

## STARK BROADENING PARAMETER TABLES FOR Be III

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**SUMMARY:** Using a semiclassical approach, we have calculated electron–, proton–, and He II–impact line widths and shifts for 52 Be III multiplets as a function of temperature and perturber density. The electron temperatures are 10,000 K; 20,000 K; 50,000 K; 100,000 K 200,000K and 300,000 K and perturber densities are from  $10^{11} \text{ cm}^{-3}$  up to  $10^{21} \text{ cm}^{-3}$ .

## 1. INTRODUCTION

The astrophysical importance of Be III spectral lines for the abundance investigations, nucleosynthesis considerations and laboratory and astrophysical plasma diagnostics has been considered in Dimitrijević and Sahal-Bréchet (1996ab). In the above mentioned Refs. Stark broadening parameters of 12 Be II spectral lines have been obtained within the semiclassical perturbation approach (Sahal-Bréchet 1969ab, see also Sahal-Bréchet 1974, Fleurier, Sahal-Bréchet and Chapelle 1977, Dimitrijević and Sahal-Bréchet 1984, Dimitrijević, Sahal-Bréchet and Bommier 1991, Dimitrijević and Sahal-Bréchet 1995a). However, the recently published analysis of the spectrum and term system of Be III (Jupén *et al.* 2001) enables the calculation of Stark broadening parameters for 52 additional multiplets, with the standard accuracy. The aim of this work is to determine this additional parameters in order to extend the set of available Stark broadening data.

## 2. RESULTS AND DISCUSSION

The used formalism has been reviewed briefly *e.g* in Dimitrijević and Sahal-Bréchet (1995ab). All relevant details concerning the obtained results and the calculation procedure will be published in Dimitrijević *et al.* 2003). Here, we present only tables of Stark broadening parameters. Atomic energy levels needed for calculations, have been taken from Jupén *et al.* (2001). The results for 52 Be III multiplets, for Stark broadening due to electron–, proton–, and ionized helium–impacts are shown in Table 1 for perturber densities  $10^{11} \text{ cm}^{-3} - 10^{21} \text{ cm}^{-3}$  and temperatures from 10,000 up to 300,000 K. Stark broadening parameters for densities lower than for tabulated values, are linear with perturber density. 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

**Table 1.** This table shows electron-, proton-, and He II-impact broadening parameters for Be III for perturber densities  $10^{11}\text{cm}^{-3} - 10^{21}\text{cm}^{-3}$  and temperatures from 10,000 up to 300,000 K. Stark broadening parameters for densities lower than for tabulated values, are linear with perturber density. Transitions and averaged wavelengths for the multiplet (in Å) are also given in the Table. By dividing C by the corresponding full width at half maximum (Dimitrijević, Sahal-Bréchet and Bommier 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 the validity of the impact approximation lies between 0.1 and 0.5).

