E-04	-0.106E-04
	200000.	0.152E-03	-0.139E-05	0.748E-05	-0.699E-05	0.142E-04	-0.135E-04
	300000.	0.127E-03	-0.993E-06	0.108E-04	-0.920E-05	0.209E-04	-0.183E-04
	500000.	0.102E-03	-0.108E-05	0.151E-04	-0.119E-04	0.290E-04	-0.240E-04
C V 2S 2P 3478.6 Å C= 0.35E+23	50000.	3.43	-0.101	0.151E-01	-0.556E-01	0.268E-01	-0.877E-01
	100000.	2.49	-0.971E-01	0.550E-01	-0.115	0.105	-0.212
	150000.	2.09	-0.112	0.966E-01	-0.158	0.186	-0.303
	200000.	1.85	-0.114	0.133	-0.186	0.264	-0.360
	300000.	1.56	-0.108	0.181	-0.228	0.361	-0.452
	500000.	1.29	-0.107	0.269	-0.276	0.532	-0.560
C V 2P 3S 272.2 Å C= 0.61E+20	50000.	0.608E-01	0.361E-02	0.258E-02	0.409E-02	*0.492E-02	*0.599E-02
	100000.	0.463E-01	0.462E-02	0.520E-02	0.659E-02	*0.105E-01	*0.116E-01
	150000.	0.400E-01	0.473E-02	0.750E-02	0.813E-02	*0.151E-01	*0.149E-01
	200000.	0.362E-01	0.471E-02	0.863E-02	0.912E-02	*0.174E-01	*0.167E-01
	300000.	0.316E-01	0.472E-02	0.104E-01	0.103E-01	*0.210E-01	*0.197E-01
	500000.	0.269E-01	0.463E-02	0.127E-01	0.120E-01	*0.251E-01	*0.240E-01
C V 2P 3D 267.6 Å C= 0.13E+20	50000.	0.451E-01	0.694E-03	0.316E-02	0.429E-02	*0.592E-02	*0.622E-02
	100000.	0.339E-01	0.151E-02	0.619E-02	0.691E-02	*0.118E-01	*0.120E-01
	150000.	0.290E-01	0.173E-02	0.902E-02	0.843E-02	*0.167E-01	*0.154E-01
	200000.	0.260E-01	0.167E-02	0.105E-01	0.954E-02	*0.190E-01	*0.173E-01
	300000.	0.224E-01	0.169E-02	0.130E-01	0.107E-01	*0.228E-01	*0.206E-01
	500000.	0.188E-01	0.176E-02	0.167E-01	0.126E-01	*0.272E-01	*0.248E-01

M. S. DIMITRIJEVIĆ AND S. SAHAL-BRÉCHOT

PERTURBER DENSITY = $1 \times 10^{19} \text{cm}^{-3}$							
PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS WIDTH(Å)	SHIFT(Å)	PROTONS WIDTH(Å)	SHIFT(Å)	He III WIDTH(Å)	SHIFT(Å)
C V 2S 2P 2274.6 Å C= 0.23E+23	50000.	1.31	-0.218E-01	0.407E-02	-0.141E-01	0.706E-02	-0.222E-01
	100000.	0.939	-0.297E-01	0.142E-01	-0.303E-01	0.264E-01	-0.560E-01
	150000.	0.781	-0.342E-01	0.248E-01	-0.423E-01	0.478E-01	-0.809E-01
	200000.	0.688	-0.373E-01	0.364E-01	-0.523E-01	0.709E-01	-0.101
	300000.	0.580	-0.370E-01	0.500E-01	-0.635E-01	0.995E-01	-0.126
	500000.	0.473	-0.365E-01	0.763E-01	-0.808E-01	0.151	-0.164
C V 2S 3P 227.2 Å C= 0.30E+20	50000.	0.506E-01	0.281E-03	0.115E-02	0.117E-02	*0.207E-02	*0.180E-02
	100000.	0.380E-01	0.374E-03	0.224E-02	0.204E-02	*0.436E-02	*0.372E-02
	150000.	0.325E-01	0.441E-03	0.299E-02	0.260E-02	*0.579E-02	*0.489E-02
	200000.	0.293E-01	0.391E-03	0.364E-02	0.304E-02	*0.705E-02	*0.575E-02
	300000.	0.254E-01	0.443E-03	0.431E-02	0.340E-02	*0.826E-02	*0.667E-02
	500000.	0.214E-01	0.415E-03	0.531E-02	0.396E-02	*0.974E-02	*0.800E-02
C V 2S 4P 173.3 Å C= 0.73E+19	50000.	0.887E-01	0.692E-04	*0.593E-02	*0.459E-02		
	100000.	0.694E-01	0.112E-02	*0.928E-02	*0.705E-02		
	150000.	0.607E-01	0.146E-02	*0.111E-01	*0.865E-02		
	200000.	0.554E-01	0.156E-02	*0.123E-01	*0.990E-02		
	300000.	0.488E-01	0.144E-02	*0.145E-01	*0.112E-01		
	500000.	0.417E-01	0.136E-02	*0.174E-01	*0.130E-01		
C V 2S 5P 156.2 Å C= 0.31E+19	50000.	*0.168	*-0.151E-02				
	100000.	*0.137	*0.149E-02				
	150000.	0.121	0.200E-02				
	200000.	0.112	0.212E-02				
	300000.	0.991E-01	0.209E-02				
	500000.	0.854E-01	0.248E-02				
C V 3S 4P 672.1 Å C= 0.11E+21	50000.	1.54	-0.138E-01	*0.807E-01	*0.615E-01		
	100000.	1.20	-0.610E-02	*0.129	*0.963E-01		
	150000.	1.05	-0.641E-04	*0.152	*0.116		
	200000.	0.961	0.144E-02	*0.169	*0.134		
	300000.	0.847	-0.144E-03	*0.199	*0.151		
	500000.	0.725	-0.150E-02	*0.242	*0.176		
C V 3S 5P 472.2 Å C= 0.28E+20	50000.	* 1.64	*-0.213E-01				
	100000.	* 1.33	*0.218E-02				
	150000.	1.18	0.729E-02				
	200000.	1.08	0.845E-02				
	300000.	0.961	0.828E-02				
	500000.	0.828	0.118E-01				
C V 4S 5P 1475.1 Å C= 0.27E+21	50000.	* 19.1	*-0.496				
	100000.	* 15.4	*-0.284				
	150000.	* 13.7	*-0.252				
	200000.	12.5	-0.250				
	300000.	11.1	-0.262				
	500000.	9.60	-0.190				
C V 2P 3S 260.2 Å C= 0.80E+20	50000.	0.490E-01	0.254E-02	0.134E-02	0.263E-02	*0.260E-02	*0.391E-02
	100000.	0.367E-01	0.384E-02	0.313E-02	0.436E-02	*0.627E-02	*0.774E-02
	150000.	0.316E-01	0.376E-02	0.456E-02	0.552E-02	*0.911E-02	*0.102E-01
	200000.	0.285E-01	0.379E-02	0.569E-02	0.618E-02	*0.115E-01	*0.115E-01
	300000.	0.247E-01	0.377E-02	0.684E-02	0.696E-02	*0.140E-01	*0.135E-01
	500000.	0.209E-01	0.378E-02	0.833E-02	0.810E-02	*0.168E-01	*0.163E-01
C V 2P 4S 189.3 Å C= 0.17E+20	50000.	0.781E-01	0.631E-02	*0.671E-02	*0.641E-02		
	100000.	0.608E-01	0.717E-02	*0.112E-01	*0.984E-02		
	150000.	0.530E-01	0.739E-02	*0.135E-01	*0.120E-01		
	200000.	0.483E-01	0.753E-02	*0.148E-01	*0.140E-01		
	300000.	0.425E-01	0.767E-02	*0.172E-01	*0.158E-01		
	500000.	0.363E-01	0.704E-02	*0.203E-01	*0.184E-01		



## STARK BROADENING PARAMETER TABLES FOR C V AND P V

PERTURBER DENSITY = 1xE+19cm-3							
PERTURBERS ARE:		ELECTRONS		PROTONS		He III	
TRANSITION	T(K)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
C V 2P 5S 168.4 Å C= 0.68E+19	50000.	*0.154	*0.786E-02				
	100000.	0.123	0.122E-01				
	150000.	0.108	0.141E-01				
	200000.	0.990E-01	0.144E-01				
	300000.	0.877E-01	0.137E-01				
	500000.	0.748E-01	0.127E-01				
C V 3P 4S 756.9 Å C= 0.28E+21	50000.	1.64	0.935E-01	*0.102	*0.978E-01		
	100000.	1.28	0.106	*0.171	*0.150		
	150000.	1.11	0.109	*0.206	*0.183		
	200000.	1.02	0.112	*0.229	*0.212		
	300000.	0.893	0.113	*0.267	*0.240		
	500000.	0.764	0.104	*0.317	*0.275		
C V 3P 5S 506.3 Å C= 0.62E+20	50000.	* 1.56	*0.669E-01				
	100000.	1.24	0.106				
	150000.	1.09	0.123				
	200000.	1.00	0.126				
	300000.	0.887	0.120				
	500000.	0.757	0.111				
C V 4P 5S 1651.0 Å C= 0.66E+21	50000.	* 21.7	*0.696				
	100000.	* 17.4	* 1.04				
	150000.	15.3	1.19				
	200000.	14.1	1.21				
	300000.	12.5	1.16				
	500000.	10.7	1.07				
C V 2P 3D 248.7 Å C= 0.36E+20	50000.	0.369E-01	-0.594E-03	0.877E-03	-0.128E-02	*0.160E-02	-0.198E-02
	100000.	0.272E-01	-0.303E-03	0.199E-02	-0.226E-02	*0.390E-02	-0.414E-02
	150000.	0.230E-01	-0.290E-03	0.271E-02	-0.288E-02	*0.526E-02	-0.543E-02
	200000.	0.205E-01	-0.350E-03	0.340E-02	-0.338E-02	*0.653E-02	-0.636E-02
	300000.	0.176E-01	-0.320E-03	0.423E-02	-0.377E-02	*0.813E-02	-0.742E-02
	500000.	0.147E-01	-0.138E-03	0.534E-02	-0.443E-02	*0.987E-02	-0.890E-02
C V 2P 4D 186.7 Å C= 0.51E+18	50000.	0.785E-01	-0.155E-02				
	100000.	0.642E-01	-0.143E-02				
	150000.	0.572E-01	-0.144E-02				
	200000.	0.526E-01	-0.123E-02				
	300000.	0.468E-01	-0.932E-03				
	500000.	0.402E-01	-0.733E-03				
C V 3D 4P 763.1 Å C= 0.14E+21	50000.	1.83	0.943E-02	*0.123	*0.940E-01		
	100000.	1.43	0.279E-01	*0.191	*0.144		
	150000.	1.25	0.349E-01	*0.228	*0.175		
	200000.	1.14	0.377E-01	*0.253	*0.203		
	300000.	1.01	0.352E-01	*0.293	*0.227		
	500000.	0.862	0.318E-01	*0.360	*0.263		
C V 3D 5P 515.4 Å C= 0.33E+20	50000.	* 1.88	*-0.127E-01				
	100000.	* 1.52	*0.190E-01				
	150000.	1.35	0.247E-01				
	200000.	1.24	0.265E-01				
	300000.	1.11	0.260E-01				
	500000.	0.952	0.294E-01				
C V 4D 5P 1651.4 Å C= 0.40E+20	50000.	* 22.8	*-0.359E-01				
	100000.	* 18.8	*0.293				
	150000.	* 16.8	*0.354				
	200000.	15.5	0.353				
	300000.	13.8	0.326				
	500000.	11.9	0.353				

PERTURBER DENSITY = $1 \times 10^{18} \text{cm}^{-3}$				PERTURBER DENSITY = $1 \times 10^{20} \text{cm}^{-3}$			
PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS WIDTH(Å)	SHIFT(Å)	PROTONS WIDTH(Å)	SHIFT(Å)	He III WIDTH(Å)	SHIFT(Å)
C V 3D 4F 748.4 Å C= 0.82E+19	50000.	0.827	0.293E-01				
	100000.	0.665	0.245E-01				
	150000.	0.588	0.206E-01				
	200000.	0.540	0.220E-01				
	300000.	0.480	0.223E-01				
	500000.	0.416	0.179E-01				
C V 1S 2P 40.3 Å C= 0.47E+20	50000.	0.297E-02	-0.121E-03	0.990E-05	-0.997E-05	0.112E-04	-0.871E-05
	100000.	0.211E-02	-0.277E-04	0.325E-04	-0.314E-04	0.552E-04	-0.477E-04
	200000.	0.152E-02	-0.916E-05	0.744E-04	-0.643E-04	0.140E-03	-0.118E-03
	300000.	0.127E-02	-0.595E-05	0.108E-03	-0.881E-04	0.207E-03	-0.167E-03
	500000.	0.102E-02	-0.696E-05	0.151E-03	-0.117E-03	0.290E-03	-0.228E-03
	1000000.	0.779E-03	-0.696E-07	0.213E-03	-0.151E-03	0.399E-03	-0.306E-03
C V 2P 3S 272.2 Å C= 0.61E+21	50000.	*0.590	*-0.883E-02				
	100000.	0.453	0.179E-01				
	200000.	0.356	0.280E-01				
	300000.	0.311	0.319E-01				
	500000.	0.265	0.339E-01				
	1000000.	0.213	0.309E-01	*0.166	*0.139		
C V 2P 3D 267.6 Å C= 0.13E+21	50000.	0.402	-0.108E-01				
	100000.	0.309	0.195E-02				
	200000.	0.240	0.711E-02				
	300000.	0.208	0.899E-02				
	500000.	0.176	0.108E-01				
	1000000.	0.143	0.112E-01				
C V 2S 2P 2274.6 Å C= 0.23E+24	50000.	13.1	-0.107	0.354E-01	-0.842E-01	0.446E-01	-0.727E-01
	100000.	9.39	-0.232	0.140	-0.252	0.248	-0.377
	200000.	6.88	-0.327	0.363	-0.476	0.703	-0.864
	300000.	5.80	-0.334	0.500	-0.602	0.992	-1.12
	500000.	4.73	-0.335	0.763	-0.790	1.50	-1.54
	1000000.	3.69	-0.321	1.06	-0.971	2.07	-1.94
C V 2S 3P 227.2 Å C= 0.30E+21	50000.	*0.492	*-0.700E-02	*0.947E-02	*0.627E-02		
	100000.	0.372	-0.264E-02	*0.217E-01	*0.155E-01		
	200000.	0.288	-0.355E-03	*0.361E-01	*0.259E-01		
	300000.	0.250	0.994E-03	*0.430E-01	*0.308E-01		
	500000.	0.211	0.136E-02	*0.531E-01	*0.379E-01		
	1000000.	0.170	0.122E-02	*0.712E-01	*0.470E-01		
C V 2S 4P 173.3 Å C= 0.73E+20	50000.						
	100000.	*0.607	*-0.831E-02				
	200000.	*0.497	*0.783E-03				
	300000.	0.442	0.217E-02				
	500000.	0.382	0.311E-02				
	1000000.	0.315	0.597E-02				
C V 2S 5P 156.2 Å C= 0.31E+20	50000.						
	100000.						
	200000.	*0.883	*-0.225E-02				
	300000.	*0.805	*0.146E-02				
	500000.	*0.711	*0.555E-02				
	1000000.	0.597	0.111E-01				
C V 3S 4P 672.1 Å C= 0.11E+22	50000.						
	100000.	* 10.7	*-0.249				
	200000.	* 8.74	*-0.137				
	300000.	7.78	-0.128				
	500000.	6.72	-0.127				
	1000000.	5.53	-0.681E-01				

