

STARK BROADENING PARAMETER TABLES FOR Be III AND B III

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SUMMARY: Using a semiclassical approach, we have calculated electron–, proton–, and ionized helium–impact line widths and shifts for 12 Be III and 27 B III multiplets as a function of temperature and perturber density.

1. INTRODUCTION

The spectral lines of lithium and beryllium are of interest not only for the abundance investigations but as well for the nucleosynthesis considerations and as an indication of the intensity of stellar thermonuclear reactions. Moreover the He-like Be III and Li-like B III spectra are particularly suitable for theoretical research, and the corresponding Stark broadening parameters are of importance not only for the consideration of Stark broadening theory but also for the examination of regularities and systematic trends within the astrophysically important helium and lithium isoelectronic sequences. In order to provide to astrophysicists the needed Stark broadening data, we have calculated within the semiclassical-perturbation formalism (Sahal–Bréchet, 1969ab) electron-, proton-, and ionized helium-impact line widths and shifts for 12 Be III and 27 B III 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, 1996). Here, we present only tables of Stark broadening parameters for astrophysical and laboratory plasma diagnostic purposes. Our results for 12 Be III and 27 B III multiplets are shown in Table 1, for Be III and in Table 2 for B III, for perturber densities $10^{17} - 10^{21} \text{ cm}^{-3}$ and temperatures $T = 10,000 - 300,000 \text{ K}$. 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).

Table 1. This table shows electron-, proton-, and He II- impact broadening parameters for Be III, for perturber densities $10^{17} - 10^{21} \text{ cm}^{-3}$ and temperatures from 10,000 up to 300,000 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 lies between 0.1 and 0.5.

PERTURBER DENSITY = $1 \times 10^{17} \text{ cm}^{-3}$							
PERTURBERS ARE:		ELECTRONS		PROTONS		IONIZED HELIUM	
TRANSITION	T(K)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
Be III 1S 2P 100.3 Å C= 0.16E+18	10000.	0.705E-04	-0.877E-05	0.199E-06	-0.196E-06	0.339E-06	-0.195E-06
	20000.	0.489E-04	-0.135E-05	0.537E-06	-0.422E-06	0.825E-06	-0.416E-06
	50000.	0.312E-04	-0.153E-06	0.144E-05	-0.944E-06	0.179E-05	-0.886E-06
	100000.	0.229E-04	-0.398E-07	0.225E-05	-0.140E-05	0.256E-05	-0.126E-05
	150000.	0.193E-04	-0.839E-07	0.277E-05	-0.171E-05	0.284E-05	-0.148E-05
	300000.	0.150E-04	0.149E-06	0.339E-05	-0.211E-05	0.334E-05	-0.178E-05
Be III 2S 2P 6142.9 Å C= 0.61E+21	10000.	0.484	-0.221E-02	0.102E-02	-0.368E-02	0.166E-02	-0.363E-02
	20000.	0.337	-0.141E-01	0.351E-02	-0.746E-02	0.461E-02	-0.699E-02
	50000.	0.222	-0.140E-01	0.104E-01	-0.136E-01	0.109E-01	-0.122E-01
	100000.	0.166	-0.147E-01	0.177E-01	-0.186E-01	0.166E-01	-0.156E-01
	150000.	0.143	-0.144E-01	0.210E-01	-0.207E-01	0.191E-01	-0.175E-01
	300000.	0.113	-0.129E-01	0.272E-01	-0.246E-01	0.241E-01	-0.210E-01
Be III 2P 3S 768.0 Å C= 0.27E+19	10000.	0.219E-01	0.264E-02	0.356E-03	0.766E-03	0.420E-03	0.692E-03
	20000.	0.164E-01	0.191E-02	0.817E-03	0.121E-02	0.802E-03	0.106E-02
	50000.	0.120E-01	0.194E-02	0.160E-02	0.175E-02	0.141E-02	0.148E-02
	100000.	0.964E-02	0.184E-02	0.209E-02	0.210E-02	0.182E-02	0.176E-02
	150000.	0.851E-02	0.180E-02	0.242E-02	0.232E-02	0.203E-02	0.194E-02
	300000.	0.693E-02	0.152E-02	0.297E-02	0.264E-02	0.246E-02	0.222E-02
Be III 2P 4S 554.1 Å C= 0.58E+18	10000.	0.280E-01	0.645E-02	0.169E-02	0.196E-02	*0.165E-02	*0.166E-02
	20000.	0.232E-01	0.593E-02	0.280E-02	0.279E-02	*0.247E-02	*0.232E-02
	50000.	0.189E-01	0.471E-02	0.395E-02	0.392E-02	*0.338E-02	*0.328E-02
	100000.	0.161E-01	0.416E-02	0.505E-02	0.458E-02	0.427E-02	0.382E-02
	150000.	0.145E-01	0.377E-02	0.561E-02	0.487E-02	0.469E-02	0.417E-02
	300000.	0.120E-01	0.291E-02	0.659E-02	0.553E-02	0.497E-02	0.460E-02
Be III 2P 3D 746.3 Å C= 0.48E+18	10000.	0.151E-01	0.685E-03	0.573E-03	0.942E-03	0.648E-03	0.827E-03
	20000.	0.112E-01	0.941E-03	0.113E-02	0.144E-02	0.113E-02	0.126E-02
	50000.	0.795E-02	0.942E-03	0.209E-02	0.204E-02	0.178E-02	0.173E-02
	100000.	0.627E-02	0.863E-03	0.278E-02	0.244E-02	0.230E-02	0.205E-02
	150000.	0.551E-02	0.840E-03	0.327E-02	0.272E-02	0.264E-02	0.223E-02
	300000.	0.449E-02	0.693E-03	0.439E-02	0.307E-02	0.322E-02	0.262E-02
Be III 2P 4D 489.6 Å C= 0.29E+16	10000.	0.816E-01	0.214E-02				
	20000.	0.708E-01	0.347E-02				
	50000.	0.571E-01	0.352E-02				
	100000.	0.473E-01	0.447E-02				
	150000.	0.420E-01	0.562E-02				
	300000.	0.338E-01	0.346E-02				
Be III 2S 2P 3722.7 Å C= 0.37E+21	10000.	0.153	0.514E-02	0.238E-03	-0.696E-03	0.401E-03	-0.693E-03
	20000.	0.102	-0.305E-02	0.749E-03	-0.146E-02	0.110E-02	-0.141E-02
	50000.	0.656E-01	-0.322E-02	0.240E-02	-0.296E-02	0.264E-02	-0.262E-02
	100000.	0.485E-01	-0.401E-02	0.398E-02	-0.412E-02	0.413E-02	-0.359E-02
	150000.	0.413E-01	-0.381E-02	0.504E-02	-0.471E-02	0.474E-02	-0.398E-02
	300000.	0.324E-01	-0.350E-02	0.646E-02	-0.567E-02	0.588E-02	-0.479E-02
Be III 2S 3P 582.2 Å C= 0.11E+19	10000.	0.124E-01	0.164E-04	0.195E-03	0.206E-03	0.256E-03	0.191E-03
	20000.	0.956E-02	0.241E-03	0.378E-03	0.350E-03	0.422E-03	0.306E-03
	50000.	0.694E-02	0.215E-03	0.651E-03	0.542E-03	0.630E-03	0.455E-03
	100000.	0.558E-02	0.200E-03	0.818E-03	0.648E-03	0.759E-03	0.547E-03
	150000.	0.495E-02	0.213E-03	0.928E-03	0.719E-03	0.844E-03	0.609E-03
	300000.	0.407E-02	0.149E-03	0.116E-02	0.836E-03	0.972E-03	0.696E-03