PERTURBER DENSITY = $1.E+11\text{ cm}^{-3}$							
PERTURBERS ARE:		ELECTRONS		PROTONS		IONIZED HELIUM	
TRANSITION	T(K)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
BeIII 5D-5F	10000.	7.39	-0.227	7.83	4.27	5.36	3.55
	20000.	6.04	-0.176	10.3	4.71	7.13	3.95
C = 0.23E+17	50000.	4.59	-0.128	13.1	5.45	10.0	4.77
	100000.	3.69	-0.106	14.5	6.58	12.5	5.11
	150000.	3.23	-0.844E-01	16.0	6.64	13.8	6.21
	300000.	2.54	-0.409E-01	16.7	8.05	15.4	6.55
PERTURBER DENSITY = $1.E+12\text{ cm}^{-3}$							
BeIII 5P-5D	10000.	2.36	0.396	1.96	1.38	1.42	1.15
	20000.	1.94	0.334	2.52	1.57	1.75	1.30
C = 0.16E+17	50000.	1.50	0.240	3.28	1.82	2.54	1.51
	100000.	1.23	0.181	4.27	2.19	3.12	1.64
	150000.	1.08	0.148	4.33	2.16	3.82	1.88
	300000.	0.858	0.101	4.87	2.58	4.16	2.13
BeIII 4D-4F	10000.	5.55	-0.330	1.72	-1.64	1.41	-1.39
	20000.	4.48	-0.251	2.38	-1.96	1.83	-1.66
C = 0.17E+19	50000.	3.39	-0.156	3.69	-2.34	2.55	-2.00
	100000.	2.75	-0.938E-01	4.83	-2.63	3.25	-2.14
	150000.	2.43	-0.680E-01	5.77	-2.86	3.78	-2.50
	300000.	1.95	-0.262E-01	7.10	-3.09	5.11	-2.72
PERTURBER DENSITY = $1.E+13\text{ cm}^{-3}$							
BeIII 4D-5F	10000.	0.114E-02	-0.937E-05	0.184E-02	0.102E-02	0.127E-02	0.851E-03
	4487.8 Å	20000.	0.920E-03	-0.825E-05	0.233E-02	0.116E-02	0.162E-02
C = 0.50E+13	50000.	0.688E-03	-0.940E-05	0.281E-02	0.137E-02	0.232E-02	0.111E-02
	100000.	0.547E-03	-0.108E-04	0.344E-02	0.161E-02	0.277E-02	0.122E-02
	150000.	0.476E-03	-0.952E-05	0.336E-02	0.161E-02	0.321E-02	0.139E-02
	300000.	0.373E-03	-0.465E-05	0.365E-02	0.192E-02	0.336E-02	0.160E-02
PERTURBER DENSITY = $1.E+14\text{ cm}^{-3}$							
BeIII 2P-5D	10000.	0.829E-04	0.569E-05	0.319E-04	0.294E-04	0.263E-04	0.246E-04
	458.0 Å	20000.	0.681E-04	0.421E-05	0.420E-04	0.347E-04	0.331E-04
C = 0.70E+13	50000.	0.525E-04	0.265E-05	0.596E-04	0.405E-04	0.422E-04	0.338E-04
	100000.	0.429E-04	0.179E-05	0.752E-04	0.445E-04	0.539E-04	0.388E-04
	150000.	0.378E-04	0.133E-05	0.852E-04	0.490E-04	0.568E-04	0.397E-04
	300000.	0.302E-04	0.694E-06	0.106E-03	0.543E-04	0.805E-04	0.509E-04
BeIII 3P-4D	10000.	0.876E-03	0.110E-03	0.608E-03	0.490E-03	0.466E-03	0.416E-03
	2122.9 Å	20000.	0.708E-03	0.990E-04	0.853E-03	0.576E-03	0.606E-03
C = 0.66E+14	50000.	0.535E-03	0.781E-04	0.119E-02	0.683E-03	0.846E-03	0.582E-03
	100000.	0.430E-03	0.608E-04	0.153E-02	0.780E-03	0.102E-02	0.669E-03
	150000.	0.377E-03	0.515E-04	0.171E-02	0.828E-03	0.125E-02	0.706E-03
	300000.	0.300E-03	0.365E-04	0.196E-02	0.895E-03	0.145E-02	0.772E-03
BeIII 3P-5D	10000.	0.119E-02	0.166E-03	0.145E-02	0.101E-02	*0.106E-02	*0.833E-03
	1442.2 Å	20000.	0.959E-03	0.148E-03	0.187E-02	0.114E-02	0.130E-02
C = 0.12E+14	50000.	0.721E-03	0.104E-03	0.247E-02	0.132E-02	0.186E-02	0.113E-02
	100000.	0.575E-03	0.749E-04	0.309E-02	0.162E-02	0.236E-02	0.122E-02
	150000.	0.501E-03	0.581E-04	0.325E-02	0.159E-02	0.282E-02	0.146E-02
	300000.	0.393E-03	0.374E-04	0.368E-02	0.192E-02	0.313E-02	0.155E-02
BeIII 4P-4D	10000.	19.6	2.53	9.69	7.78	7.32	6.52
	20000.	16.0	2.36	13.4	9.16	9.53	7.59
C = 0.10E+19	50000.	12.3	1.91	18.7	11.0	13.6	9.06
	100000.	9.99	1.50	24.5	12.3	16.9	10.7
	150000.	8.81	1.29	26.4	12.7	19.6	10.9
	300000.	7.06	0.935	30.4	14.1	21.8	12.2