STARK BROADENING PARAMETER TABLES FOR C V AND P V

PERTURBER DENSITY = $1 \times 10^{20} \text{cm}^{-3}$		ELECTRONS		PROTONS		He III	
PERTURBERS ARE:	T(K)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
TRANSITION							
C V 3S 5P 472.2 Å C= 0.28E+21	50000.						
	100000.						
	200000.	* 8.69	*-0.945E-01				
	300000.	* 7.90	*-0.662E-01				
	500000.	* 6.97	*-0.354E-01				
	1000000.	5.85	0.231E-01				
C V 2P 3S 260.2 Å C= 0.80E+21	50000.	0.486	-0.126E-02	*0.127E-01	*0.129E-01		
	100000.	0.365	0.217E-01	*0.311E-01	*0.317E-01		
	200000.	0.283	0.267E-01	*0.570E-01	*0.506E-01		
	300000.	0.246	0.285E-01	*0.679E-01	*0.619E-01		
	500000.	0.208	0.305E-01	*0.833E-01	*0.768E-01		
	1000000.	0.168	0.279E-01	*0.108	*0.949E-01		
C V 2P 4S 189.3 Å C= 0.17E+21	50000.	*0.681	*-0.375E-01				
	100000.	*0.553	*0.615E-02				
	200000.	0.448	0.315E-01				
	300000.	0.397	0.408E-01				
	500000.	0.342	0.414E-01				
	1000000.	0.277	0.397E-01				
C V 2P 5S 168.4 Å C= 0.68E+20	50000.						
	100000.						
	200000.	*0.791	*0.299E-01				
	300000.	*0.718	*0.429E-01				
	500000.	0.627	0.480E-01				
	1000000.	0.513	0.587E-01				
C V 3P 4S 756.9 Å C= 0.28E+22	50000.						
	100000.	* 11.8	*0.932E-01				
	200000.	* 9.53	*0.467				
	300000.	8.44	0.601				
	500000.	7.26	0.608				
	1000000.	5.90	0.586				
C V 3P 5S 506.3 Å C= 0.62E+21	50000.						
	100000.						
	200000.	* 8.19	*0.252				
	300000.	* 7.41	*0.363				
	500000.	* 6.46	*0.409				
	1000000.	5.29	0.508				
C V 2P 3D 248.7 Å C= 0.36E+21	50000.	0.359	0.486E-02	*0.764E-02	-0.697E-02		
	100000.	0.266	0.402E-02	*0.195E-01	-0.174E-01		
	200000.	0.202	0.121E-02	*0.337E-01	-0.288E-01		
	300000.	0.173	0.626E-03	*0.422E-01	-0.343E-01		
	500000.	0.145	0.170E-02	*0.534E-01	-0.424E-01		
	1000000.	0.117	0.134E-02	*0.719E-01	-0.522E-01		
C V 2P 4D 186.7 Å C= 0.51E+19	50000.	*0.591	*0.216E-01				
	100000.	*0.504	*0.994E-02				
	200000.	0.428	0.299E-02				
	300000.	0.387	0.282E-02				
	500000.	0.340	0.212E-02				
	1000000.	0.283	0.385E-03				
C V 3D 4P 763.1 Å C= 0.14E+22	50000.						
	100000.	* 12.5	*-0.173				
	200000.	* 10.3	*0.407E-01				
	300000.	9.16	0.739E-01				
	500000.	7.93	0.820E-01				
	1000000.	6.54	0.139				

PERTURBER DENSITY = $1 \times 10^{20} \text{cm}^{-3}$							
PERTURBERS ARE:		ELECTRONS		PROTONS		He III	
TRANSITION	T(K)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
C V 3D 5P 515.4 Å C= 0.33E+21	50000.						
	100000.						
	200000.	* 9.89	*-0.130E-01				
	300000.	* 9.01	*0.303E-01				
	500000.	* 7.96	*0.703E-01				
1000000.	6.69	0.131					
C V 3D 4F 748.4 Å C= 0.82E+20	50000.	* 6.93	*0.124				
	100000.	5.60	0.157				
	200000.	4.62	0.185				
	300000.	4.16	0.200				
	500000.	3.66	0.171				
1000000.	3.09	0.165					
PERTURBER DENSITY = $1 \times 10^{21} \text{cm}^{-3}$							
C V 1S 2P 40.3 Å C= 0.47E+21	50000.						
	100000.	0.210E-01	0.571E-04	0.265E-03	-0.177E-03	*0.263E-03	-0.132E-03
	200000.	0.152E-01	0.958E-04	0.720E-03	-0.514E-03	*0.118E-02	-0.708E-03
	300000.	0.126E-01	0.908E-04	0.107E-02	-0.759E-03	*0.198E-02	-0.126E-02
	500000.	0.102E-01	0.417E-04	0.150E-02	-0.106E-02	*0.284E-02	-0.190E-02
1000000.	0.777E-02	0.811E-04	0.213E-02	-0.146E-02	*0.397E-02	-0.279E-02	
C V 2P 3S 272.2 Å C= 0.61E+22	50000.						
	100000.	* 3.41	*-0.362				
	200000.	* 2.90	*-0.980E-01				
	300000.	2.61	0.704E-02				
	500000.	2.27	0.997E-01				
1000000.	1.87	0.127					
C V 2P 3D 267.6 Å C= 0.13E+22	50000.						
	100000.	* 2.62	*-0.416E-01				
	200000.	2.06	0.941E-02				
	300000.	1.80	0.356E-01				
	500000.	1.55	0.636E-01				
1000000.	1.28	0.702E-01					
C V 2S 3P 227.2 Å C= 0.30E+22	50000.						
	100000.	* 3.13	*-0.423E-01				
	200000.	* 2.52	*-0.262E-01				
	300000.	* 2.22	*-0.147E-01				
	500000.	1.91	-0.723E-02				
1000000.	1.56	-0.564E-02					
C V 2S 4P 173.3 Å C= 0.73E+21	50000.						
	100000.						
	200000.						
	300000.	* 3.27	*-0.414E-02				
	500000.	* 2.96	*0.585E-02				
1000000.	* 2.54	*0.246E-01					
C V 2P 3S 260.2 Å C= 0.80E+22	50000.						
	100000.	* 3.04	*-0.231				
	200000.	* 2.49	*-0.335E-01				
	300000.	2.20	0.475E-01				
	500000.	1.89	0.125				
1000000.	1.54	0.143					
C V 2P 4S 189.3 Å C= 0.17E+22	50000.						
	100000.						
	200000.	* 2.87	*-0.218				
	300000.	* 2.72	*-0.489E-01				
	500000.	* 2.48	*0.541E-01				
1000000.	* 2.12	*0.107					

## STARK BROADENING PARAMETER TABLES FOR C V AND P V

PERTURBER DENSITY = $1 \times 10^{21} \text{cm}^{-3}$							
PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS WIDTH(Å)	SHIFT(Å)	PROTONS WIDTH(Å)	SHIFT(Å)	He III WIDTH(Å)	SHIFT(Å)
C V 2P 3D 248.7 Å C= 0.36E+22	50000.						
	100000.	* 2.35	*0.114				
	200000.	1.82	0.708E-01				
	300000.	1.58	0.575E-01				
	500000.	1.34	0.572E-01				
	1000000.	1.09	0.454E-01				
C V 2P 4D 186.7 Å C= 0.51E+20	50000.						
	100000.						
	200000.	* 3.04	*0.113				
	300000.	* 2.83	*0.102				
	500000.	* 2.58	*0.808E-01				
	1000000.	2.24	0.620E-01				
PERTURBER DENSITY = $1 \times 10^{22}$							
C V 1S 2P 40.3 Å C= 0.47E+22	50000.						
	100000.						
	200000.	*0.142	*0.441E-02				
	300000.	0.120	0.385E-02				
	500000.	0.970E-01	0.264E-02				
	1000000.	0.747E-01	0.237E-02				
PERTURBER DENSITY = $1 \times 10^{17} \text{cm}^{-3}$							
P V 3S 3P 1121.8 Å C= 0.11E+21	50000.	0.626E-02	-0.594E-04	0.633E-04	-0.266E-04	0.122E-03	-0.519E-04
	100000.	0.447E-02	-0.762E-04	0.136E-03	-0.516E-04	0.266E-03	-0.103E-03
	150000.	0.371E-02	-0.584E-04	0.190E-03	-0.713E-04	0.373E-03	-0.143E-03
	200000.	0.328E-02	-0.729E-04	0.224E-03	-0.875E-04	0.443E-03	-0.176E-03
	300000.	0.278E-02	-0.871E-04	0.278E-03	-0.108E-03	0.550E-03	-0.219E-03
	500000.	0.232E-02	-0.764E-04	0.329E-03	-0.139E-03	0.657E-03	-0.280E-03
P V 3S 4P 328.6 Å C= 0.34E+19	50000.	0.139E-02	0.178E-04	0.619E-04	0.890E-05	0.121E-03	0.174E-04
	100000.	0.103E-02	0.166E-04	0.923E-04	0.156E-04	0.182E-03	0.310E-04
	150000.	0.877E-03	0.202E-04	0.110E-03	0.201E-04	0.218E-03	0.406E-04
	200000.	0.792E-03	0.224E-04	0.117E-03	0.228E-04	0.233E-03	0.460E-04
	300000.	0.693E-03	0.220E-04	0.127E-03	0.277E-04	0.252E-03	0.561E-04
	500000.	0.598E-03	0.206E-04	0.138E-03	0.321E-04	0.275E-03	0.649E-04
P V 3S 5P 255.6 Å C= 0.95E+18	50000.	0.175E-02	0.497E-04	0.158E-03	0.299E-04	0.310E-03	0.583E-04
	100000.	0.140E-02	0.570E-04	0.200E-03	0.439E-04	0.399E-03	0.875E-04
	150000.	0.125E-02	0.646E-04	0.217E-03	0.529E-04	0.432E-03	0.107E-03
	200000.	0.116E-02	0.584E-04	0.228E-03	0.574E-04	0.453E-03	0.116E-03
	300000.	0.105E-02	0.566E-04	0.243E-03	0.638E-04	0.484E-03	0.130E-03
	500000.	0.934E-03	0.528E-04	0.258E-03	0.728E-04	0.514E-03	0.148E-03
P V 3S 6P 229.8 Å C= 0.42E+18	50000.	0.282E-02	0.104E-03	0.356E-03	0.694E-04	*0.705E-03	*0.135E-03
	100000.	0.238E-02	0.137E-03	0.404E-03	0.961E-04	*0.804E-03	*0.192E-03
	150000.	0.217E-02	0.124E-03	0.433E-03	0.107E-03	*0.863E-03	*0.216E-03
	200000.	0.204E-02	0.122E-03	0.452E-03	0.115E-03	0.902E-03	0.234E-03
	300000.	0.187E-02	0.117E-03	0.471E-03	0.128E-03	0.938E-03	0.259E-03
	500000.	0.170E-02	0.114E-03	0.492E-03	0.145E-03	0.974E-03	0.293E-03
P V 4S 4P 3185.6 Å C= 0.32E+21	50000.	0.170	-0.412E-02	0.600E-02	-0.260E-02	0.117E-01	-0.508E-02
	100000.	0.127	-0.405E-02	0.908E-02	-0.405E-02	0.179E-01	-0.812E-02
	150000.	0.110	-0.481E-02	0.109E-01	-0.493E-02	0.217E-01	-0.996E-02
	200000.	0.997E-01	-0.485E-02	0.117E-01	-0.558E-02	0.233E-01	-0.113E-01
	300000.	0.882E-01	-0.432E-02	0.128E-01	-0.619E-02	0.255E-01	-0.125E-01
	500000.	0.767E-01	-0.423E-02	0.142E-01	-0.714E-02	0.283E-01	-0.144E-01
P V 4S 5P 845.8 Å C= 0.10E+20	50000.	0.217E-01	0.112E-03	0.172E-02	0.122E-03	0.337E-02	0.238E-03
	100000.	0.174E-01	0.218E-03	0.218E-02	0.200E-03	0.433E-02	0.400E-03
	150000.	0.156E-01	0.228E-03	0.235E-02	0.242E-03	0.468E-02	0.487E-03
	200000.	0.144E-01	0.142E-03	0.246E-02	0.279E-03	0.491E-02	0.562E-03
	300000.	0.131E-01	0.164E-03	0.262E-02	0.320E-03	0.523E-02	0.650E-03
	500000.	0.117E-01	0.142E-03	0.278E-02	0.367E-03	0.553E-02	0.740E-03