PERTURBER DENSITY = 1xE+17cm-3							
PERTURBERS ARE:		ELECTRONS		PROTONS		IONIZED HELIUM	
TRANSITION	T(K)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
Be III 3S 3P 14086.5 Å C= 0.62E+21	10000.	10.8	-0.312	0.955E-01	-0.473E-01	0.133	-0.457E-01
	20000.	8.33	-0.253	0.178	-0.883E-01	0.211	-0.817E-01
	50000.	6.21	-0.349	0.288	-0.149	0.300	-0.131
	100000.	5.08	-0.319	0.349	-0.186	0.347	-0.157
	150000.	4.53	-0.301	0.391	-0.207	0.376	-0.175
	300000.	3.75	-0.296	0.481	-0.246	0.422	-0.208
Be III 2P 3S 725.7 Å C= 0.37E+19	10000.	0.162E-01	0.212E-02	0.175E-03	0.438E-03	0.197E-03	0.407E-03
	20000.	0.119E-01	0.137E-02	0.464E-03	0.714E-03	0.442E-03	0.637E-03
	50000.	0.858E-02	0.148E-02	0.967E-03	0.108E-02	0.851E-03	0.922E-03
	100000.	0.687E-02	0.135E-02	0.128E-02	0.130E-02	0.111E-02	0.110E-02
	150000.	0.605E-02	0.130E-02	0.148E-02	0.145E-02	0.127E-02	0.121E-02
	300000.	0.493E-02	0.116E-02	0.182E-02	0.165E-02	0.152E-02	0.138E-02
Be III 2P 3D 675.5 Å C= 0.14E+19	10000.	0.114E-01	-0.415E-03	0.150E-03	-0.223E-03	0.200E-03	-0.208E-03
	20000.	0.824E-02	-0.163E-03	0.339E-03	-0.389E-03	0.368E-03	-0.341E-03
	50000.	0.562E-02	-0.131E-03	0.646E-03	-0.613E-03	0.615E-03	-0.516E-03
	100000.	0.436E-02	-0.120E-03	0.846E-03	-0.736E-03	0.768E-03	-0.622E-03
	150000.	0.382E-02	-0.811E-04	0.974E-03	-0.816E-03	0.856E-03	-0.691E-03
	300000.	0.313E-02	-0.449E-04	0.123E-02	-0.955E-03	0.104E-02	-0.797E-03
Be III 3P 3D 31918.3 Å C= 0.32E+22	10000.	48.4	-1.28	0.945	-1.06	1.20	-0.976
	20000.	37.2	-1.42	1.72	-1.69	1.90	-1.50
	50000.	27.0	-1.23	2.87	-2.50	2.72	-2.12
	100000.	21.7	-1.19	3.63	-3.01	3.30	-2.53
	150000.	19.4	-1.11	4.15	-3.33	3.65	-2.82
	300000.	16.0	-0.815	5.11	-3.83	4.36	-3.20
PERTURBER DENSITY = 1xE+18cm-3							
Be III 1S 2P 100.3 Å C= 0.16E+19	10000.	0.705E-03	-0.835E-04	0.189E-05	-0.149E-05	0.321E-05	-0.149E-05
	20000.	0.487E-03	-0.186E-04	0.532E-05	-0.381E-05	0.816E-05	-0.375E-05
	50000.	0.312E-03	-0.193E-05	0.144E-04	-0.915E-05	0.179E-04	-0.856E-05
	100000.	0.229E-03	-0.149E-06	0.225E-04	-0.139E-04	0.256E-04	-0.125E-04
	150000.	0.193E-03	-0.772E-06	0.277E-04	-0.171E-04	0.284E-04	-0.148E-04
	300000.	0.150E-03	0.163E-05	0.339E-04	-0.211E-04	0.334E-04	-0.178E-04
Be III 2S 2P 6142.9 Å C= 0.61E+22	10000.	4.81	-0.241E-01	0.984E-02	-0.280E-01	0.159E-01	-0.275E-01
	20000.	3.37	-0.132	0.350E-01	-0.668E-01	0.458E-01	-0.622E-01
	50000.	2.22	-0.136	0.104	-0.130	0.109	-0.116
	100000.	1.66	-0.142	0.177	-0.183	0.166	-0.153
	150000.	1.43	-0.141	0.210	-0.206	0.191	-0.174
	300000.	1.13	-0.128	0.272	-0.245	0.241	-0.210
Be III 2P 3S 768.0 Å C= 0.27E+20	10000.	0.219	0.231E-01	0.353E-02	0.536E-02	*0.414E-02	*0.462E-02
	20000.	0.164	0.169E-01	0.818E-02	0.101E-01	0.800E-02	0.858E-02
	50000.	0.120	0.181E-01	0.159E-01	0.159E-01	0.140E-01	0.133E-01
	100000.	0.964E-01	0.173E-01	0.209E-01	0.204E-01	0.182E-01	0.170E-01
	150000.	0.850E-01	0.172E-01	0.242E-01	0.231E-01	0.203E-01	0.193E-01
	300000.	0.693E-01	0.149E-01	0.297E-01	0.263E-01	0.246E-01	0.221E-01
Be III 2P 4S 554.1 Å C= 0.58E+19	10000.	*0.279	*0.501E-01				
	20000.	0.231	0.497E-01				
	50000.	0.189	0.411E-01				
	100000.	0.161	0.369E-01				
	150000.	0.145	0.339E-01	*0.561E-01	*0.481E-01		
	300000.	0.120	0.276E-01	*0.658E-01	*0.549E-01		
Be III 2P 3D 746.3 Å C= 0.48E+19	10000.	0.149	0.244E-02	0.561E-02	0.644E-02	*0.626E-02	*0.530E-02
	20000.	0.111	0.631E-02	0.113E-01	0.118E-01	*0.111E-01	*0.100E-01
	50000.	0.789E-01	0.759E-02	0.210E-01	0.185E-01	*0.179E-01	*0.154E-01
	100000.	0.623E-01	0.711E-02	0.276E-01	0.236E-01	*0.228E-01	*0.197E-01
	150000.	0.548E-01	0.719E-02	0.327E-01	0.270E-01	*0.264E-01	*0.221E-01
	300000.	0.447E-01	0.644E-02	0.439E-01	0.306E-01	*0.322E-01	*0.261E-01