Table 1. (continued)

PERTURBERS ARE: TRANSITION		ELECTRONS		PROTONS		IONIZED HELIUM	
T(K)		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
BeIII 4P-5D 4576.7 Å C = 0.12E+15	10000. 20000. 50000. 100000. 150000. 300000.	0.138E-01 0.112E-01 0.850E-02 0.683E-02 0.597E-02 0.471E-02	0.197E-02 0.175E-02 0.127E-02 0.928E-03 0.743E-03 0.495E-03	0.146E-01 0.189E-01 0.248E-01 0.313E-01 0.330E-01 0.371E-01	0.103E-01 0.115E-01 0.134E-01 0.165E-01 0.162E-01 0.194E-01	*0.107E-01 0.131E-01 0.188E-01 0.238E-01 0.288E-01 0.314E-01	*0.842E-02 0.961E-02 0.114E-01 0.123E-01 0.146E-01 0.157E-01
BeIII 4D-5P 4459.5 Å C = 0.29E+15	10000. 20000. 50000. 100000. 150000. 300000.	0.970E-02 0.809E-02 0.642E-02 0.533E-02 0.474E-02 0.383E-02	-0.154E-02 -0.140E-02 -0.110E-02 -0.871E-03 -0.743E-03 -0.537E-03	0.334E-02 0.449E-02 0.634E-02 0.789E-02 0.866E-02 0.998E-02	-0.274E-02 -0.324E-02 -0.380E-02 -0.418E-02 -0.457E-02 -0.507E-02	0.262E-02 0.334E-02 0.453E-02 0.582E-02 0.633E-02 0.805E-02	-0.232E-02 -0.270E-02 -0.315E-02 -0.358E-02 -0.369E-02 -0.480E-02
BeIII 4S-4P 34750.0 Å C = 0.15E+19	10000. 20000. 50000. 100000. 150000. 300000.	0.185 0.156 0.130 0.113 0.103 0.868E-01	-0.828E-02 -0.926E-02 -0.827E-02 -0.760E-02 -0.753E-02 -0.611E-02	0.374E-02 0.525E-02 0.653E-02 0.766E-02 0.839E-02 0.100E-01	-0.223E-03 -0.396E-03 -0.668E-03 -0.855E-03 -0.953E-03 -0.114E-02	0.451E-02 0.578E-02 0.681E-02 0.750E-02 0.780E-02 0.843E-02	-0.218E-03 -0.371E-03 -0.591E-03 -0.729E-03 -0.808E-03 -0.963E-03
BeIII 4S-5P 3882.5 Å C = 0.98E+16	10000. 20000. 50000. 100000. 150000. 300000.	0.401E-02 0.359E-02 0.314E-02 0.278E-02 0.255E-02 0.216E-02	0.153E-03 0.944E-04 0.824E-04 0.368E-04 0.199E-04 0.186E-04	0.274E-03 0.347E-03 0.461E-03 0.562E-03 0.598E-03 0.764E-03	0.255E-03 0.305E-03 0.385E-03 0.434E-03 0.478E-03 0.530E-03	0.259E-03 0.322E-03 0.406E-03 0.471E-03 0.512E-03 0.583E-03	0.214E-03 0.258E-03 0.315E-03 0.370E-03 0.394E-03 0.461E-03