PERTURBER DENSITY = $1 \times 10^{17} \text{cm}^{-3}$							
PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS WIDTH(Å)	SHIFT(Å)	PROTONS WIDTH(Å)	SHIFT(Å)	He III WIDTH(Å)	SHIFT(Å)
P V 4S 6P 616.8 Å C= 0.30E+19	50000.	0.218E-01	0.471E-03	0.256E-02	0.428E-03	*0.506E-02	*0.833E-03
	100000.	0.183E-01	0.753E-03	0.290E-02	0.597E-03	*0.577E-02	*0.119E-02
	150000.	0.166E-01	0.617E-03	0.310E-02	0.662E-03	*0.618E-02	*0.134E-02
	200000.	0.156E-01	0.605E-03	0.324E-02	0.718E-03	0.646E-02	0.145E-02
	300000.	0.144E-01	0.591E-03	0.337E-02	0.796E-03	0.671E-02	0.162E-02
	500000.	0.130E-01	0.586E-03	0.349E-02	0.906E-03	0.694E-02	0.182E-02
P V 5S 5P 6872.7 Å C= 0.69E+21	50000.	1.88	-0.715E-01	0.121	-0.588E-01	0.238	-0.114
	100000.	1.53	-0.866E-01	0.156	-0.817E-01	0.311	-0.163
	150000.	1.38	-0.805E-01	0.171	-0.906E-01	0.343	-0.183
	200000.	1.28	-0.819E-01	0.182	-0.983E-01	0.365	-0.199
	300000.	1.16	-0.783E-01	0.199	-0.109	0.398	-0.221
	500000.	1.04	-0.767E-01	0.215	-0.123	0.431	-0.251
P V 5S 6P 1710.8 Å C= 0.23E+20	50000.	0.193	-0.123E-02	0.196E-01	-0.105E-02	*0.388E-01	-0.204E-02
	100000.	0.163	-0.425E-03	0.222E-01	-0.157E-02	*0.441E-01	-0.313E-02
	150000.	0.149	-0.116E-02	0.237E-01	-0.192E-02	*0.472E-01	-0.387E-02
	200000.	0.140	-0.995E-03	0.247E-01	-0.212E-02	0.492E-01	-0.429E-02
	300000.	0.129	-0.968E-03	0.257E-01	-0.236E-02	0.511E-01	-0.477E-02
	500000.	0.116	-0.815E-03	0.266E-01	-0.269E-02	0.527E-01	-0.546E-02
P V 6S 6P 12638.2 Å C= 0.13E+22	50000.	13.5	-0.860	1.18	-0.629	* 2.34	*-1.21
	100000.	11.6	-0.803	1.38	-0.780	* 2.76	*-1.54
	150000.	10.6	-0.804	1.51	-0.869	* 3.01	*-1.75
	200000.	10.0	-0.771	1.60	-0.933	* 3.22	*-1.89
	300000.	9.25	-0.751	1.69	-1.02	3.38	-2.06
	500000.	8.34	-0.669	1.84	-1.13	3.63	-2.31
P V 3P 4S 544.0 Å C= 0.93E+19	50000.	0.276E-02	0.194E-03	0.441E-04	0.100E-03	0.869E-04	0.195E-03
	100000.	0.203E-02	0.187E-03	0.103E-03	0.150E-03	0.207E-03	0.301E-03
	150000.	0.173E-02	0.213E-03	0.142E-03	0.184E-03	0.284E-03	0.371E-03
	200000.	0.155E-02	0.223E-03	0.182E-03	0.205E-03	0.363E-03	0.415E-03
	300000.	0.136E-02	0.209E-03	0.219E-03	0.228E-03	0.440E-03	0.461E-03
	500000.	0.116E-02	0.199E-03	0.263E-03	0.259E-03	0.536E-03	0.526E-03
P V 3P 5S 347.8 Å C= 0.18E+19	50000.	0.251E-02	0.320E-03	0.117E-03	0.185E-03	0.235E-03	0.358E-03
	100000.	0.194E-02	0.355E-03	0.214E-03	0.253E-03	0.428E-03	0.505E-03
	150000.	0.169E-02	0.345E-03	0.261E-03	0.282E-03	0.523E-03	0.571E-03
	200000.	0.155E-02	0.335E-03	0.292E-03	0.304E-03	0.591E-03	0.613E-03
	300000.	0.137E-02	0.320E-03	0.334E-03	0.336E-03	0.685E-03	0.681E-03
	500000.	0.118E-02	0.304E-03	0.400E-03	0.382E-03	0.792E-03	0.772E-03
P V 3P 6S 295.8 Å C= 0.69E+18	50000.	0.382E-02	0.758E-03	0.326E-03	0.407E-03	0.650E-03	0.780E-03
	100000.	0.311E-02	0.732E-03	0.468E-03	0.499E-03	0.951E-03	0.983E-03
	150000.	0.277E-02	0.690E-03	0.542E-03	0.555E-03	0.110E-02	0.112E-02
	200000.	0.254E-02	0.659E-03	0.601E-03	0.601E-03	0.120E-02	0.121E-02
	300000.	0.227E-02	0.625E-03	0.691E-03	0.647E-03	0.141E-02	0.131E-02
	500000.	0.198E-02	0.569E-03	0.790E-03	0.712E-03	0.159E-02	0.145E-02
P V 3P 7S 272.9 Å C= 0.36E+18	50000.	0.614E-02	0.188E-02	0.735E-03	0.790E-03	*0.148E-02	*0.148E-02
	100000.	0.524E-02	0.158E-02	0.965E-03	0.967E-03	*0.195E-02	*0.190E-02
	150000.	0.471E-02	0.140E-02	0.109E-02	0.107E-02	*0.222E-02	*0.215E-02
	200000.	0.438E-02	0.130E-02	0.121E-02	0.114E-02	*0.245E-02	*0.230E-02
	300000.	0.396E-02	0.122E-02	0.139E-02	0.123E-02	*0.278E-02	*0.252E-02
	500000.	0.349E-02	0.103E-02	0.149E-02	0.135E-02	*0.302E-02	*0.274E-02
P V 4P 5S 1383.2 Å C= 0.28E+20	50000.	0.522E-01	0.427E-02	0.222E-02	0.283E-02	0.444E-02	0.548E-02
	100000.	0.406E-01	0.500E-02	0.376E-02	0.388E-02	0.755E-02	0.775E-02
	150000.	0.356E-01	0.487E-02	0.444E-02	0.433E-02	0.895E-02	0.874E-02
	200000.	0.327E-01	0.469E-02	0.491E-02	0.464E-02	0.995E-02	0.941E-02
	300000.	0.292E-01	0.447E-02	0.564E-02	0.516E-02	0.112E-01	0.105E-01
	500000.	0.255E-01	0.430E-02	0.647E-02	0.584E-02	0.131E-01	0.118E-01

## STARK BROADENING PARAMETER TABLES FOR C V AND P V

PERTURBER DENSITY = $1 \times 10^{17} \text{cm}^{-3}$							
PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS WIDTH(Å)	SHIFT(Å)	PROTONS WIDTH(Å)	SHIFT(Å)	He III WIDTH(Å)	SHIFT(Å)
P V 4P 6S 814.1 Å C= 0.52E+19	50000.	0.326E-01	0.531E-02	0.253E-02	0.306E-02	0.504E-02	0.586E-02
	100000.	0.265E-01	0.523E-02	0.358E-02	0.375E-02	0.729E-02	0.739E-02
	150000.	0.237E-01	0.496E-02	0.414E-02	0.417E-02	0.843E-02	0.841E-02
	200000.	0.219E-01	0.473E-02	0.455E-02	0.452E-02	0.918E-02	0.905E-02
	300000.	0.197E-01	0.451E-02	0.527E-02	0.488E-02	0.108E-01	0.987E-02
	500000.	0.173E-01	0.411E-02	0.606E-02	0.536E-02	0.121E-01	0.109E-01
P V 4P 7S 661.1 Å C= 0.21E+19	50000.	0.383E-01	0.103E-01	0.433E-02	0.463E-02	*0.872E-02	*0.865E-02
	100000.	0.326E-01	0.886E-02	0.568E-02	0.567E-02	*0.115E-01	*0.111E-01
	150000.	0.294E-01	0.801E-02	0.642E-02	0.627E-02	*0.131E-01	*0.126E-01
	200000.	0.274E-01	0.719E-02	0.711E-02	0.666E-02	*0.144E-01	*0.134E-01
	300000.	0.248E-01	0.681E-02	0.816E-02	0.719E-02	*0.163E-01	*0.147E-01
	500000.	0.220E-01	0.582E-02	0.873E-02	0.789E-02	*0.176E-01	*0.161E-01
P V 5P 6S 2778.6 Å C= 0.61E+20	50000.	0.463	0.531E-01	0.349E-01	0.344E-01	0.696E-01	0.660E-01
	100000.	0.388	0.533E-01	0.462E-01	0.422E-01	0.930E-01	0.835E-01
	150000.	0.353	0.502E-01	0.526E-01	0.469E-01	0.106	0.946E-01
	200000.	0.329	0.488E-01	0.568E-01	0.504E-01	0.116	0.102
	300000.	0.299	0.468E-01	0.655E-01	0.550E-01	0.132	0.113
	500000.	0.267	0.429E-01	0.726E-01	0.605E-01	0.149	0.123
P V 5P 7S 1552.6 Å C= 0.11E+20	50000.	0.234	0.490E-01	0.245E-01	0.252E-01	*0.491E-01	*0.472E-01
	100000.	0.202	0.445E-01	0.319E-01	0.310E-01	*0.643E-01	*0.606E-01
	150000.	0.185	0.391E-01	0.361E-01	0.342E-01	*0.735E-01	*0.688E-01
	200000.	0.173	0.372E-01	0.399E-01	0.364E-01	*0.810E-01	*0.738E-01
	300000.	0.158	0.355E-01	0.452E-01	0.395E-01	*0.895E-01	*0.807E-01
	500000.	0.141	0.304E-01	0.488E-01	0.429E-01	*0.968E-01	*0.871E-01
P V 6P 7S 4877.0 Å C= 0.11E+21	50000.	2.83	0.415	0.276	0.241	*0.548	*0.448
	100000.	2.50	0.360	0.344	0.296	*0.698	*0.582
	150000.	2.30	0.344	0.387	0.325	*0.787	*0.661
	200000.	2.18	0.328	0.420	0.349	*0.832	*0.705
	300000.	2.01	0.316	0.462	0.382	*0.910	*0.766
	500000.	1.81	0.266	0.496	0.410	* 1.01	*0.830
P V 3P 3D 869.1 Å C= 0.67E+20	50000.	0.434E-02	-0.481E-05	0.885E-04	-0.146E-05	0.171E-03	-0.285E-05
	100000.	0.311E-02	-0.138E-05	0.168E-03	-0.295E-05	0.328E-03	-0.586E-05
	150000.	0.259E-02	-0.392E-05	0.214E-03	-0.441E-05	0.422E-03	-0.881E-05
	200000.	0.229E-02	-0.398E-05	0.248E-03	-0.580E-05	0.488E-03	-0.116E-04
	300000.	0.195E-02	-0.526E-05	0.292E-03	-0.831E-05	0.579E-03	-0.167E-04
	500000.	0.163E-02	-0.412E-05	0.322E-03	-0.121E-04	0.641E-03	-0.243E-04
P V 3P 4D 390.2 Å C= 0.11E+19	50000.	0.252E-02	0.947E-04	0.130E-03	0.114E-03	0.257E-03	0.222E-03
	100000.	0.191E-02	0.102E-03	0.201E-03	0.161E-03	0.398E-03	0.320E-03
	150000.	0.165E-02	0.950E-04	0.240E-03	0.186E-03	0.479E-03	0.376E-03
	200000.	0.150E-02	0.941E-04	0.264E-03	0.200E-03	0.524E-03	0.404E-03
	300000.	0.132E-02	0.953E-04	0.297E-03	0.223E-03	0.588E-03	0.450E-03
	500000.	0.114E-02	0.839E-04	0.345E-03	0.253E-03	0.672E-03	0.513E-03
P V 3P 5D 311.0 Å C= 0.37E+18	50000.	0.385E-02	0.278E-03	0.363E-03	0.316E-03	0.719E-03	0.606E-03
	100000.	0.310E-02	0.247E-03	0.481E-03	0.396E-03	0.966E-03	0.786E-03
	150000.	0.274E-02	0.244E-03	0.544E-03	0.439E-03	0.109E-02	0.892E-03
	200000.	0.253E-02	0.247E-03	0.597E-03	0.475E-03	0.117E-02	0.958E-03
	300000.	0.227E-02	0.230E-03	0.673E-03	0.524E-03	0.132E-02	0.106E-02
	500000.	0.199E-02	0.194E-03	0.754E-03	0.577E-03	0.147E-02	0.117E-02
P V 3P 6D 280.3 Å C= 0.18E+18	50000.	0.659E-02	0.572E-03	0.833E-03	0.694E-03	*0.167E-02	*0.130E-02
	100000.	0.549E-02	0.540E-03	0.104E-02	0.855E-03	*0.210E-02	*0.168E-02
	150000.	0.494E-02	0.552E-03	0.118E-02	0.951E-03	*0.233E-02	*0.192E-02
	200000.	0.460E-02	0.520E-03	0.130E-02	0.102E-02	*0.254E-02	*0.206E-02
	300000.	0.416E-02	0.464E-03	0.140E-02	0.109E-02	*0.278E-02	*0.224E-02
	500000.	0.368E-02	0.379E-03	0.163E-02	0.121E-02	*0.310E-02	*0.248E-02