PERTURBER DENSITY = 1xE+18cm-3							
PERTURBERS ARE:		ELECTRONS		PROTONS		IONIZED HELIUM	
TRANSITION	T(K)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
Be III 2P 4D 489.6 Å C= 0.29E+17	10000.						
	20000.	*0.494	*0.227E-02				
	50000.	*0.434	*0.130E-01				
	100000.	0.376	0.142E-01				
	150000.	0.340	0.161E-01				
300000.	0.281	0.179E-01					
Be III 2S 2P 3722.7 Å C= 0.37E+22	10000.	1.51	0.467E-01	0.227E-02	-0.530E-02	0.382E-02	-0.526E-02
	20000.	1.02	-0.268E-01	0.744E-02	-0.132E-01	0.109E-01	-0.127E-01
	50000.	0.656	-0.315E-01	0.240E-01	-0.285E-01	0.264E-01	-0.251E-01
	100000.	0.485	-0.390E-01	0.398E-01	-0.408E-01	0.413E-01	-0.354E-01
	150000.	0.413	-0.375E-01	0.504E-01	-0.470E-01	0.474E-01	-0.397E-01
300000.	0.324	-0.346E-01	0.646E-01	-0.566E-01	0.588E-01	-0.479E-01	
Be III 2S 3P 582.2 Å C= 0.11E+20	10000.	0.124	-0.530E-03	0.184E-02	0.151E-02	0.238E-02	0.136E-02
	20000.	0.956E-01	0.184E-02	0.373E-02	0.302E-02	0.414E-02	0.258E-02
	50000.	0.694E-01	0.184E-02	0.650E-02	0.506E-02	0.630E-02	0.418E-02
	100000.	0.558E-01	0.176E-02	0.819E-02	0.633E-02	0.758E-02	0.532E-02
	150000.	0.495E-01	0.191E-02	0.928E-02	0.716E-02	0.844E-02	0.605E-02
300000.	0.407E-01	0.140E-02	0.116E-01	0.834E-02	0.971E-02	0.694E-02	
Be III 2P 3S 725.7 Å C= 0.37E+20	10000.	0.162	0.194E-01	0.173E-02	0.315E-02	0.195E-02	0.284E-02
	20000.	0.119	0.125E-01	0.463E-02	0.606E-02	0.441E-02	0.530E-02
	50000.	0.858E-01	0.140E-01	0.967E-02	0.998E-02	0.847E-02	0.845E-02
	100000.	0.687E-01	0.129E-01	0.128E-01	0.127E-01	0.111E-01	0.106E-01
	150000.	0.604E-01	0.125E-01	0.148E-01	0.145E-01	0.127E-01	0.121E-01
300000.	0.493E-01	0.114E-01	0.182E-01	0.165E-01	0.152E-01	0.137E-01	
Be III 2P 3D 675.5 Å C= 0.14E+20	10000.	0.114	-0.305E-02	0.144E-02	-0.165E-02	0.189E-02	-0.150E-02
	20000.	0.824E-01	-0.118E-02	0.336E-02	-0.338E-02	0.362E-02	-0.290E-02
	50000.	0.562E-01	-0.944E-03	0.646E-02	-0.576E-02	0.613E-02	-0.478E-02
	100000.	0.436E-01	-0.936E-03	0.846E-02	-0.720E-02	0.768E-02	-0.606E-02
	150000.	0.382E-01	-0.583E-03	0.974E-02	-0.812E-02	0.856E-02	-0.687E-02
300000.	0.313E-01	-0.345E-03	0.123E-01	-0.953E-02	0.104E-01	-0.795E-02	
PERTURBER DENSITY = 1xE+19cm-3							
Be III 1S 2P 100.3 Å C= 0.16E+20	10000.	0.704E-02	-0.759E-03	0.123E-04	-0.600E-05	0.205E-04	-0.597E-05
	20000.	0.487E-02	-0.158E-03	0.494E-04	-0.278E-04	0.749E-04	-0.272E-04
	50000.	0.312E-02	-0.878E-05	0.143E-03	-0.830E-04	0.177E-03	-0.772E-04
	100000.	0.229E-02	0.262E-05	0.225E-03	-0.133E-03	0.256E-03	-0.119E-03
	150000.	0.193E-02	-0.205E-05	0.277E-03	-0.168E-03	0.284E-03	-0.145E-03
300000.	0.150E-02	0.190E-04	0.339E-03	-0.210E-03	0.334E-03	-0.177E-03	
Be III 2P 3S 768.0 Å C= 0.27E+21	10000.	* 2.18	*0.935E-01				
	20000.	* 1.64	*0.892E-01				
	50000.	1.20	0.136				
	100000.	0.962	0.141				
	150000.	0.849	0.145	*0.243	*0.215		
300000.	0.691	0.131	*0.297	*0.260			
Be III 2P 4S 554.1 Å C= 0.58E+20	10000.						
	20000.						
	50000.	* 1.78	*0.222				
	100000.	* 1.53	*0.238				
	150000.	1.39	0.228				
300000.	1.15	0.200					
Be III 2P 3D 746.3 Å C= 0.48E+20	10000.	* 1.30	-0.611E-01				
	20000.	1.00	-0.780E-03				
	50000.	0.730	0.362E-01				
	100000.	0.583	0.436E-01				
	150000.	0.516	0.475E-01				
300000.	0.424	0.461E-01					

PERTURBER DENSITY = 1xE+19cm-3							
PERTURBERS ARE:		ELECTRONS		PROTONS		IONIZED HELIUM	
TRANSITION	T(K)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
Be III 2S 2P 3722.7 Å C= 0.37E+23	10000.	15.0	0.471	0.155E-01	-0.212E-01	0.256E-01	-0.208E-01
	20000.	10.2	-0.222	0.703E-01	-0.947E-01	0.102	-0.898E-01
	50000.	6.56	-0.284	0.239	-0.256	0.262	-0.221
	100000.	4.85	-0.372	0.397	-0.387	0.412	-0.334
	150000.	4.13	-0.357	0.504	-0.458	0.474	-0.386
	300000.	3.24	-0.335	0.646	-0.564	0.588	-0.477
Be III 2S 3P 582.2 Å C= 0.11E+21	10000.	* 1.22	-0.383E-01	*0.108E-01	*0.463E-02		
	20000.	*0.949	-0.156E-02	*0.330E-01	*0.180E-01		
	50000.	0.690	0.695E-02	*0.635E-01	*0.406E-01		
	100000.	0.555	0.951E-02	*0.818E-01	*0.567E-01		
	150000.	0.493	0.124E-01	*0.927E-01	*0.678E-01		
	300000.	0.405	0.956E-02	*0.116	*0.829E-01	0.971E-01	0.689E-01
Be III 2P 3S 725.7 Å C= 0.37E+21	10000.	* 1.62	*0.126	*0.135E-01	*0.822E-02		
	20000.	* 1.19	*0.840E-01	*0.447E-01	*0.335E-01		
	50000.	0.857	0.116	*0.960E-01	*0.778E-01		
	100000.	0.687	0.113	*0.128	*0.112		
	150000.	0.604	0.112	*0.149	*0.136	*0.128	*0.112
	300000.	0.492	0.105	*0.182	*0.164	*0.152	*0.136
Be III 2P 3D 675.5 Å C= 0.14E+21	10000.	* 1.13	*0.813E-02	*0.947E-02	-0.543E-02	*0.104E-01	-0.400E-02
	20000.	0.817	0.940E-02	*0.309E-01	-0.210E-01	*0.315E-01	-0.162E-01
	50000.	0.558	0.238E-02	*0.635E-01	-0.471E-01	*0.595E-01	-0.373E-01
	100000.	0.433	-0.927E-03	*0.838E-01	-0.648E-01	*0.762E-01	-0.537E-01
	150000.	0.381	0.120E-02	*0.973E-01	-0.772E-01	*0.858E-01	-0.648E-01
	300000.	0.312	0.103E-02	*0.123	-0.947E-01	*0.104	-0.790E-01
PERTURBER DENSITY = 1xE+20cm-3							
Be III 1S 2P 100.3 Å C= 0.16E+21	10000.						
	20000.	0.486E-01	-0.104E-02	0.260E-03	-0.917E-04	*0.346E-03	-0.859E-04
	50000.	0.312E-01	0.212E-03	0.134E-02	-0.620E-03	*0.161E-02	-0.561E-03
	100000.	0.229E-01	0.239E-03	0.220E-02	-0.114E-02	*0.248E-02	-0.100E-02
	150000.	0.193E-01	0.144E-03	0.274E-02	-0.150E-02	*0.279E-02	-0.127E-02
	300000.	0.150E-01	0.313E-03	0.338E-02	-0.203E-02	*0.333E-02	-0.170E-02
Be III 2P 3S 768.0 Å C= 0.27E+22	10000.						
	20000.						
	50000.	* 10.8	-0.580E-01				
	100000.	* 8.84	*0.478				
	150000.	* 7.87	*0.702				
300000.	6.49	0.757					
Be III 2P 4S 554.1 Å C= 0.58E+21	10000.						
	20000.						
	50000.						
	100000.						
	150000.	* 10.3	*0.603				
300000.	* 9.07	*0.681					
Be III 2P 3D 746.3 Å C= 0.48E+21	10000.						
	20000.						
	50000.	* 5.92	*0.588E-01				
	100000.	4.88	0.191				
	150000.	4.39	0.270				
300000.	3.71	0.283					
Be III 2S 3P 582.2 Å C= 0.11E+22	10000.						
	20000.						
	50000.	* 6.23	-0.140				
	100000.	* 5.14	-0.526E-01				
	150000.	* 4.60	*0.444E-02				
300000.	3.83	0.328E-02					