M. S. DIMITRIJEVIĆ AND S. SAHAL-BRÉCHOT

PERTURBER DENSITY = $1 \times 10^{17} \text{cm}^{-3}$							
PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS WIDTH(Å)	SHIFT(Å)	PROTONS WIDTH(Å)	SHIFT(Å)	He III WIDTH(Å)	SHIFT(Å)
P V 3P 7D 264.7 Å C= 0.10E+18	50000.	0.109E-01	0.108E-02	*0.170E-02	*0.137E-02		
	100000.	0.936E-02	0.109E-02	*0.211E-02	*0.170E-02		
	150000.	0.857E-02	0.105E-02	*0.234E-02	*0.186E-02		
	200000.	0.804E-02	0.954E-03	0.245E-02	0.196E-02		
	300000.	0.734E-02	0.834E-03	0.263E-02	0.213E-02	*0.582E-02	*0.468E-02
	500000.	0.651E-02	0.698E-03	0.297E-02	0.231E-02		
P V 4P 4D 2436.0 Å C= 0.43E+20	50000.	0.131	0.244E-02	0.705E-02	0.405E-02	0.139E-01	0.789E-02
	100000.	0.100E+00	0.270E-02	0.102E-01	0.572E-02	0.203E-01	0.114E-01
	150000.	0.869E-01	0.232E-02	0.114E-01	0.669E-02	0.228E-01	0.135E-01
	200000.	0.792E-01	0.209E-02	0.124E-01	0.718E-02	0.246E-01	0.145E-01
	300000.	0.703E-01	0.209E-02	0.137E-01	0.802E-02	0.269E-01	0.162E-01
	500000.	0.613E-01	0.178E-02	0.155E-01	0.909E-02	0.300E-01	0.185E-01
P V 4P 5D 940.9 Å C= 0.34E+19	50000.	0.394E-01	0.235E-02	0.349E-02	0.285E-02	0.692E-02	0.547E-02
	100000.	0.315E-01	0.206E-02	0.455E-02	0.358E-02	0.913E-02	0.711E-02
	150000.	0.280E-01	0.202E-02	0.514E-02	0.398E-02	0.102E-01	0.806E-02
	200000.	0.258E-01	0.202E-02	0.559E-02	0.430E-02	0.110E-01	0.863E-02
	300000.	0.232E-01	0.186E-02	0.628E-02	0.475E-02	0.122E-01	0.958E-02
	500000.	0.204E-01	0.156E-02	0.700E-02	0.521E-02	0.135E-01	0.106E-01
P V 4P 6D 706.8 Å C= 0.11E+19	50000.	0.441E-01	0.352E-02	0.535E-02	0.439E-02	*0.107E-01	*0.825E-02
	100000.	0.366E-01	0.332E-02	0.666E-02	0.542E-02	*0.134E-01	*0.107E-01
	150000.	0.329E-01	0.339E-02	0.757E-02	0.604E-02	*0.149E-01	*0.122E-01
	200000.	0.306E-01	0.317E-02	0.829E-02	0.646E-02	*0.162E-01	*0.131E-01
	300000.	0.277E-01	0.281E-02	0.895E-02	0.691E-02	*0.178E-01	*0.142E-01
	500000.	0.245E-01	0.228E-02	0.104E-01	0.768E-02	*0.198E-01	*0.157E-01
P V 4P 7D 615.1 Å C= 0.54E+18	50000.	0.603E-01	0.573E-02	*0.921E-02	*0.742E-02		
	100000.	0.518E-01	0.580E-02	*0.114E-01	*0.920E-02		
	150000.	0.474E-01	0.555E-02	*0.127E-01	*0.100E-01		
	200000.	0.445E-01	0.505E-02	0.132E-01	0.106E-01		
	300000.	0.406E-01	0.440E-02	0.143E-01	0.115E-01		
	500000.	0.360E-01	0.367E-02	0.160E-01	0.124E-01	*0.314E-01	*0.252E-01
P V 5P 5D 5143.7 Å C= 0.10E+21	50000.	1.45	0.555E-01	0.130	0.800E-01	*0.258	*0.154
	100000.	1.19	0.432E-01	0.159	0.101	0.317	0.201
	150000.	1.07	0.396E-01	0.176	0.113	0.348	0.227
	200000.	0.996	0.425E-01	0.188	0.121	0.374	0.245
	300000.	0.903	0.382E-01	0.206	0.134	0.404	0.269
	500000.	0.803	0.302E-01	0.227	0.147	0.443	0.300
P V 5P 6D 1830.1 Å C= 0.75E+19	50000.	0.326	0.217E-01	0.376E-01	0.291E-01	*0.750E-01	*0.546E-01
	100000.	0.273	0.199E-01	0.462E-01	0.359E-01	*0.932E-01	*0.708E-01
	150000.	0.247	0.201E-01	0.519E-01	0.400E-01	*0.103	*0.804E-01
	200000.	0.231	0.190E-01	0.565E-01	0.428E-01	*0.111	*0.866E-01
	300000.	0.210	0.166E-01	0.622E-01	0.463E-01	*0.120	*0.936E-01
	500000.	0.187	0.132E-01	0.703E-01	0.510E-01	*0.135	*0.105
P V 5P 7D 1320.3 Å C= 0.25E+19	50000.	0.293	0.254E-01	*0.430E-01	*0.340E-01		
	100000.	0.252	0.255E-01	*0.531E-01	*0.423E-01		
	150000.	0.231	0.242E-01	*0.587E-01	*0.461E-01		
	200000.	0.217	0.221E-01	*0.615E-01	*0.485E-01		
	300000.	0.199	0.191E-01	0.660E-01	0.526E-01		
	500000.	0.177	0.158E-01	0.743E-01	0.567E-01	*0.144	*0.115
P V 6P 6D 9310.3 Å C= 0.20E+21	50000.	10.3	0.470	1.13	0.722	* 2.25	* 1.36
	100000.	8.81	0.370	1.36	0.895	* 2.69	* 1.76
	150000.	8.04	0.406	1.48	0.985	* 2.96	* 1.99
	200000.	7.54	0.371	1.59	1.07	* 3.09	* 2.13
	300000.	6.90	0.316	1.71	1.15	* 3.30	* 2.31
	500000.	6.18	0.226	1.92	1.29	* 3.57	* 2.58



## STARK BROADENING PARAMETER TABLES FOR C V AND P V

PERTURBER DENSITY = $1 \times 10^{17} \text{cm}^{-3}$							
PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS WIDTH(Å)	SHIFT(Å)	PROTONS WIDTH(Å)	SHIFT(Å)	He III WIDTH(Å)	SHIFT(Å)
P V 6P 7D 3140.9 Å C= 0.14E+20	50000.	1.86	0.133	*0.254	*0.190		
	100000.	1.61	0.128	*0.310	*0.237		
	150000.	1.48	0.124	*0.339	*0.257		
	200000.	1.40	0.111	*0.357	*0.272		
	300000.	1.28	0.951E-01	0.383	0.293		
	500000.	1.14	0.764E-01	0.432	0.317	*0.837	*0.646
P V 3D 4P 998.5 Å C= 0.31E+20	50000.	0.130E-01	0.222E-03	0.635E-03	0.103E-03	0.124E-02	0.202E-03
	100000.	0.964E-02	0.218E-03	0.938E-03	0.178E-03	0.185E-02	0.355E-03
	150000.	0.823E-02	0.239E-03	0.111E-02	0.224E-03	0.220E-02	0.452E-03
	200000.	0.743E-02	0.271E-03	0.117E-02	0.257E-03	0.233E-02	0.518E-03
	300000.	0.652E-02	0.280E-03	0.127E-02	0.308E-03	0.252E-02	0.622E-03
	500000.	0.564E-02	0.257E-03	0.138E-02	0.354E-03	0.275E-02	0.715E-03
P V 3D 5P 534.8 Å C= 0.42E+19	50000.	0.764E-02	0.239E-03	0.708E-03	0.136E-03	0.139E-02	0.264E-03
	100000.	0.615E-02	0.271E-03	0.895E-03	0.199E-03	0.178E-02	0.396E-03
	150000.	0.549E-02	0.300E-03	0.968E-03	0.239E-03	0.193E-02	0.482E-03
	200000.	0.508E-02	0.275E-03	0.102E-02	0.258E-03	0.203E-02	0.523E-03
	300000.	0.460E-02	0.271E-03	0.108E-02	0.288E-03	0.216E-02	0.582E-03
	500000.	0.410E-02	0.251E-03	0.115E-02	0.329E-03	0.229E-02	0.664E-03
P V 3D 6P 433.1 Å C= 0.15E+19	50000.	0.100E-01	0.389E-03	0.127E-02	0.249E-03	*0.252E-02	*0.483E-03
	100000.	0.845E-02	0.505E-03	0.145E-02	0.344E-03	*0.288E-02	*0.686E-03
	150000.	0.771E-02	0.453E-03	0.155E-02	0.382E-03	*0.309E-02	*0.773E-03
	200000.	0.724E-02	0.449E-03	0.162E-02	0.413E-03	0.323E-02	0.835E-03
	300000.	0.666E-02	0.430E-03	0.168E-02	0.457E-03	0.336E-02	0.925E-03
	500000.	0.603E-02	0.418E-03	0.176E-02	0.520E-03	0.349E-02	0.105E-02
P V 4D 5P 2183.7 Å C= 0.34E+20	50000.	0.165	0.806E-03	0.134E-01	-0.166E-02	0.264E-01	-0.324E-02
	100000.	0.133	0.123E-02	0.166E-01	-0.249E-02	0.329E-01	-0.497E-02
	150000.	0.119	0.194E-02	0.179E-01	-0.304E-02	0.356E-01	-0.613E-02
	200000.	0.110	0.157E-02	0.188E-01	-0.337E-02	0.373E-01	-0.684E-02
	300000.	0.995E-01	0.147E-02	0.201E-01	-0.375E-02	0.398E-01	-0.760E-02
	500000.	0.885E-01	0.151E-02	0.213E-01	-0.429E-02	0.419E-01	-0.865E-02
P V 4D 6P 1114.9 Å C= 0.89E+19	50000.	0.756E-01	0.166E-02	0.870E-02	0.985E-03	*0.172E-01	*0.192E-02
	100000.	0.635E-01	0.245E-02	0.986E-02	0.139E-02	*0.196E-01	*0.276E-02
	150000.	0.578E-01	0.217E-02	0.105E-01	0.159E-02	*0.210E-01	*0.322E-02
	200000.	0.542E-01	0.217E-02	0.110E-01	0.172E-02	0.219E-01	0.348E-02
	300000.	0.498E-01	0.205E-02	0.114E-01	0.192E-02	0.227E-01	0.386E-02
	500000.	0.450E-01	0.207E-02	0.119E-01	0.218E-02	0.234E-01	0.441E-02
P V 5D 6P 4088.1 Å C= 0.64E+20	50000.	1.33	-0.166E-01	0.135	-0.404E-01	*0.268	*-0.780E-01
	100000.	1.12	0.867E-03	0.155	-0.517E-01	*0.308	*-0.103
	150000.	1.02	-0.298E-02	0.166	-0.581E-01	*0.330	*-0.117
	200000.	0.957	-0.344E-02	0.174	-0.625E-01	*0.345	*-0.126
	300000.	0.877	-0.189E-02	0.182	-0.691E-01	0.358	-0.139
	500000.	0.789	0.340E-02	0.193	-0.760E-01	0.373	-0.155
P V 3D 4F 673.9 Å C= 0.33E+19	50000.	0.601E-02	-0.125E-03	0.261E-03	-0.228E-03	0.511E-03	-0.444E-03
	100000.	0.448E-02	-0.109E-03	0.418E-03	-0.333E-03	0.827E-03	-0.663E-03
	150000.	0.383E-02	-0.110E-03	0.522E-03	-0.398E-03	0.104E-02	-0.803E-03
	200000.	0.346E-02	-0.829E-04	0.570E-03	-0.428E-03	0.113E-02	-0.867E-03
	300000.	0.303E-02	-0.640E-04	0.654E-03	-0.477E-03	0.128E-02	-0.967E-03
	500000.	0.261E-02	-0.635E-04	0.764E-03	-0.546E-03	0.147E-02	-0.110E-02
P V 3D 5F 475.6 Å C= 0.50E+17	50000.	0.116E-01	0.126E-03	0.385E-02	0.349E-02		
	100000.	0.923E-02	0.106E-03	0.535E-02	0.434E-02		
	150000.	0.813E-02	0.158E-03	0.654E-02	0.469E-02		
	200000.	0.743E-02	0.140E-03	0.739E-02	0.494E-02	*0.115E-01	*0.101E-01
	300000.	0.657E-02	0.144E-03	0.857E-02	0.539E-02	*0.127E-01	*0.108E-01
	500000.	0.563E-02	0.112E-03	0.103E-01	0.594E-02	*0.142E-01	*0.120E-01