PERTURBER DENSITY = 1xE+20cm-3							
PERTURBERS ARE:		ELECTRONS		PROTONS		IONIZED HELIUM	
TRANSITION	T(K)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
Be III 2P 3S	10000.						
725.7 Å	20000.						
C= 0.37E+22	50000.	* 8.19	*0.327				
	100000.	* 6.63	*0.578				
	150000.	5.85	0.670				
	300000.	4.79	0.727				
Be III 2P 3D	10000.						
675.5 Å	20000.						
C= 0.14E+22	50000.	* 5.09	*0.289				
	100000.	4.03	0.173				
	150000.	3.57	0.160				
	300000.	2.95	0.122				
PERTURBER DENSITY = 1xE+21cm-3							
Be III 1S 2P	10000.						
100.3 Å	20000.						
C= 0.16E+22	50000.	*0.295	*0.124E-01				
	100000.	0.220	0.909E-02				
	150000.	0.187	0.666E-02				
	300000.	0.146	0.662E-02				

Table 2. This table shows electron-, proton-, and He II- impact broadening parameters for B III, for perturber densities $10^{17} - 10^{20} \text{ cm}^{-3}$ and temperatures from 10,000 up to 300,000 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 lies between 0.1 and 0.5.

PERTURBER DENSITY = $1 \times 10^{17} \text{ cm}^{-3}$							
PERTURBERS ARE:		ELECTRONS		PROTONS		IONIZED HELIUM	
TRANSITION	T(K)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
B III 2S 2P 2066.9 Å C= 0.21E+21	10000.	0.405E-01	0.209E-02	0.673E-04	-0.103E-03	0.117E-03	-0.103E-03
	20000.	0.268E-01	-0.521E-03	0.189E-03	-0.221E-03	0.295E-03	-0.217E-03
	50000.	0.171E-01	-0.728E-03	0.547E-03	-0.485E-03	0.679E-03	-0.450E-03
	100000.	0.124E-01	-0.719E-03	0.891E-03	-0.707E-03	0.100E-02	-0.626E-03
	150000.	0.105E-01	-0.864E-03	0.112E-02	-0.854E-03	0.113E-02	-0.729E-03
	300000.	0.823E-02	-0.739E-03	0.139E-02	-0.104E-02	0.135E-02	-0.871E-03
B III 2S 3P 518.2 Å C= 0.84E+18	10000.	0.874E-02	0.115E-03	0.168E-03	0.200E-03	0.221E-03	0.185E-03
	20000.	0.684E-02	0.244E-03	0.328E-03	0.330E-03	0.365E-03	0.291E-03
	50000.	0.500E-02	0.242E-03	0.570E-03	0.501E-03	0.547E-03	0.425E-03
	100000.	0.404E-02	0.232E-03	0.722E-03	0.604E-03	0.657E-03	0.506E-03
	150000.	0.359E-02	0.229E-03	0.825E-03	0.671E-03	0.733E-03	0.563E-03
	300000.	0.297E-02	0.170E-03	0.102E-02	0.778E-03	0.856E-03	0.637E-03
B III 2S 4P 411.8 Å C= 0.22E+18	10000.	0.164E-01	0.757E-03	0.884E-03	0.814E-03	*0.943E-03	*0.695E-03
	20000.	0.132E-01	0.945E-03	0.137E-02	0.118E-02	*0.129E-02	*0.980E-03
	50000.	0.105E-01	0.864E-03	0.187E-02	0.164E-02	0.170E-02	0.138E-02
	100000.	0.897E-02	0.847E-03	0.231E-02	0.193E-02	0.199E-02	0.160E-02
	150000.	0.813E-02	0.740E-03	0.258E-02	0.207E-02	0.216E-02	0.175E-02
	300000.	0.682E-02	0.569E-03	0.299E-02	0.235E-02	0.254E-02	0.198E-02
B III 2S 5P 376.3 Å C= 0.95E+17	10000.	0.283E-01	0.238E-02	*0.300E-02	*0.208E-02		
	20000.	0.253E-01	0.226E-02	*0.388E-02	*0.300E-02		
	50000.	0.220E-01	0.227E-02	*0.517E-02	*0.436E-02		
	100000.	0.195E-01	0.196E-02	*0.604E-02	*0.498E-02	*0.495E-02	*0.409E-02
	150000.	0.179E-01	0.175E-02	*0.673E-02	*0.535E-02	*0.544E-02	*0.450E-02
	300000.	0.152E-01	0.143E-02	*0.760E-02	*0.594E-02	*0.644E-02	*0.504E-02
B III 3S 3P 7839.5 Å C= 0.19E+21	10000.	2.82	-0.488E-01	0.310E-01	0.212E-01	0.428E-01	0.202E-01
	20000.	2.17	-0.555E-01	0.583E-01	0.387E-01	0.682E-01	0.345E-01
	50000.	1.61	-0.583E-01	0.965E-01	0.625E-01	0.976E-01	0.534E-01
	100000.	1.33	-0.570E-01	0.118	0.760E-01	0.115	0.640E-01
	150000.	1.19	-0.541E-01	0.133	0.844E-01	0.125	0.712E-01
	300000.	0.993	-0.602E-01	0.161	0.995E-01	0.143	0.833E-01
B III 3S 4P 1596.7 Å C= 0.33E+19	10000.	0.279	0.948E-02	0.128E-01	0.117E-01	*0.138E-01	*0.100E-01
	20000.	0.223	0.102E-01	0.200E-01	0.170E-01	*0.188E-01	*0.142E-01
	50000.	0.177	0.852E-02	0.275E-01	0.237E-01	0.249E-01	0.201E-01
	100000.	0.151	0.830E-02	0.339E-01	0.280E-01	0.289E-01	0.229E-01
	150000.	0.137	0.681E-02	0.384E-01	0.303E-01	0.312E-01	0.251E-01
	300000.	0.115	0.447E-02	0.450E-01	0.340E-01	0.356E-01	0.285E-01
B III 3S 5P 1169.3 Å C= 0.91E+18	10000.	0.291	0.209E-01	*0.288E-01	*0.199E-01		
	20000.	0.258	0.192E-01	*0.374E-01	*0.288E-01		
	50000.	0.223	0.194E-01	*0.495E-01	*0.419E-01		
	100000.	0.197	0.165E-01	*0.581E-01	*0.477E-01	*0.477E-01	*0.392E-01
	150000.	0.181	0.146E-01	*0.648E-01	*0.516E-01	*0.525E-01	*0.430E-01
	300000.	0.154	0.116E-01	*0.734E-01	*0.566E-01	*0.616E-01	*0.479E-01
B III 4S 4P 19478.1 Å C= 0.50E+21	10000.	50.4	-4.58	1.46	1.11	1.66	0.958
	20000.	41.2	-2.82	2.25	1.69	2.21	1.40
	50000.	34.5	-2.24	3.01	2.31	2.83	1.95
	100000.	30.1	-1.59	3.74	2.76	3.27	2.28
	150000.	27.7	-1.52	4.16	3.04	3.61	2.51
	300000.	23.6	-1.46	5.00	3.36	4.01	2.81