PERTURBER DENSITY = $1 \times 10^{17} \text{cm}^{-3}$							
PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS WIDTH(Å)	SHIFT(Å)	PROTONS WIDTH(Å)	SHIFT(Å)	He III WIDTH(Å)	SHIFT(Å)
P V 3D 6F 410.0 Å C= 0.24E+17	50000.	0.221E-01	0.136E-03				
	100000.	0.179E-01	0.163E-03				
	150000.	0.158E-01	0.328E-03	*0.147E-01	*0.103E-01		
	200000.	0.144E-01	0.262E-03	*0.164E-01	*0.109E-01		
	300000.	0.127E-01	0.390E-03	*0.187E-01	*0.118E-01		
500000.	0.109E-01	0.287E-03	*0.222E-01	*0.127E-01			
P V 4D 5F 1447.9 Å C= 0.46E+18	50000.	0.124	-0.169E-03	0.354E-01	0.319E-01		
	100000.	0.991E-01	-0.430E-03	0.492E-01	0.395E-01		
	150000.	0.874E-01	0.142E-03	0.604E-01	0.428E-01		
	200000.	0.801E-01	-0.131E-04	0.686E-01	0.455E-01	*0.105	*0.925E-01
	300000.	0.709E-01	0.684E-05	0.791E-01	0.491E-01	*0.116	*0.992E-01
500000.	0.611E-01	-0.133E-03	0.951E-01	0.541E-01	*0.131	*0.109	
P V 4D 6F 973.8 Å C= 0.13E+18	50000.	0.132	0.162E-03				
	100000.	0.106	0.280E-03				
	150000.	0.940E-01	0.125E-02	*0.829E-01	*0.581E-01		
	200000.	0.861E-01	0.882E-03	*0.922E-01	*0.615E-01		
	300000.	0.762E-01	0.160E-02	*0.106	*0.664E-01		
500000.	0.652E-01	0.109E-02	*0.125	*0.711E-01			
P V 5D 6F 2670.0 Å C= 0.10E+19	50000.	1.13	-0.149E-01				
	100000.	0.916	-0.114E-01				
	150000.	0.812	-0.417E-02	*0.628	*0.430		
	200000.	0.745	-0.716E-02	*0.692	*0.454		
	300000.	0.661	-0.453E-03	*0.803	*0.492		
500000.	0.569	-0.219E-02	*0.948	*0.529			
P V 4F 5D 1722.9 Å C= 0.11E+20	50000.	0.134	0.939E-02	0.120E-01	0.104E-01	0.239E-01	0.200E-01
	100000.	0.108	0.830E-02	0.158E-01	0.130E-01	0.317E-01	0.258E-01
	150000.	0.954E-01	0.823E-02	0.178E-01	0.144E-01	0.354E-01	0.291E-01
	200000.	0.879E-01	0.813E-02	0.196E-01	0.155E-01	0.385E-01	0.313E-01
	300000.	0.788E-01	0.749E-02	0.219E-01	0.171E-01	0.430E-01	0.344E-01
500000.	0.692E-01	0.640E-02	0.254E-01	0.190E-01	0.480E-01	0.386E-01	
P V 4F 6D 1072.4 Å C= 0.26E+19	50000.	0.102	0.871E-02	0.125E-01	0.103E-01	*0.248E-01	*0.193E-01
	100000.	0.850E-01	0.818E-02	0.155E-01	0.128E-01	*0.310E-01	*0.249E-01
	150000.	0.765E-01	0.836E-02	0.174E-01	0.141E-01	*0.349E-01	*0.286E-01
	200000.	0.711E-01	0.782E-02	0.193E-01	0.150E-01	*0.379E-01	*0.307E-01
	300000.	0.644E-01	0.696E-02	0.208E-01	0.162E-01	*0.417E-01	*0.331E-01
500000.	0.569E-01	0.571E-02	0.240E-01	0.178E-01	*0.465E-01	*0.367E-01	
P V 4F 7D 874.6 Å C= 0.11E+19	50000.	0.122	0.120E-01	*0.187E-01	*0.151E-01		
	100000.	0.105	0.121E-01	*0.232E-01	*0.187E-01		
	150000.	0.963E-01	0.116E-01	*0.258E-01	*0.203E-01		
	200000.	0.903E-01	0.106E-01	0.269E-01	0.215E-01		
	300000.	0.823E-01	0.922E-02	0.290E-01	0.235E-01		
500000.	0.731E-01	0.773E-02	0.330E-01	0.255E-01	*0.638E-01	*0.511E-01	
P V 5F 6D 3187.7 Å C= 0.22E+19	50000.	1.24	0.686E-01	0.143	-0.103	*0.249	*-0.192
	100000.	1.03	0.651E-01	0.199	-0.127	*0.317	*-0.249
	150000.	0.924	0.643E-01	0.240	-0.140	*0.360	*-0.284
	200000.	0.857	0.610E-01	0.275	-0.149	*0.385	*-0.303
	300000.	0.771	0.536E-01	0.330	-0.164	*0.429	*-0.329
500000.	0.676	0.440E-01	0.399	-0.177	*0.489	*-0.356	
P V 5F 7D 1905.9 Å C= 0.80E+18	50000.	0.700	0.542E-01	*0.668E-01	*0.303E-01		
	100000.	0.597	0.549E-01	0.862E-01	0.376E-01		
	150000.	0.544	0.517E-01	0.100	0.414E-01	*0.153	*0.836E-01
	200000.	0.509	0.473E-01	0.112	0.448E-01	*0.161	*0.896E-01
	300000.	0.462	0.410E-01	0.130	0.484E-01	*0.172	*0.971E-01
500000.	0.408	0.344E-01	0.160	0.541E-01	*0.194	*0.109	

## STARK BROADENING PARAMETER TABLES FOR C V AND P V

PERTURBER DENSITY = $1 \times 10^{18} \text{cm}^{-3}$							
PERTURBERS ARE:		ELECTRONS		PROTONS		He III	
TRANSITION	T(K)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
P V 3S 3P 1121.8 Å C= 0.11E+22	50000.	0.626E-01	-0.595E-03	0.631E-03	-0.252E-03	0.121E-02	-0.469E-03
	100000.	0.447E-01	-0.742E-03	0.136E-02	-0.510E-03	0.265E-02	-0.992E-03
	150000.	0.371E-01	-0.587E-03	0.190E-02	-0.708E-03	0.373E-02	-0.141E-02
	200000.	0.328E-01	-0.711E-03	0.224E-02	-0.874E-03	0.443E-02	-0.174E-02
	300000.	0.278E-01	-0.872E-03	0.278E-02	-0.108E-02	0.550E-02	-0.218E-02
	500000.	0.232E-01	-0.763E-03	0.329E-02	-0.138E-02	0.657E-02	-0.279E-02
P V 3S 4P 328.6 Å C= 0.34E+20	50000.	0.139E-01	0.176E-03	0.616E-03	0.839E-04	0.119E-02	0.156E-03
	100000.	0.103E-01	0.164E-03	0.923E-03	0.154E-03	0.181E-02	0.299E-03
	150000.	0.877E-02	0.199E-03	0.110E-02	0.200E-03	0.218E-02	0.399E-03
	200000.	0.792E-02	0.223E-03	0.117E-02	0.228E-03	0.233E-02	0.454E-03
	300000.	0.693E-02	0.220E-03	0.127E-02	0.277E-03	0.252E-02	0.560E-03
	500000.	0.598E-02	0.206E-03	0.138E-02	0.320E-03	0.275E-02	0.647E-03
P V 3S 5P 255.6 Å C= 0.95E+19	50000.	0.175E-01	0.478E-03	0.157E-02	0.279E-03	*0.301E-02	*0.515E-03
	100000.	0.140E-01	0.555E-03	0.200E-02	0.431E-03	*0.396E-02	*0.828E-03
	150000.	0.125E-01	0.636E-03	0.217E-02	0.522E-03	*0.431E-02	*0.104E-02
	200000.	0.116E-01	0.577E-03	0.228E-02	0.573E-03	*0.453E-02	*0.114E-02
	300000.	0.105E-01	0.561E-03	0.243E-02	0.637E-03	*0.484E-02	*0.129E-02
	500000.	0.934E-02	0.527E-03	0.258E-02	0.727E-03	*0.514E-02	*0.148E-02
P V 3S 6P 229.8 Å C= 0.42E+19	50000.	0.282E-01	0.975E-03	*0.351E-02	*0.635E-03		
	100000.	0.238E-01	0.133E-02	*0.403E-02	*0.937E-03		
	150000.	0.217E-01	0.120E-02	*0.432E-02	*0.105E-02		
	200000.	0.204E-01	0.120E-02	*0.452E-02	*0.115E-02		
	300000.	0.187E-01	0.115E-02	0.471E-02	0.127E-02		
	500000.	0.170E-01	0.114E-02	0.492E-02	0.145E-02		
P V 4S 4P 3185.6 Å C= 0.32E+22	50000.	1.70	-0.397E-01	0.598E-01	-0.244E-01	0.116	-0.453E-01
	100000.	1.27	-0.393E-01	0.907E-01	-0.399E-01	0.178	-0.773E-01
	150000.	1.10	-0.479E-01	0.109	-0.488E-01	0.217	-0.974E-01
	200000.	0.997	-0.480E-01	0.117	-0.557E-01	0.233	-0.111
	300000.	0.882	-0.429E-01	0.128	-0.618E-01	0.255	-0.125
	500000.	0.767	-0.422E-01	0.142	-0.714E-01	0.283	-0.144
P V 4S 5P 845.8 Å C= 0.10E+21	50000.	0.217	0.104E-02	0.170E-01	0.115E-02	*0.328E-01	*0.213E-02
	100000.	0.174	0.211E-02	0.217E-01	0.197E-02	*0.430E-01	*0.383E-02
	150000.	0.156	0.221E-02	0.235E-01	0.240E-02	*0.467E-01	*0.478E-02
	200000.	0.144	0.139E-02	0.246E-01	0.278E-02	*0.490E-01	*0.553E-02
	300000.	0.131	0.162E-02	0.262E-01	0.320E-02	*0.522E-01	*0.649E-02
	500000.	0.117	0.141E-02	0.278E-01	0.366E-02	*0.553E-01	*0.739E-02
P V 4S 6P 616.8 Å C= 0.30E+20	50000.	0.218	0.432E-02	*0.252E-01	*0.393E-02		
	100000.	0.183	0.729E-02	*0.289E-01	*0.582E-02		
	150000.	0.166	0.593E-02	*0.310E-01	*0.650E-02		
	200000.	0.156	0.587E-02	*0.324E-01	*0.716E-02		
	300000.	0.144	0.584E-02	0.337E-01	0.793E-02		
	500000.	0.130	0.585E-02	0.349E-01	0.904E-02	*0.694E-01	*0.182E-01
P V 5S 5P 6872.7 Å C= 0.69E+22	50000.	18.8	-0.667	1.20	-0.539	* 2.32	-0.977
	100000.	15.3	-0.835	1.56	-0.797	* 3.09	-1.51
	150000.	13.8	-0.778	1.71	-0.890	* 3.42	-1.77
	200000.	12.8	-0.798	1.82	-0.981	* 3.65	-1.93
	300000.	11.6	-0.772	1.99	-1.09	* 3.98	-2.20
	500000.	10.4	-0.765	2.15	-1.23	* 4.31	-2.50
P V 5S 6P 1710.8 Å C= 0.23E+21	50000.	1.93	-0.121E-01	*0.193	-0.980E-02		
	100000.	1.63	-0.384E-02	*0.221	-0.154E-01		
	150000.	1.49	-0.115E-01	*0.237	-0.189E-01		
	200000.	1.40	-0.983E-02	*0.247	-0.212E-01		
	300000.	1.29	-0.945E-02	0.257	-0.236E-01		
	500000.	1.16	-0.813E-02	0.266	-0.269E-01	*0.526	-0.545E-01

PERTURBER DENSITY = $1 \times 10^{18} \text{cm}^{-3}$							
PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS WIDTH(Å)	SHIFT(Å)	PROTONS WIDTH(Å)	SHIFT(Å)	He III WIDTH(Å)	SHIFT(Å)
P V 3P 4S 544.0 Å C= 0.93E+20	50000.	0.277E-01	0.189E-02	0.442E-03	0.937E-03	0.867E-03	0.173E-02
	100000.	0.203E-01	0.183E-02	0.103E-02	0.148E-02	0.207E-02	0.286E-02
	150000.	0.173E-01	0.212E-02	0.142E-02	0.182E-02	0.284E-02	0.362E-02
	200000.	0.155E-01	0.221E-02	0.182E-02	0.204E-02	0.363E-02	0.407E-02
	300000.	0.136E-01	0.208E-02	0.219E-02	0.227E-02	0.440E-02	0.460E-02
	500000.	0.116E-01	0.199E-02	0.263E-02	0.259E-02	0.536E-02	0.525E-02
P V 3P 5S 347.8 Å C= 0.18E+20	50000.	0.251E-01	0.305E-02	0.116E-02	0.169E-02	*0.234E-02	*0.303E-02
	100000.	0.194E-01	0.344E-02	0.214E-02	0.247E-02	*0.429E-02	*0.466E-02
	150000.	0.169E-01	0.337E-02	0.261E-02	0.276E-02	*0.523E-02	*0.549E-02
	200000.	0.155E-01	0.328E-02	0.292E-02	0.303E-02	*0.591E-02	*0.594E-02
	300000.	0.137E-01	0.316E-02	0.334E-02	0.335E-02	*0.686E-02	*0.678E-02
	500000.	0.118E-01	0.304E-02	0.400E-02	0.381E-02	*0.792E-02	*0.769E-02
P V 3P 6S 295.8 Å C= 0.69E+19	50000.	0.382E-01	0.711E-02	0.325E-02	0.359E-02		
	100000.	0.311E-01	0.699E-02	0.468E-02	0.479E-02		
	150000.	0.277E-01	0.661E-02	0.542E-02	0.538E-02		
	200000.	0.254E-01	0.638E-02	0.601E-02	0.598E-02		
	300000.	0.227E-01	0.614E-02	0.691E-02	0.644E-02	*0.159E-01	*0.145E-01
	500000.	0.198E-01	0.567E-02	0.790E-02	0.709E-02		
P V 3P 7S 272.9 Å C= 0.36E+19	50000.	0.614E-01	0.175E-01	*0.741E-02	*0.655E-02		
	100000.	0.524E-01	0.149E-01	*0.965E-02	*0.911E-02		
	150000.	0.471E-01	0.132E-01	*0.109E-01	*0.102E-01		
	200000.	0.438E-01	0.124E-01	*0.121E-01	*0.113E-01		
	300000.	0.396E-01	0.118E-01	*0.139E-01	*0.122E-01		
	500000.	0.349E-01	0.103E-01	*0.149E-01	*0.134E-01		
P V 4P 5S 1383.2 Å C= 0.28E+21	50000.	0.522	0.403E-01	0.221E-01	0.258E-01	*0.440E-01	*0.464E-01
	100000.	0.406	0.483E-01	0.376E-01	0.378E-01	*0.754E-01	*0.716E-01
	150000.	0.356	0.474E-01	0.445E-01	0.424E-01	*0.895E-01	*0.840E-01
	200000.	0.327	0.458E-01	0.491E-01	0.463E-01	*0.995E-01	*0.911E-01
	300000.	0.292	0.442E-01	0.564E-01	0.514E-01	*0.112	*0.104
	500000.	0.255	0.429E-01	0.647E-01	0.583E-01	*0.131	*0.117
P V 4P 6S 814.1 Å C= 0.52E+20	50000.	0.326	0.496E-01	*0.252E-01	*0.270E-01		
	100000.	0.265	0.498E-01	*0.358E-01	*0.359E-01		
	150000.	0.237	0.475E-01	0.414E-01	0.404E-01		
	200000.	0.219	0.457E-01	0.455E-01	0.450E-01		
	300000.	0.197	0.442E-01	0.527E-01	0.486E-01	*0.121	*0.108
	500000.	0.173	0.410E-01	0.606E-01	0.535E-01		
P V 4P 7S 661.1 Å C= 0.21E+20	50000.	0.383	0.956E-01	*0.436E-01	*0.384E-01		
	100000.	0.326	0.832E-01	*0.568E-01	*0.534E-01		
	150000.	0.294	0.756E-01	*0.640E-01	*0.597E-01		
	200000.	0.274	0.685E-01	*0.711E-01	*0.662E-01		
	300000.	0.248	0.662E-01	*0.816E-01	*0.713E-01		
	500000.	0.220	0.579E-01	*0.873E-01	*0.785E-01		
P V 5P 6S 2778.6 Å C= 0.61E+21	50000.	4.63	0.491	*0.347	*0.303		
	100000.	3.88	0.506	*0.461	*0.404		
	150000.	3.53	0.478	*0.525	*0.455		
	200000.	3.29	0.471	0.568	0.502		
	300000.	2.99	0.459	0.655	0.548		
	500000.	2.67	0.428	0.726	0.603		
P V 5P 7S 1552.6 Å C= 0.11E+21	50000.	2.34	0.450	*0.245	*0.210		
	100000.	2.02	0.416	*0.319	*0.292		
	150000.	1.85	0.366	*0.361	*0.326		
	200000.	1.73	0.354	*0.399	*0.362		
	300000.	1.58	0.344	*0.452	*0.392		
	500000.	1.41	0.302	*0.488	*0.427		