PERTURBER DENSITY = 1xE+17cm-3							
PERTURBERS ARE:		ELECTRONS		PROTONS		IONIZED HELIUM	
TRANSITION	T(K)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
B III 4S 5P 3568.3 Å C= 0.85E+19	10000.	3.03	0.100	*0.255	*0.177		
	20000.	2.68	0.930E-01	*0.329	*0.255		
	50000.	2.34	0.883E-01	*0.435	*0.368		
	100000.	2.09	0.681E-01	*0.518	*0.424	*0.433	*0.344
	150000.	1.93	0.540E-01	*0.571	*0.450	*0.467	*0.376
	300000.	1.65	0.394E-01	*0.673	*0.502	*0.553	*0.427
B III 2P 3S 758.6 Å C= 0.73E+19	10000.	0.144E-01	0.216E-02	0.824E-04	0.273E-03	0.107E-03	0.255E-03
	20000.	0.102E-01	0.165E-02	0.265E-03	0.478E-03	0.278E-03	0.417E-03
	50000.	0.718E-02	0.129E-02	0.614E-03	0.754E-03	0.573E-03	0.632E-03
	100000.	0.575E-02	0.119E-02	0.867E-03	0.906E-03	0.756E-03	0.762E-03
	150000.	0.506E-02	0.115E-02	0.100E-02	0.100E-02	0.854E-03	0.846E-03
	300000.	0.414E-02	0.104E-02	0.128E-02	0.119E-02	0.107E-02	0.977E-03
B III 2P 4S 528.2 Å C= 0.14E+19	10000.	0.154E-01	0.603E-02	0.546E-03	0.778E-03	0.510E-03	0.670E-03
	20000.	0.122E-01	0.459E-02	0.986E-03	0.119E-02	0.941E-03	0.989E-03
	50000.	0.102E-01	0.359E-02	0.159E-02	0.164E-02	0.137E-02	0.137E-02
	100000.	0.882E-02	0.288E-02	0.199E-02	0.195E-02	0.169E-02	0.161E-02
	150000.	0.805E-02	0.260E-02	0.224E-02	0.210E-02	0.188E-02	0.176E-02
	300000.	0.682E-02	0.213E-02	0.280E-02	0.239E-02	0.221E-02	0.196E-02
B III 2P 5S 465.6 Å C= 0.56E+18	10000.	0.260E-01	0.130E-01	*0.194E-02	*0.198E-02	*0.187E-02	*0.159E-02
	20000.	0.225E-01	0.107E-01	*0.292E-02	*0.275E-02	*0.255E-02	*0.227E-02
	50000.	0.197E-01	0.792E-02	*0.410E-02	*0.391E-02	*0.352E-02	*0.324E-02
	100000.	0.178E-01	0.651E-02	0.495E-02	0.456E-02	*0.413E-02	*0.371E-02
	150000.	0.165E-01	0.574E-02	0.546E-02	0.501E-02	*0.471E-02	*0.407E-02
	300000.	0.142E-01	0.439E-02	0.641E-02	0.537E-02	*0.544E-02	*0.448E-02
B III 3P 4S 2235.1 Å C= 0.16E+20	10000.	0.361	0.100	0.870E-02	0.118E-01	0.877E-02	0.101E-01
	20000.	0.294	0.733E-01	0.155E-01	0.180E-01	0.153E-01	0.152E-01
	50000.	0.243	0.557E-01	0.250E-01	0.249E-01	0.219E-01	0.210E-01
	100000.	0.212	0.448E-01	0.315E-01	0.297E-01	0.272E-01	0.250E-01
	150000.	0.194	0.402E-01	0.363E-01	0.326E-01	0.300E-01	0.270E-01
	300000.	0.166	0.336E-01	0.438E-01	0.369E-01	0.349E-01	0.312E-01
B III 3P 5S 1424.5 Å C= 0.52E+19	10000.	0.272	0.117	*0.175E-01	*0.180E-01	*0.171E-01	*0.145E-01
	20000.	0.237	0.961E-01	*0.268E-01	*0.250E-01	*0.232E-01	*0.207E-01
	50000.	0.207	0.709E-01	*0.374E-01	*0.358E-01	*0.321E-01	*0.299E-01
	100000.	0.188	0.584E-01	0.451E-01	0.412E-01	*0.380E-01	*0.338E-01
	150000.	0.174	0.512E-01	0.488E-01	0.448E-01	*0.430E-01	*0.377E-01
	300000.	0.151	0.394E-01	0.597E-01	0.497E-01	*0.493E-01	*0.411E-01
B III 4P 5S 4919.5 Å C= 0.32E+20	10000.	4.54	1.24	0.160	0.152	*0.165	*0.128
	20000.	3.93	0.992	0.244	0.217	*0.223	*0.179
	50000.	3.44	0.724	0.334	0.303	*0.294	*0.254
	100000.	3.11	0.587	0.422	0.358	*0.360	*0.294
	150000.	2.89	0.521	0.472	0.378	0.395	0.322
	300000.	2.49	0.401	0.559	0.430	0.415	0.358
B III 2P 3D 677.1 Å C= 0.14E+19	10000.	0.113E-01	-0.434E-03	0.153E-03	-0.228E-03	0.205E-03	-0.212E-03
	20000.	0.818E-02	-0.174E-03	0.345E-03	-0.396E-03	0.373E-03	-0.345E-03
	50000.	0.558E-02	-0.139E-03	0.656E-03	-0.623E-03	0.621E-03	-0.521E-03
	100000.	0.432E-02	-0.134E-03	0.858E-03	-0.749E-03	0.778E-03	-0.629E-03
	150000.	0.380E-02	-0.895E-04	0.988E-03	-0.829E-03	0.880E-03	-0.703E-03
	300000.	0.311E-02	-0.534E-04	0.125E-02	-0.973E-03	0.103E-02	-0.799E-03
B III 2P 4D 510.8 Å C= 0.15E+17	10000.	0.313E-01	-0.607E-03				
	20000.	0.255E-01	-0.513E-03				
	50000.	0.195E-01	-0.352E-03				
	100000.	0.159E-01	0.317E-04				
	150000.	0.141E-01	0.316E-03				
	300000.	0.113E-01	0.176E-03				

PERTURBER DENSITY = 1xE+17cm-3							
PERTURBERS ARE:		ELECTRONS		PROTONS		IONIZED HELIUM	
TRANSITION	T(K)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
B III 2P 5D 458.7 Å C= 0.65E+16	10000.	0.632E-01	-0.287E-02				
	20000.	0.546E-01	-0.216E-02				
	50000.	0.442E-01	-0.143E-02				
	100000.	0.370E-01	-0.228E-03				
	150000.	0.330E-01	0.684E-03				
	300000.	0.268E-01	0.216E-03				
B III 3P 3D 32127.9 Å C= 0.32E+22	10000.	46.3	-1.60	1.02	-1.19	1.28	-1.08
	20000.	35.8	-1.57	1.86	-1.88	2.03	-1.65
	50000.	26.1	-1.47	3.11	-2.76	2.89	-2.32
	100000.	21.1	-1.39	3.93	-3.31	3.51	-2.78
	150000.	18.8	-1.30	4.50	-3.64	3.93	-3.03
	300000.	15.6	-0.961	5.59	-4.26	4.47	-3.44
B III 3P 4D 1953.7 Å C= 0.22E+18	10000.	0.528	-0.184E-01				
	20000.	0.431	-0.124E-01				
	50000.	0.331	-0.971E-02				
	100000.	0.271	-0.368E-02				
	150000.	0.240	0.444E-03				
	300000.	0.195	-0.557E-03				
B III 3P 5D 1361.8 Å C= 0.57E+17	10000.	0.590	-0.307E-01				
	20000.	0.509	-0.218E-01				
	50000.	0.411	-0.150E-01				
	100000.	0.344	-0.413E-02				
	150000.	0.307	0.396E-02				
	300000.	0.250	0.361E-03				
B III 4P 5D 4244.6 Å C= 0.55E+18	10000.	* 6.75	-0.379				
	20000.	5.77	-0.300				
	50000.	4.69	-0.222				
	100000.	3.95	-0.115				
	150000.	3.54	-0.253E-01				
	300000.	2.90	-0.457E-01				
B III 3D 4P 2138.5 Å C= 0.60E+19	10000.	0.490	0.247E-01	0.253E-01	0.230E-01	*0.269E-01	*0.196E-01
	20000.	0.394	0.282E-01	0.387E-01	0.331E-01	*0.367E-01	*0.277E-01
	50000.	0.312	0.256E-01	0.535E-01	0.463E-01	*0.474E-01	*0.386E-01
	100000.	0.264	0.250E-01	0.659E-01	0.546E-01	0.559E-01	0.451E-01
	150000.	0.240	0.218E-01	0.724E-01	0.581E-01	0.610E-01	0.486E-01
	300000.	0.201	0.167E-01	0.839E-01	0.671E-01	0.693E-01	0.551E-01
B III 3D 5P 1435.7 Å C= 0.14E+19	10000.	0.432	0.358E-01	*0.441E-01	*0.304E-01		
	20000.	0.384	0.339E-01	*0.568E-01	*0.440E-01		
	50000.	0.332	0.341E-01	*0.756E-01	*0.639E-01		
	100000.	0.294	0.295E-01	*0.885E-01	*0.734E-01	*0.728E-01	*0.604E-01
	150000.	0.270	0.263E-01	*0.987E-01	*0.785E-01	*0.806E-01	*0.667E-01
	300000.	0.229	0.214E-01	*0.112	*0.874E-01	*0.960E-01	*0.741E-01
B III 4D 5P 4633.8 Å C= 0.12E+19	10000.	6.34	0.438				
	20000.	5.56	0.387				
	50000.	4.70	0.378				
	100000.	4.08	0.298				
	150000.	3.72	0.245				
	300000.	3.11	0.206				
B III 3D 4F 2077.7 Å C= 0.25E+18	10000.	0.327	0.958E-02				
	20000.	0.265	0.663E-02				
	50000.	0.202	0.354E-02				
	100000.	0.166	0.124E-02				
	150000.	0.148	-0.233E-02				
	300000.	0.122	0.529E-03	*0.558	-0.277		