STARK BROADENING PARAMETER TABLES FOR C V AND P V

PERTURBER DENSITY = 1x10 <sup>18</sup> cm <sup>-3</sup>							
PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS WIDTH(Å)	SHIFT(Å)	PROTONS WIDTH(Å)	SHIFT(Å)	He III WIDTH(Å)	SHIFT(Å)
P V 3P 3D 869.1 Å C= 0.67E+21	50000.	0.434E-01	-0.340E-04	0.883E-03	-0.138E-04	0.169E-02	-0.258E-04
	100000.	0.311E-01	-0.290E-04	0.168E-02	-0.292E-04	0.328E-02	-0.567E-04
	150000.	0.259E-01	-0.320E-04	0.214E-02	-0.438E-04	0.422E-02	-0.870E-04
	200000.	0.229E-01	-0.276E-04	0.248E-02	-0.580E-04	0.488E-02	-0.115E-03
	300000.	0.195E-01	-0.558E-04	0.292E-02	-0.831E-04	0.579E-02	-0.167E-03
	500000.	0.163E-01	-0.412E-04	0.322E-02	-0.121E-03	0.641E-02	-0.243E-03
P V 3P 4D 390.2 Å C= 0.11E+20	50000.	0.252E-01	0.867E-03	0.130E-02	0.106E-02	0.253E-02	0.194E-02
	100000.	0.191E-01	0.963E-03	0.201E-02	0.157E-02	0.397E-02	0.300E-02
	150000.	0.165E-01	0.901E-03	0.240E-02	0.183E-02	0.478E-02	0.365E-02
	200000.	0.150E-01	0.903E-03	0.264E-02	0.200E-02	0.524E-02	0.395E-02
	300000.	0.132E-01	0.933E-03	0.297E-02	0.222E-02	0.588E-02	0.449E-02
	500000.	0.114E-01	0.836E-03	0.345E-02	0.253E-02	0.672E-02	0.512E-02
P V 3P 5D 311.0 Å C= 0.37E+19	50000.	0.385E-01	0.247E-02	0.361E-02	0.283E-02		
	100000.	0.310E-01	0.224E-02	0.481E-02	0.382E-02		
	150000.	0.274E-01	0.224E-02	0.544E-02	0.427E-02		
	200000.	0.253E-01	0.233E-02	0.597E-02	0.473E-02		
	300000.	0.227E-01	0.221E-02	0.673E-02	0.522E-02	*0.132E-01	*0.106E-01
	500000.	0.199E-01	0.193E-02	0.754E-02	0.576E-02	*0.147E-01	*0.117E-01
P V 3P 6D 280.3 Å C= 0.18E+19	50000.	0.659E-01	0.471E-02	*0.825E-02	*0.583E-02		
	100000.	0.549E-01	0.462E-02	*0.104E-01	*0.809E-02		
	150000.	0.494E-01	0.484E-02	*0.118E-01	*0.912E-02		
	200000.	0.460E-01	0.472E-02	*0.130E-01	*0.101E-01		
	300000.	0.416E-01	0.436E-02	*0.140E-01	*0.108E-01		
	500000.	0.367E-01	0.375E-02	*0.163E-01	*0.120E-01		
P V 3P 7D 264.7 Å C= 0.10E+19	50000.	0.108	0.783E-02				
	100000.	0.934E-01	0.870E-02				
	150000.	0.856E-01	0.847E-02				
	200000.	0.803E-01	0.812E-02				
	300000.	0.733E-01	0.754E-02				
	500000.	0.650E-01	0.687E-02				
P V 4P 4D 2436.0 Å C= 0.43E+21	50000.	1.31	0.214E-01	0.702E-01	0.376E-01	*0.137	*0.691E-01
	100000.	1.000	0.250E-01	0.102	0.560E-01	*0.202	*0.107
	150000.	0.869	0.214E-01	0.114	0.659E-01	*0.227	*0.132
	200000.	0.792	0.196E-01	0.124	0.716E-01	*0.246	*0.142
	300000.	0.703	0.202E-01	0.137	0.800E-01	0.269	0.161
	500000.	0.613	0.177E-01	0.155	0.908E-01	0.300	0.184
P V 4P 5D 940.9 Å C= 0.34E+20	50000.	0.394	0.207E-01	*0.348E-01	*0.255E-01		
	100000.	0.315	0.186E-01	0.455E-01	0.345E-01		
	150000.	0.280	0.184E-01	0.513E-01	0.387E-01		
	200000.	0.258	0.190E-01	0.559E-01	0.428E-01		
	300000.	0.232	0.178E-01	0.628E-01	0.473E-01	*0.122	*0.953E-01
	500000.	0.204	0.154E-01	0.700E-01	0.519E-01	*0.135	*0.105
P V 4P 6D 706.8 Å C= 0.11E+20	50000.	0.441	0.287E-01	*0.530E-01	*0.370E-01		
	100000.	0.366	0.282E-01	*0.664E-01	*0.512E-01		
	150000.	0.329	0.296E-01	*0.757E-01	*0.579E-01		
	200000.	0.306	0.287E-01	*0.829E-01	*0.642E-01		
	300000.	0.277	0.263E-01	*0.895E-01	*0.686E-01		
	500000.	0.245	0.226E-01	*0.104	*0.765E-01		
P V 4P 7D 615.1 Å C= 0.54E+19	50000.	0.601	0.413E-01				
	100000.	0.517	0.461E-01				
	150000.	0.473	0.448E-01				
	200000.	0.444	0.428E-01				
	300000.	0.405	0.397E-01				
	500000.	0.360	0.361E-01				

M. S. DIMITRIJEVIĆ AND S. SAHAL-BRÉCHOT

PERTURBER DENSITY = $1 \times 10^{18} \text{cm}^{-3}$							
PERTURBERS ARE:		ELECTRONS		PROTONS		He III	
TRANSITION	T(K)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
P V 5P 5D 5143.7 Å C= 0.10E+22	50000.	14.5	0.477	* 1.29	*0.715	-	-
	100000.	11.9	0.375	* 1.59	*0.977	-	-
	150000.	10.7	0.345	* 1.75	* 1.10	-	-
	200000.	9.96	0.390	1.88	1.20	-	-
	300000.	9.03	0.361	2.06	1.33	-	-
	500000.	8.03	0.299	2.27	1.46	* 4.43	* 2.99
P V 5P 6D 1830.1 Å C= 0.75E+20	50000.	3.26	0.175	*0.371	*0.244	-	-
	100000.	2.73	0.166	*0.461	*0.339	-	-
	150000.	2.47	0.172	*0.520	*0.384	-	-
	200000.	2.31	0.170	*0.564	*0.425	-	-
	300000.	2.10	0.155	*0.622	*0.460	-	-
	500000.	1.87	0.131	*0.703	*0.508	-	-
P V 5P 7D 1320.3 Å C= 0.25E+20	50000.	* 2.92	*0.180	-	-	-	-
	100000.	2.52	0.200	-	-	-	-
	150000.	2.31	0.193	-	-	-	-
	200000.	2.17	0.186	-	-	-	-
	300000.	1.98	0.171	-	-	-	-
	500000.	1.77	0.156	-	-	-	-
P V 6P 7D 3140.9 Å C= 0.14E+21	50000.	* 18.5	*0.926	-	-	-	-
	100000.	16.1	0.974	-	-	-	-
	150000.	14.8	0.968	-	-	-	-
	200000.	13.9	0.917	-	-	-	-
	300000.	12.8	0.841	-	-	-	-
	500000.	11.4	0.749	-	-	-	-
P V 3D 4P 998.5 Å C= 0.31E+21	50000.	0.130	0.218E-02	0.633E-02	0.976E-03	0.122E-01	0.182E-02
	100000.	0.964E-01	0.217E-02	0.938E-02	0.176E-02	0.184E-01	0.341E-02
	150000.	0.823E-01	0.236E-02	0.111E-01	0.222E-02	0.219E-01	0.443E-02
	200000.	0.743E-01	0.267E-02	0.117E-01	0.257E-02	0.233E-01	0.511E-02
	300000.	0.652E-01	0.280E-02	0.127E-01	0.307E-02	0.252E-01	0.621E-02
	500000.	0.564E-01	0.257E-02	0.138E-01	0.353E-02	0.275E-01	0.714E-02
P V 3D 5P 534.8 Å C= 0.42E+20	50000.	0.764E-01	0.231E-02	0.702E-02	0.127E-02	*0.135E-01	*0.234E-02
	100000.	0.615E-01	0.264E-02	0.894E-02	0.195E-02	*0.177E-01	*0.375E-02
	150000.	0.549E-01	0.295E-02	0.967E-02	0.236E-02	*0.192E-01	*0.469E-02
	200000.	0.508E-01	0.272E-02	0.102E-01	0.257E-02	*0.202E-01	*0.513E-02
	300000.	0.460E-01	0.269E-02	0.108E-01	0.287E-02	*0.216E-01	*0.580E-02
	500000.	0.410E-01	0.250E-02	0.115E-01	0.328E-02	*0.229E-01	*0.662E-02
P V 3D 6P 433.1 Å C= 0.15E+20	50000.	0.100	0.366E-02	*0.126E-01	*0.228E-02	-	-
	100000.	0.845E-01	0.491E-02	*0.144E-01	*0.335E-02	-	-
	150000.	0.771E-01	0.440E-02	*0.155E-01	*0.375E-02	-	-
	200000.	0.724E-01	0.439E-02	*0.162E-01	*0.411E-02	-	-
	300000.	0.666E-01	0.426E-02	0.168E-01	0.456E-02	-	-
	500000.	0.603E-01	0.417E-02	0.176E-01	0.519E-02	-	-
P V 4D 5P 2183.7 Å C= 0.34E+21	50000.	1.65	0.915E-02	0.133	-0.155E-01	*0.256	-0.287E-01
	100000.	1.33	0.128E-01	0.165	-0.244E-01	*0.327	-0.472E-01
	150000.	1.19	0.202E-01	0.179	-0.301E-01	*0.355	-0.599E-01
	200000.	1.10	0.163E-01	0.188	-0.337E-01	*0.373	-0.671E-01
	300000.	0.995	0.149E-01	0.201	-0.375E-01	*0.398	-0.759E-01
	500000.	0.885	0.152E-01	0.213	-0.428E-01	*0.419	-0.862E-01
P V 4D 6P 1114.9 Å C= 0.89E+20	50000.	0.756	0.157E-01	*0.858E-01	*0.913E-02	-	-
	100000.	0.635	0.240E-01	*0.983E-01	*0.136E-01	-	-
	150000.	0.578	0.212E-01	*0.105	*0.156E-01	-	-
	200000.	0.542	0.213E-01	*0.110	*0.172E-01	-	-
	300000.	0.498	0.203E-01	0.114	0.191E-01	-	-
	500000.	0.450	0.207E-01	0.119	0.218E-01	-	-