PERTURBER DENSITY = 1xE+17cm-3							
PERTURBERS ARE:							
TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
B III 4F 5D	10000.	* 6.93	-0.330				
4506.1 Å	20000.	6.00	-0.228				
C= 0.62E+18	50000.	4.88	-0.148				
	100000.	4.09	-0.229E-01				
	150000.	3.66	0.808E-01				
	300000.	2.98	0.205E-01				
PERTURBER DENSITY = 1xE+18cm-3							
B III 2S 2P	10000.	0.399	0.189E-01	0.639E-03	-0.785E-03	0.111E-02	-0.784E-03
2066.9 Å	20000.	0.268	-0.414E-02	0.188E-02	-0.200E-02	0.292E-02	-0.196E-02
C= 0.21E+22	50000.	0.171	-0.724E-02	0.547E-02	-0.469E-02	0.678E-02	-0.434E-02
	100000.	0.124	-0.707E-02	0.891E-02	-0.700E-02	0.100E-01	-0.620E-02
	150000.	0.105	-0.858E-02	0.112E-01	-0.852E-02	0.113E-01	-0.727E-02
	300000.	0.823E-01	-0.736E-02	0.139E-01	-0.104E-01	0.135E-01	-0.870E-02
B III 2S 3P	10000.	0.874E-01	0.395E-03	0.160E-02	0.145E-02	0.205E-02	0.129E-02
518.2 Å	20000.	0.684E-01	0.189E-02	0.324E-02	0.282E-02	0.358E-02	0.243E-02
C= 0.84E+19	50000.	0.500E-01	0.209E-02	0.569E-02	0.466E-02	0.544E-02	0.389E-02
	100000.	0.404E-01	0.207E-02	0.722E-02	0.589E-02	0.656E-02	0.491E-02
	150000.	0.359E-01	0.208E-02	0.825E-02	0.668E-02	0.733E-02	0.559E-02
	300000.	0.297E-01	0.160E-02	0.102E-01	0.775E-02	0.856E-02	0.635E-02
B III 2S 4P	10000.	*0.163	*0.199E-02				
411.8 Å	20000.	0.132	0.575E-02				
C= 0.22E+19	50000.	0.105	0.637E-02	*0.187E-01	*0.141E-01		
	100000.	0.895E-01	0.667E-02	*0.229E-01	*0.183E-01		
	150000.	0.812E-01	0.595E-02	*0.258E-01	*0.205E-01		
	300000.	0.681E-01	0.510E-02	*0.299E-01	*0.233E-01	*0.254E-01	*0.196E-01
B III 2S 5P	10000.						
376.3 Å	20000.	*0.244	*0.620E-02				
C= 0.95E+18	50000.	0.215	0.127E-01				
	100000.	0.191	0.113E-01				
	150000.	0.176	0.107E-01				
	300000.	0.150	0.115E-01				
B III 3S 4P	10000.	* 2.78	*0.137E-01				
1596.7 Å	20000.	2.22	0.497E-01				
C= 0.33E+20	50000.	1.77	0.527E-01	*0.274	*0.204		
	100000.	1.51	0.576E-01	*0.338	*0.264		
	150000.	1.37	0.473E-01	*0.384	*0.300		
	300000.	1.15	0.364E-01	*0.450	*0.338	*0.356	*0.283
B III 3S 5P	10000.	*2.76	-0.284E-01				
1169.3 Å	20000.	*2.49	*0.358E-01				
C= 0.91E+19	50000.	2.17	0.981E-01				
	100000.	1.93	0.853E-01				
	150000.	1.78	0.808E-01				
	300000.	1.52	0.893E-01				
B III 2P 3S	10000.	0.144	0.206E-01	0.819E-03	0.202E-02	0.105E-02	0.184E-02
758.6 Å	20000.	0.102	0.159E-01	0.265E-02	0.416E-02	0.277E-02	0.355E-02
C= 0.73E+20	50000.	0.718E-01	0.125E-01	0.613E-02	0.709E-02	0.573E-02	0.586E-02
	100000.	0.575E-01	0.116E-01	0.868E-02	0.887E-02	0.755E-02	0.743E-02
	150000.	0.506E-01	0.113E-01	0.100E-01	0.999E-02	0.854E-02	0.842E-02
	300000.	0.414E-01	0.103E-01	0.128E-01	0.118E-01	0.107E-01	0.974E-02
B III 2P 4S	10000.	0.153	0.562E-01	*0.537E-02	*0.490E-02	*0.494E-02	*0.382E-02
528.2 Å	20000.	0.122	0.432E-01	*0.982E-02	*0.940E-02	*0.939E-02	*0.736E-02
C= 0.14E+20	50000.	0.102	0.342E-01	*0.157E-01	*0.145E-01	*0.135E-01	*0.119E-01
	100000.	0.882E-01	0.274E-01	*0.201E-01	*0.187E-01	*0.169E-01	*0.154E-01
	150000.	0.805E-01	0.251E-01	*0.224E-01	*0.209E-01	*0.188E-01	*0.174E-01
	300000.	0.682E-01	0.208E-01	*0.280E-01	*0.237E-01	*0.221E-01	*0.195E-01

PERTURBER DENSITY = 1xE+18cm-3							
PERTURBERS ARE:		ELECTRONS		PROTONS		IONIZED HELIUM	
TRANSITION	T(K)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
B III 2P 5S 465.6 Å C= 0.56E+19	10000.	*0.260	*0.113				
	20000.	*0.225	*0.959E-01				
	50000.	0.197	0.727E-01				
	100000.	0.178	0.598E-01				
	150000.	0.165	0.537E-01				
	300000.	0.142	0.422E-01				
B III 3P 4S 2235.1 Å C= 0.16E+21	10000.	* 3.61	*0.943	*0.845E-01	*0.772E-01	*0.831E-01	*0.595E-01
	20000.	2.94	0.695	*0.154	*0.144	*0.151	*0.117
	50000.	2.43	0.534	*0.248	*0.222	*0.218	*0.183
	100000.	2.12	0.428	*0.317	*0.286	*0.273	*0.240
	150000.	1.94	0.386	*0.363	*0.324	*0.300	*0.268
	300000.	1.66	0.329	0.438	0.367	*0.349	*0.310
B III 3P 5S 1424.5 Å C= 0.52E+20	10000.	* 2.72	* 1.02				
	20000.	* 2.37	*0.864				
	50000.	2.07	0.651				
	100000.	1.87	0.536				
	150000.	1.74	0.479				
	300000.	1.51	0.378				
B III 2P 3D 677.1 Å C= 0.14E+20	10000.	0.113	-0.320E-02	0.147E-02	-0.168E-02	0.193E-02	-0.152E-02
	20000.	0.818E-01	-0.128E-02	0.342E-02	-0.344E-02	0.368E-02	-0.293E-02
	50000.	0.558E-01	-0.101E-02	0.656E-02	-0.585E-02	0.620E-02	-0.482E-02
	100000.	0.432E-01	-0.106E-02	0.858E-02	-0.732E-02	0.777E-02	-0.613E-02
	150000.	0.380E-01	-0.663E-03	0.988E-02	-0.826E-02	0.880E-02	-0.699E-02
	300000.	0.310E-01	-0.428E-03	0.125E-01	-0.970E-02	0.103E-01	-0.797E-02
B III 2P 4D 510.8 Å C= 0.15E+18	10000.	*0.254	-0.614E-02				
	20000.	0.214	-0.686E-02				
	50000.	0.169	-0.555E-02				
	100000.	0.141	-0.410E-02				
	150000.	0.126	-0.328E-02				
	300000.	0.103	-0.163E-02				
B III 2P 5D 458.7 Å C= 0.65E+17	10000.						
	20000.	*0.415	-0.125E-01				
	50000.	*0.358	-0.118E-01				
	100000.	*0.310	-0.943E-02				
	150000.	0.282	-0.795E-02				
	300000.	0.234	-0.649E-02				
B III 3P 4D 1953.7 Å C= 0.22E+19	10000.	* 4.42	-0.172				
	20000.	3.71	-0.142				
	50000.	2.93	-0.122				
	100000.	2.44	-0.977E-01				
	150000.	2.19	-0.867E-01				
	300000.	1.80	-0.539E-01				
B III 3P 5D 1361.8 Å C= 0.57E+18	10000.						
	20000.	* 3.93	-0.134				
	50000.	* 3.37	-0.125				
	100000.	2.92	-0.103				
	150000.	2.64	-0.893E-01				
	300000.	2.20	-0.720E-01				
B III 3D 4P 2138.5 Å C= 0.60E+20	10000.	* 4.88	*0.854E-01				
	20000.	3.93	0.177				
	50000.	3.11	0.191				
	100000.	2.64	0.199	*0.660	*0.519		
	150000.	2.39	0.177	*0.724	*0.575		
	300000.	2.01	0.150	*0.840	*0.667	*0.694	*0.547

PERTURBER DENSITY = 1xE+18cm-3							
PERTURBERS ARE:		ELECTRONS		PROTONS		IONIZED HELIUM	
TRANSITION	T(K)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
B III 3D 5P 1435.7 Å C= 0.14E+20	10000.	* 4.09	-0.657E-02				
	20000.	* 3.71	0.986E-01				
	50000.	3.24	0.193				
	100000.	2.88	0.172				
	150000.	2.65	0.163				
300000.	2.26	0.173					
B III 3D 4F 2077.7 Å C= 0.25E+19	10000.	2.59	0.150				
	20000.	2.17	0.121				
	50000.	1.72	0.812E-01				
	100000.	1.45	0.815E-01				
	150000.	1.31	0.666E-01				
300000.	1.10	0.506E-01					
PERTURBER DENSITY = 1xE+19cm-3							
B III 2S 2P 2066.9 Å C= 0.21E+23	10000.	3.97	0.174	0.420E-02	-0.316E-02	0.717E-02	-0.314E-02
	20000.	2.68	-0.361E-01	0.175E-01	-0.146E-01	0.269E-01	-0.141E-01
	50000.	1.71	-0.675E-01	0.542E-01	-0.424E-01	0.670E-01	-0.390E-01
	100000.	1.24	-0.683E-01	0.889E-01	-0.670E-01	0.997E-01	-0.590E-01
	150000.	1.05	-0.831E-01	0.112	-0.835E-01	0.113	-0.710E-01
300000.	0.823	-0.717E-01	0.139	-0.103	0.135	-0.868E-01	
B III 2S 3P 518.2 Å C= 0.84E+20	10000.	*0.860	-0.290E-01	*0.939E-02	*0.400E-02		
	20000.	*0.678	-0.949E-03	*0.287E-01	*0.160E-01		
	50000.	0.497	0.958E-02	*0.558E-01	*0.367E-01		
	100000.	0.402	0.128E-01	*0.719E-01	*0.519E-01		
	150000.	0.357	0.141E-01	*0.824E-01	*0.629E-01		
300000.	0.295	0.117E-01	*0.102	*0.770E-01	*0.856E-01	*0.630E-01	
B III 2S 4P 411.8 Å C= 0.22E+20	10000.						
	20000.						
	50000.	*0.980	*0.320E-02				
	100000.	*0.847	*0.240E-01				
	150000.	0.773	0.227E-01				
300000.	0.653	0.247E-01					
B III 2S 5P 376.3 Å C= 0.95E+19	10000.						
	20000.						
	50000.						
	100000.	* 1.64	*0.725E-02				
	150000.	* 1.54	*0.109E-01				
300000.	* 1.34	*0.375E-01					
B III 2P 3S 758.6 Å C= 0.73E+21	10000.	* 1.44	*0.168				
	20000.	1.02	0.136	*0.258E-01	*0.259E-01	*0.266E-01	*0.198E-01
	50000.	0.718	0.112	*0.611E-01	*0.580E-01	*0.569E-01	*0.457E-01
	100000.	0.575	0.107	*0.866E-01	*0.797E-01	*0.751E-01	*0.658E-01
	150000.	0.506	0.105	*0.100	*0.950E-01	*0.851E-01	*0.793E-01
300000.	0.414	0.983E-01	*0.128	*0.118	*0.107	*0.967E-01	
B III 2P 4S 528.2 Å C= 0.14E+21	10000.						
	20000.	* 1.22	*0.334				
	50000.	* 1.01	*0.286				
	100000.	0.879	0.234				
	150000.	0.804	0.217				
300000.	0.681	0.187					
B III 2P 5S 465.6 Å C= 0.56E+20	10000.						
	20000.						
	50000.	* 1.89	*0.498				
	100000.	* 1.72	*0.438				
	150000.	* 1.61	*0.402				
300000.	1.39	0.332					

PERTURBER DENSITY = 1xE+19cm-3							
PERTURBERS ARE:		ELECTRONS		PROTONS		IONIZED HELIUM	
TRANSITION	T(K)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)	WIDTH(Å)	SHIFT(Å)
B III 2P 3D	10000.	* 1.11	*0.755E-02				
677.1 Å	20000.	0.811	0.891E-02	*0.314E-01	-0.213E-01	*0.319E-01	-0.162E-01
C= 0.14E+21	50000.	0.555	0.201E-02	*0.646E-01	-0.478E-01	*0.603E-01	-0.376E-01
	100000.	0.430	-0.203E-02	*0.854E-01	-0.662E-01	*0.774E-01	-0.541E-01
	150000.	0.378	0.572E-03	*0.987E-01	-0.785E-01	*0.875E-01	-0.657E-01
	300000.	0.309	0.298E-03	*0.125	-0.965E-01	*0.103	-0.791E-01
B III 2P 4D	10000.						
510.8 Å	20000.	* 1.62	*0.372E-01				
C= 0.15E+19	50000.	* 1.35	-0.293E-02				
	100000.	1.17	-0.754E-02				
	150000.	1.06	-0.803E-02				
	300000.	0.891	-0.782E-02				
B III 2P 5D	10000.						
458.7 Å	20000.						
C= 0.65E+18	50000.						
	100000.	* 2.31	*0.832E-02				
	150000.	* 2.16	*0.703E-02				
	300000.	* 1.87	-0.115E-01				
PERTURBER DENSITY = 1xE+20cm-3							
B III 2P 3S	10000.						
758.6 Å	20000.						
C= 0.73E+22	50000.	* 7.12	*0.637				
	100000.	5.71	0.752				
	150000.	5.03	0.791				
	300000.	4.11	0.795				
B III 2P 4S	10000.						
528.2 Å	20000.						
C= 0.14E+22	50000.						
	100000.	* 7.89	* 1.13				
	150000.	* 7.32	* 1.21				
	300000.	* 6.31	* 1.15				
B III 2P 3D	10000.						
677.1 Å	20000.						
C= 0.14E+22	50000.	* 5.05	*0.291				
	100000.	3.99	0.167				
	150000.	3.54	0.157				
	300000.	2.93	0.118				
B III 2P 4D	10000.						
510.8 Å	20000.						
C= 0.15E+20	50000.						
	100000.						
	150000.	* 7.79	*0.262				
	300000.	* 6.90	*0.201				
B III 2S 3P	10000.						
518.2 Å	20000.						
C= 0.84E+21	50000.	* 4.50	-0.145				
	100000.	* 3.72	-0.392E-01				
	150000.	3.34	0.599E-02				
	300000.	2.79	0.141E-01				
B III 2S 4P	10000.						
411.8 Å	20000.						
C= 0.22E+21	50000.						
	100000.						
	150000.	* 6.18	-0.566E-01				
	300000.	* 5.46	-0.110E-02				

Values for $NV > 0.5$ are not given and values for $0.1 < NV \leq 0.5$ are denoted by an asterisk. When the impact approximation is not valid, the ion broadening contribution may be estimated by using quasistatic approach (Sahal-Bréchet 1991 and Griem 1974). The accuracy of the results obtained decreases when broadening by ion interactions becomes important.

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

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ТАБЕЛЕ ПАРАМЕТАРА ШТАРКОВОГ ШИРЕЊА Ве III И В III

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 Претходно саопштење

Користећи семикласичан прилаз, израчунате су ширине и помераји спектралних линија, проузроковани сударима са електронима, протонима и јонизованим хелијумом, за 12 му-

лтиплета Ве III и 27 мултиплета В III. Резултати су дати у функцији температуре и концентрације пертурбера.