STARK BROADENING PARAMETER TABLES FOR C V AND P V

PERTURBER DENSITY = 1xE+18cm-3							
PERTURBERS ARE:		ELECTRONS		PROTONS		He III	
TRANSITION	T(K)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
P V 5D 6P 4088.1 Å C= 0.64E+21	50000.	13.3	-0.132	* 1.33	-0.364		
	100000.	11.2	0.357E-01	* 1.54	-0.501		
	150000.	10.2	-0.668E-02	* 1.66	-0.567		
	200000.	9.57	-0.191E-01	* 1.74	-0.623		
	300000.	8.77	-0.827E-02	1.82	-0.689		
	500000.	7.89	0.353E-01	1.93	-0.758		
P V 3D 4F 673.9 Å C= 0.33E+20	50000.	0.601E-01	-0.108E-02	0.260E-02	-0.213E-02	0.506E-02	-0.392E-02
	100000.	0.448E-01	-0.962E-03	0.418E-02	-0.326E-02	0.826E-02	-0.626E-02
	150000.	0.383E-01	-0.103E-02	0.522E-02	-0.392E-02	0.104E-01	-0.782E-02
	200000.	0.346E-01	-0.789E-03	0.570E-02	-0.427E-02	0.113E-01	-0.848E-02
	300000.	0.303E-01	-0.595E-03	0.654E-02	-0.476E-02	0.128E-01	-0.964E-02
	500000.	0.261E-01	-0.629E-03	0.764E-02	-0.545E-02	0.147E-01	-0.110E-01
P V 3D 5F 475.6 Å C= 0.50E+18	50000.	0.108	-0.231E-02				
	100000.	0.870E-01	-0.169E-02				
	150000.	0.769E-01	-0.123E-02				
	200000.	0.706E-01	-0.809E-03				
	300000.	0.626E-01	-0.101E-03				
	500000.	0.540E-01	0.831E-03				
P V 3D 6F 410.0 Å C= 0.24E+18	50000.	0.195	-0.624E-02				
	100000.	0.160	-0.468E-02				
	150000.	0.143	-0.376E-02				
	200000.	0.131	-0.282E-02				
	300000.	0.117	-0.527E-03				
	500000.	0.101	0.195E-02				
P V 4D 5F 1447.9 Å C= 0.46E+19	50000.	1.17	-0.336E-01				
	100000.	0.941	-0.291E-01				
	150000.	0.834	-0.240E-01				
	200000.	0.766	-0.200E-01				
	300000.	0.681	-0.140E-01				
	500000.	0.589	-0.394E-02				
P V 4D 6F 973.8 Å C= 0.13E+19	50000.	1.17	-0.407E-01				
	100000.	0.962	-0.325E-01				
	150000.	0.857	-0.269E-01				
	200000.	0.789	-0.216E-01				
	300000.	0.703	-0.887E-02				
	500000.	0.606	0.573E-02				
P V 5D 6F 2670.0 Å C= 0.10E+20	50000.	10.2	-0.449				
	100000.	8.38	-0.365				
	150000.	7.49	-0.325				
	200000.	6.91	-0.292				
	300000.	6.17	-0.186				
	500000.	5.35	-0.602E-01				
P V 4F 5D 1722.9 Å C= 0.11E+21	50000.	1.34	0.831E-01	*0.119	*0.926E-01		
	100000.	1.08	0.751E-01	0.158	0.125		
	150000.	0.954	0.756E-01	0.178	0.140		
	200000.	0.879	0.767E-01	0.196	0.155		
	300000.	0.788	0.720E-01	0.219	0.170		
	500000.	0.692	0.636E-01	0.254	0.190	*0.479	*0.384
P V 4F 6D 1072.4 Å C= 0.26E+20	50000.	1.02	0.718E-01	*0.123	*0.867E-01		
	100000.	0.850	0.701E-01	*0.155	*0.121		
	150000.	0.765	0.734E-01	*0.174	*0.135		
	200000.	0.711	0.711E-01	*0.193	*0.149		
	300000.	0.644	0.654E-01	*0.208	*0.161		
	500000.	0.568	0.566E-01	*0.240	*0.177		

PERTURBER DENSITY = $1 \times 10^{18} \text{cm}^{-3}$							
PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS WIDTH(Å)	SHIFT(Å)	PROTONS WIDTH(Å)	SHIFT(Å)	He III WIDTH(Å)	SHIFT(Å)
P V 4F 7D 874.6 Å C= 0.11E+20	50000.	1.22	0.874E-01				
	100000.	1.05	0.966E-01				
	150000.	0.961	0.942E-01				
	200000.	0.901	0.901E-01				
	300000.	0.822	0.834E-01				
	500000.	0.730	0.761E-01				
P V 5F 6D 3187.7 Å C= 0.22E+20	50000.	12.1	0.715				
	100000.	10.1	0.674				
	150000.	9.05	0.682				
	200000.	8.40	0.647				
	300000.	7.58	0.569				
	500000.	6.65	0.448				
P V 5F 7D 1905.9 Å C= 0.80E+19	50000.	* 6.86	*0.444				
	100000.	5.88	0.479				
	150000.	5.37	0.459				
	200000.	5.02	0.435				
	300000.	4.57	0.393				
	500000.	4.04	0.343				
PERTURBER DENSITY = $1 \times 10^{19} \text{cm}^{-3}$							
P V 3S 3P 1121.8 Å C= 0.11E+23	50000.	0.626	-0.583E-02	0.620E-02	-0.217E-02	0.112E-01	-0.342E-02
	100000.	0.447	-0.713E-02	0.136E-01	-0.477E-02	0.262E-01	-0.881E-02
	150000.	0.371	-0.564E-02	0.190E-01	-0.686E-02	0.371E-01	-0.131E-01
	200000.	0.328	-0.697E-02	0.224E-01	-0.860E-02	0.441E-01	-0.165E-01
	300000.	0.278	-0.846E-02	0.278E-01	-0.107E-01	0.549E-01	-0.211E-01
	500000.	0.232	-0.750E-02	0.329E-01	-0.138E-01	0.656E-01	-0.276E-01
P V 3S 4P 328.6 Å C= 0.34E+21	50000.	0.139	0.161E-02	0.598E-02	0.719E-03	*0.105E-01	*0.113E-02
	100000.	0.103	0.155E-02	0.914E-02	0.142E-02	*0.175E-01	*0.261E-02
	150000.	0.877E-01	0.191E-02	0.110E-01	0.192E-02	*0.214E-01	*0.362E-02
	200000.	0.792E-01	0.218E-02	0.117E-01	0.223E-02	*0.231E-01	*0.422E-02
	300000.	0.693E-01	0.212E-02	0.127E-01	0.273E-02	*0.251E-01	*0.534E-02
	500000.	0.598E-01	0.201E-02	0.138E-01	0.320E-02	*0.274E-01	*0.636E-02
P V 3S 5P 255.6 Å C= 0.95E+20	50000.	0.175	0.422E-02	*0.148E-01	*0.232E-02		
	100000.	0.140	0.516E-02	*0.196E-01	*0.387E-02		
	150000.	0.125	0.598E-02	*0.215E-01	*0.491E-02		
	200000.	0.116	0.548E-02	*0.227E-01	*0.554E-02		
	300000.	0.105	0.533E-02	*0.243E-01	*0.622E-02		
	500000.	0.934E-01	0.508E-02	*0.258E-01	*0.725E-02		
P V 3S 6P 229.8 Å C= 0.42E+20	50000.	*0.282	*0.806E-02				
	100000.	0.238	0.121E-01				
	150000.	0.217	0.111E-01				
	200000.	0.204	0.111E-01				
	300000.	0.187	0.107E-01				
	500000.	0.170	0.108E-01				
P V 4S 4P 3185.6 Å C= 0.32E+23	50000.	17.0	-0.353	0.580	-0.206	* 1.02	*-0.315
	100000.	12.7	-0.360	0.899	-0.363	* 1.73	*-0.654
	150000.	11.0	-0.445	1.09	-0.463	* 2.13	*-0.858
	200000.	9.97	-0.454	1.16	-0.543	* 2.31	* -1.01
	300000.	8.82	-0.408	1.28	-0.606	* 2.53	* -1.17
	500000.	7.67	-0.406	1.42	-0.712	* 2.82	* -1.40
P V 4S 5P 845.8 Å C= 0.10E+22	50000.	2.17	0.840E-02	*0.161	*0.976E-02		
	100000.	1.74	0.197E-01	*0.213	*0.181E-01		
	150000.	1.56	0.208E-01	*0.233	*0.228E-01		
	200000.	1.44	0.128E-01	*0.245	*0.272E-01		
	300000.	1.31	0.151E-01	*0.262	*0.315E-01		
	500000.	1.17	0.134E-01	*0.277	*0.366E-01		



STARK BROADENING PARAMETER TABLES FOR C V AND P V

PERTURBER DENSITY = $1 \times 10^{19} \text{cm}^{-3}$							
PERTURBERS ARE:		ELECTRONS		PROTONS		He III	
TRANSITION	T(K)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
P V 4S 6P 616.8 Å C= 0.30E+21	50000.	* 2.17	*0.332E-01				
	100000.	1.82	0.657E-01				
	150000.	1.66	0.542E-01				
	200000.	1.56	0.537E-01				
	300000.	1.44	0.536E-01				
	500000.	1.30	0.549E-01				
P V 5S 6P 1710.8 Å C= 0.23E+22	50000.	* 19.3	*-0.991E-01				
	100000.	* 16.3	*-0.273E-01				
	150000.	14.9	-0.972E-01				
	200000.	14.0	-0.871E-01				
	300000.	12.9	-0.850E-01				
	500000.	11.6	-0.748E-01				
P V 3P 4S 544.0 Å C= 0.93E+21	50000.	0.277	0.171E-01	0.438E-02	0.784E-02	*0.840E-02	*0.118E-01
	100000.	0.203	0.170E-01	0.103E-01	0.134E-01	*0.206E-01	*0.237E-01
	150000.	0.173	0.199E-01	0.142E-01	0.172E-01	*0.284E-01	*0.316E-01
	200000.	0.155	0.211E-01	0.181E-01	0.198E-01	*0.364E-01	*0.366E-01
	300000.	0.136	0.199E-01	0.219E-01	0.222E-01	*0.437E-01	*0.425E-01
	500000.	0.116	0.192E-01	0.263E-01	0.258E-01	0.536E-01	0.510E-01
P V 3P 5S 347.8 Å C= 0.18E+21	50000.	0.251	0.256E-01	*0.116E-01	*0.130E-01		
	100000.	0.194	0.311E-01	*0.214E-01	*0.210E-01		
	150000.	0.169	0.308E-01	*0.262E-01	*0.252E-01		
	200000.	0.155	0.304E-01	*0.292E-01	*0.287E-01		
	300000.	0.137	0.294E-01	*0.334E-01	*0.323E-01		
	500000.	0.118	0.287E-01	*0.400E-01	*0.380E-01		
P V 3P 6S 295.8 Å C= 0.69E+20	50000.	*0.382	*0.561E-01				
	100000.	0.311	0.597E-01				
	150000.	0.277	0.578E-01				
	200000.	0.254	0.561E-01				
	300000.	0.226	0.548E-01				
	500000.	0.198	0.516E-01				
P V 3P 7S 272.9 Å C= 0.36E+20	50000.	*0.610	*0.132				
	100000.	*0.522	*0.120				
	150000.	*0.469	*0.107				
	200000.	0.437	0.103				
	300000.	0.395	0.993E-01				
	500000.	0.349	0.885E-01				
P V 4P 5S 1383.2 Å C= 0.28E+22	50000.	5.22	0.330	*0.218	*0.199		
	100000.	4.06	0.433	*0.375	*0.324		
	150000.	3.56	0.431	*0.442	*0.387		
	200000.	3.27	0.421	*0.490	*0.440		
	300000.	2.92	0.408	*0.564	*0.496		
	500000.	2.55	0.404	*0.647	*0.580		
P V 4P 6S 814.1 Å C= 0.52E+21	50000.	* 3.26	*0.383				
	100000.	2.65	0.422				
	150000.	2.37	0.412				
	200000.	2.19	0.400				
	300000.	1.96	0.393				
	500000.	1.73	0.372				
P V 4P 7S 661.1 Å C= 0.21E+21	50000.	* 3.81	*0.705				
	100000.	* 3.24	*0.662				
	150000.	* 2.93	*0.612				
	200000.	2.73	0.561				
	300000.	2.47	0.552				
	500000.	2.19	0.495				

PERTURBER DENSITY = $1 \times 10^{19} \text{cm}^{-3}$							
PERTURBERS ARE:		ELECTRONS		PROTONS		He III	
TRANSITION	T(K)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
P V 3P 3D 869.1 Å C= 0.67E+22	50000.	0.434	-0.393E-03	0.865E-02	-0.119E-03	0.155E-01	-0.188E-03
	100000.	0.311	-0.253E-03	0.167E-01	-0.274E-03	0.322E-01	-0.507E-03
	150000.	0.259	-0.322E-03	0.214E-01	-0.426E-03	0.418E-01	-0.812E-03
	200000.	0.229	-0.238E-03	0.248E-01	-0.572E-03	0.485E-01	-0.110E-02
	300000.	0.195	-0.529E-03	0.292E-01	-0.824E-03	0.578E-01	-0.162E-02
	500000.	0.163	-0.414E-03	0.322E-01	-0.121E-02	0.640E-01	-0.242E-02
P V 3P 4D 390.2 Å C= 0.11E+21	50000.	0.252	0.618E-02	*0.126E-01	*0.863E-02		
	100000.	0.191	0.792E-02	*0.199E-01	*0.139E-01		
	150000.	0.165	0.759E-02	*0.239E-01	*0.170E-01		
	200000.	0.150	0.775E-02	*0.264E-01	*0.192E-01		
	300000.	0.132	0.823E-02	0.297E-01	0.216E-01		
	500000.	0.114	0.750E-02	0.345E-01	0.252E-01		
P V 3P 5D 311.0 Å C= 0.37E+20	50000.	*0.383	*0.136E-01				
	100000.	0.308	0.150E-01				
	150000.	0.274	0.163E-01				
	200000.	0.252	0.178E-01				
	300000.	0.226	0.173E-01				
	500000.	0.198	0.157E-01				
P V 3P 6D 280.3 Å C= 0.18E+20	50000.	*0.641	*0.110E-01				
	100000.	*0.537	*0.217E-01				
	150000.	*0.485	*0.286E-01				
	200000.	0.452	0.292E-01				
	300000.	0.410	0.276E-01				
	500000.	0.362	0.250E-01				
P V 3P 7D 264.7 Å C= 0.10E+20	50000.						
	100000.	*0.876	*0.273E-01				
	150000.	*0.809	*0.359E-01				
	200000.	*0.763	*0.367E-01				
	300000.	*0.700	*0.342E-01				
	500000.	0.625	0.357E-01				
P V 4P 4D 2436.0 Å C= 0.43E+22	50000.	13.1	0.126	*0.676	*0.308		
	100000.	10.00	0.190	* 1.01	*0.496		
	150000.	8.68	0.164	* 1.14	*0.615		
	200000.	7.92	0.149	* 1.24	*0.690		
	300000.	7.02	0.164	* 1.37	*0.778		
	500000.	6.13	0.147	* 1.55	*0.904		
P V 4P 5D 940.9 Å C= 0.34E+21	50000.	* 3.92	*0.107				
	100000.	3.14	0.119				
	150000.	2.79	0.129				
	200000.	2.57	0.140				
	300000.	2.31	0.135				
	500000.	2.03	0.121				
P V 4P 6D 706.8 Å C= 0.11E+21	50000.	* 4.29	*0.589E-01				
	100000.	* 3.58	*0.127				
	150000.	* 3.23	*0.170				
	200000.	3.01	0.173				
	300000.	2.73	0.162				
	500000.	2.42	0.147				
P V 4P 7D 615.1 Å C= 0.54E+20	50000.						
	100000.	* 4.85	*0.139				
	150000.	* 4.48	*0.185				
	200000.	* 4.22	*0.188				
	300000.	* 3.88	*0.174				
	500000.	3.46	0.183				

## STARK BROADENING PARAMETER TABLES FOR C V AND P V

PERTURBER DENSITY = $1 \times 10^{19} \text{cm}^{-3}$							
PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS WIDTH(Å)	SHIFT(Å)	PROTONS WIDTH(Å)	SHIFT(Å)	He III WIDTH(Å)	SHIFT(Å)
P V 3D 4P 998.5 Å C= 0.31E+22	50000.	1.30	0.205E-01	0.613E-01	0.834E-02		
	100000.	0.964	0.205E-01	0.928E-01	0.163E-01		
	150000.	0.823	0.227E-01	0.110	0.212E-01	*0.215	*0.401E-01
	200000.	0.743	0.261E-01	0.117	0.251E-01	*0.230	*0.474E-01
	300000.	0.652	0.271E-01	0.126	0.303E-01	*0.251	*0.590E-01
	500000.	0.564	0.251E-01	0.138	0.353E-01	*0.274	*0.700E-01
P V 3D 5P 534.8 Å C= 0.42E+21	50000.	0.764	0.206E-01	*0.662E-01	*0.105E-01		
	100000.	0.615	0.246E-01	*0.874E-01	*0.175E-01		
	150000.	0.549	0.278E-01	*0.958E-01	*0.222E-01		
	200000.	0.508	0.258E-01	*0.101	*0.249E-01		
	300000.	0.460	0.256E-01	*0.108	*0.280E-01		
	500000.	0.410	0.241E-01	*0.115	*0.327E-01		
P V 3D 6P 433.1 Å C= 0.15E+21	50000.	* 1.00	*0.306E-01				
	100000.	0.845	0.447E-01				
	150000.	0.771	0.407E-01				
	200000.	0.724	0.408E-01				
	300000.	0.666	0.397E-01				
	500000.	0.603	0.396E-01				
P V 4D 5P 2183.7 Å C= 0.34E+22	50000.	* 16.5	*0.129				
	100000.	13.3	0.152				
	150000.	11.9	0.218	* 1.77	*-0.284		
	200000.	11.0	0.182	* 1.87	*-0.327		
	300000.	9.95	0.162	* 2.01	*-0.367		
	500000.	8.85	0.163	* 2.13	*-0.427		
P V 4D 6P 1114.9 Å C= 0.89E+21	50000.	* 7.55	*0.138				
	100000.	* 6.35	*0.225				
	150000.	5.78	0.202				
	200000.	5.42	0.203				
	300000.	4.98	0.193				
	500000.	4.50	0.199				
P V 3D 4F 673.9 Å C= 0.33E+21	50000.	0.601	-0.591E-02	0.254E-01	-0.176E-01		
	100000.	0.448	-0.644E-02	0.415E-01	-0.292E-01		
	150000.	0.383	-0.756E-02	0.521E-01	-0.369E-01		
	200000.	0.346	-0.540E-02	0.570E-01	-0.413E-01	*0.112	*-0.750E-01
	300000.	0.303	-0.390E-02	0.653E-01	-0.464E-01	*0.128	*-0.885E-01
	500000.	0.261	-0.468E-02	0.764E-01	-0.543E-01	*0.146	*-0.106
P V 3D 5F 475.6 Å C= 0.50E+19	50000.	*0.925	*-0.277E-01				
	100000.	0.763	-0.234E-01				
	150000.	0.683	-0.191E-01				
	200000.	0.631	-0.170E-01				
	300000.	0.566	-0.156E-01				
	500000.	0.493	-0.113E-01				
P V 3D 6F 410.0 Å C= 0.24E+19	50000.	* 1.54	*-0.388E-01				
	100000.	* 1.32	*-0.383E-01				
	150000.	* 1.19	*-0.362E-01				
	200000.	1.11	-0.338E-01				
	300000.	1.00	-0.282E-01				
	500000.	0.881	-0.221E-01				
P V 4D 5F 1447.9 Å C= 0.46E+20	50000.	* 10.3	*-0.345				
	100000.	8.42	-0.328				
	150000.	7.53	-0.283				
	200000.	6.97	-0.265				
	300000.	6.25	-0.260				
	500000.	5.46	-0.209				

PERTURBER DENSITY = $1 \times E+19 \text{cm}^{-3}$							
PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS WIDTH(Å)	SHIFT(Å)	PROTONS WIDTH(Å)	SHIFT(Å)	He III WIDTH(Å)	SHIFT(Å)
P V 4D 6F 973.8 Å C= 0.13E+20	50000.	* 9.42	*-0.259				
	100000.	* 8.00	*-0.266				
	150000.	* 7.25	*-0.252				
	200000.	* 6.76	*-0.239				
	300000.	6.10	-0.211				
	500000.	5.35	-0.172				
P V 4F 5D 1722.9 Å C= 0.11E+22	50000.	* 13.4	*0.459				
	100000.	10.7	0.504				
	150000.	9.51	0.550				
	200000.	8.77	0.584				
	300000.	7.86	0.560				
	500000.	6.91	0.512				
P V 4F 6D 1072.4 Å C= 0.26E+21	50000.	* 9.98	*0.177				
	100000.	* 8.32	*0.335				
	150000.	* 7.51	*0.438				
	200000.	6.99	0.442				
	300000.	6.34	0.414				
	500000.	5.61	0.378				
P V 4F 7D 874.6 Å C= 0.11E+21	50000.						
	100000.	* 9.86	*0.309				
	150000.	* 9.10	*0.405				
	200000.	* 8.58	*0.410				
	300000.	* 7.87	*0.381				
	500000.	7.02	0.398				
PERTURBER DENSITY = $1 \times E+20 \text{cm}^{-3}$							
P V 3S 3P 1121.8 Å C= 0.11E+24	50000.	6.26	-0.428E-01	0.507E-01	-0.130E-01	*0.566E-01	-0.113E-01
	100000.	4.47	-0.610E-01	0.132	-0.400E-01	*0.228	-0.600E-01
	200000.	3.28	-0.627E-01	0.222	-0.788E-01	*0.429	-0.142
	300000.	2.78	-0.797E-01	0.277	-0.102	*0.541	
	-0.190						
	500000.	2.32	-0.704E-01	0.329	-0.136	*0.653	
-0.260							
1000000.	1.87	-0.721E-01	0.380	-0.170	*0.757	-0.336	
P V 3S 4P 328.6 Å C= 0.34E+22	50000.	* 1.39	*0.106E-01				
	100000.	1.03	0.121E-01				
	200000.	0.792	0.195E-01				
	300000.	0.693	0.193E-01	*0.125	*0.256E-01		
	500000.	0.598	0.185E-01	*0.137	*0.311E-01		
	1000000.	0.503	0.187E-01	*0.150	*0.383E-01		
P V 3S 5P 255.6 Å C= 0.95E+21	50000.						
	100000.	* 1.40	*0.381E-01				
	200000.	* 1.16	*0.457E-01				
	300000.	1.05	0.464E-01				
	500000.	0.932	0.449E-01				
	1000000.	0.808	0.451E-01				
P V 3S 6P 229.8 Å C= 0.42E+21	50000.						
	100000.						
	200000.	* 2.00	*0.824E-01				
	300000.	* 1.85	*0.829E-01				
	500000.	* 1.67	*0.891E-01				
	1000000.	1.47	0.806E-01				
P V 3P 4S 544.0 Å C= 0.93E+22	50000.	* 2.76	*0.103	*0.399E-01	*0.409E-01		
	100000.	2.03	0.127	*0.102	*0.100		
	200000.	1.55	0.181	*0.180	*0.167		
	300000.	1.36	0.176	*0.220	*0.201		
	500000.	1.16	0.172	*0.263	*0.246		
	1000000.	0.957	0.171	*0.331	*0.303		

STARK BROADENING PARAMETER TABLES FOR C V AND P V

PERTURBER DENSITY = 1xE+20cm-3							
PERTURBERS ARE:		ELECTRONS		PROTONS		He III	
TRANSITION	T(K)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
P V 3P 5S 347.8 Å C= 0.18E+22	50000.	* 2.49	*0.677E-01				
	100000.	* 1.93	*0.194				
	200000.	1.54	0.225				
	300000.	1.36	0.229				
	500000.	1.18	0.236				
	1000000.	0.985	0.216				
P V 3P 6S 295.8 Å C= 0.69E+21	50000.						
	100000.						
	200000.	* 2.45	*0.317				
	300000.	* 2.19	*0.352				
	500000.	1.93	0.359				
	1000000.	1.61	0.320				
P V 3P 7S 272.9 Å C= 0.36E+21	50000.						
	100000.						
	200000.						
	300000.	* 3.54	*0.503				
	500000.	* 3.17	*0.488				
	1000000.	* 2.69	*0.436				
P V 3P 3D 869.1 Å C= 0.67E+23	50000.	4.34	-0.292E-02	0.690E-01	-0.718E-03		
	100000.	3.11	-0.212E-02	0.161	-0.232E-02		
	200000.	2.29	-0.206E-02	0.244	-0.532E-02		
	300000.	1.95	-0.502E-02	0.291	-0.797E-02		
	500000.	1.63	-0.382E-02	0.322	-0.120E-01	*0.635	*-0.233E-01
	1000000.	1.34	-0.293E-02	0.362	-0.174E-01	*0.719	*-0.347E-01
P V 3P 4D 390.2 Å C= 0.11E+22	50000.	* 2.46	*-0.332E-01				
	100000.	* 1.88	*0.188E-01				
	200000.	1.48	0.368E-01				
	300000.	1.30	0.495E-01				
	500000.	1.13	0.489E-01				
	1000000.	0.943	0.444E-01				
P V 3P 5D 311.0 Å C= 0.37E+21	50000.						
	100000.	* 2.84	*-0.473E-01				
	200000.	* 2.36	*0.442E-01				
	300000.	* 2.14	*0.628E-01				
	500000.	1.89	0.661E-01				
	1000000.	1.61	0.705E-01				
P V 3P 6D 280.3 Å C= 0.18E+21	50000.						
	100000.						
	200000.						
	300000.	* 3.59	*0.419E-01				
	500000.	* 3.24	*0.510E-01				
	1000000.	* 2.80	*0.947E-01				
P V 3D 4P 998.5 Å C= 0.31E+23	50000.	* 13.0	*0.140				
	100000.	9.64	0.166				
	200000.	7.43	0.233				
	300000.	6.52	0.249	* 1.25	*0.282		
	500000.	5.64	0.232	* 1.37	*0.342		
	1000000.	4.77	0.234	* 1.50	*0.419		
P V 3D 5P 534.8 Å C= 0.42E+22	50000.						
	100000.	* 6.14	*0.185				
	200000.	* 5.07	*0.217				
	300000.	4.59	0.224				
	500000.	4.10	0.215				
	1000000.	3.56	0.215				

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PERTURBER DENSITY = $1 \times 10^{20} \text{cm}^{-3}$							
PERTURBERS ARE:		ELECTRONS		PROTONS		He III	
TRANSITION	T(K)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
P V 3D 6P 433.1 Å C= 0.15E+22	50000.						
	100000.						
	200000.	* 7.11	*0.305				
	300000.	* 6.56	*0.309				
	500000.	* 5.95	*0.329				
1000000.	5.23	0.298					
P V 3D 4F 673.9 Å C= 0.33E+22	50000.	* 5.88	*0.121				
	100000.	4.42	0.496E-01				
	200000.	3.42	0.227E-01				
	300000.	2.99	0.220E-01				
	500000.	2.58	0.271E-02				
1000000.	2.16	0.115E-01	*0.933	*-0.632			
P V 3D 5F 475.6 Å C= 0.50E+20	50000.						
	100000.	* 6.10	*0.634E-01				
	200000.	* 5.23	*0.552E-02				
	300000.	* 4.77	*-0.208E-01				
	500000.	4.24	-0.177E-01				
1000000.	3.61	-0.139E-01					
P V 3D 6F 410.0 Å C= 0.24E+20	50000.						
	100000.						
	200000.						
	300000.	* 7.68	*0.245E-01				
	500000.	* 6.97	*0.179E-01				
1000000.	* 6.02	*-0.324E-01					

purposes. Our results for 25 C V and 51 P V multiplets are shown in Table 1, for perturber densities  $10^{17} - 10^{22} \text{ cm}^{-3}$  and temperatures  $T = 50,000 - 1,000,000 \text{ K}$ . We also specify a parameter  $c$  (Dimitrijević and Sahal-Bréchet 1984), which gives an estimate 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, 1995).

*Acknowledgements* – This work is a part of the project "Physics and dynamics of celestial bodies", supported by Ministry of Science and Technology of Serbia.

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#### ТАБЕЛЕ ПАРАМЕТАРА ШТАРКОВОГ ШИРЕЊА C V И P V

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УДК 52-355.3  
 Претходно саопштење

Користећи семикласичан прилаз, израчуна-  
 те су ширине и помераји спектралних линија, про-  
 узроковани сударима са електронима, протонима

и јонизованим хелијумом, за 25 мултиплета C V  
 и 51 мултиплет P V. Резултати су дати у функцији  
 температуре и концентрације пертурбера.