BeIII 5S-5P 69377.0 Å C = 0.31E+19	10000. 20000. 50000. 100000. 150000. 300000.	1.63 1.49 1.34 1.20 1.11 0.940	-0.187 -0.155 -0.106 -0.964E-01 -0.852E-01 -0.618E-01	0.515E-01 0.617E-01 0.749E-01 0.858E-01 0.944E-01 0.116	0.100E-01 0.140E-01 0.185E-01 0.222E-01 0.245E-01 0.275E-01	0.576E-01 0.653E-01 0.750E-01 0.796E-01 0.831E-01 0.902E-01	0.895E-02 0.123E-01 0.157E-01 0.186E-01 0.200E-01 0.232E-01
BeIII 4P-5S 4664.8 Å C = 0.28E+17	10000. 20000. 50000. 100000. 150000. 300000.	0.507E-02 0.446E-02 0.390E-02 0.347E-02 0.320E-02 0.270E-02	0.128E-02 0.105E-02 0.773E-03 0.638E-03 0.556E-03 0.421E-03	0.304E-03 0.417E-03 0.562E-03 0.702E-03 0.736E-03 0.929E-03	0.351E-03 0.421E-03 0.524E-03 0.609E-03 0.652E-03 0.748E-03	0.280E-03 0.361E-03 0.487E-03 0.557E-03 0.623E-03 0.686E-03	0.295E-03 0.356E-03 0.441E-03 0.500E-03 0.550E-03 0.642E-03
BeIII 5P-5D C = 0.79E+18	10000. 20000. 50000. 100000. 150000. 300000.	13.6 11.6 9.49 8.03 7.20 5.88	0.109 0.326E-01 -0.106 -0.115 -0.123 -0.147	3.52 4.56 6.51 8.33 9.69 12.0	3.20 3.70 4.35 4.86 5.32 5.79	2.89 3.57 4.59 5.93 6.48 8.45	2.70 3.10 3.63 4.14 4.27 5.40
BeIII 4D-5F 4487.8 Å C = 0.50E+14	10000. 20000. 50000. 100000. 150000. 300000.	0.110E-01 0.895E-02 0.672E-02 0.535E-02 0.466E-02 0.366E-02	-0.280E-03 -0.124E-03 -0.940E-04 -0.108E-03 -0.952E-04 -0.465E-04	*0.184E-01 *0.233E-01 0.281E-01 0.344E-01 0.336E-01 0.365E-01	*0.101E-01 *0.116E-01 0.137E-01 0.161E-01 0.161E-01 0.192E-01	*0.127E-01 *0.162E-01 *0.232E-01 0.277E-01 0.321E-01 0.336E-01	*0.845E-02 *0.971E-02 *0.111E-01 0.122E-01 0.139E-01 0.160E-01
PERTURBER DENSITY = 1.E+15 cm <sup>-3</sup>							
BeIII 1S-3P 88.3 Å C = 0.73E+14	10000. 20000. 50000. 100000. 150000. 300000.	0.332E-05 0.254E-05 0.184E-05 0.147E-05 0.130E-05 0.106E-05	-0.280E-06 -0.217E-06 -0.204E-06 -0.177E-06 -0.155E-06 -0.123E-06	0.151E-06 0.265E-06 0.431E-06 0.569E-06 0.664E-06 0.801E-06	-0.235E-06 -0.325E-06 -0.417E-06 -0.497E-06 -0.541E-06 -0.622E-06	0.150E-06 0.261E-06 0.371E-06 0.473E-06 0.535E-06 0.651E-06	-0.206E-06 -0.278E-06 -0.352E-06 -0.420E-06 -0.451E-06 -0.526E-06
BeIII 1S-4P 84.8 Å C = 0.28E+14	10000. 20000. 50000. 100000. 150000. 300000.	0.102E-04 0.823E-05 0.635E-05 0.522E-05 0.464E-05 0.378E-05	-0.116E-05 -0.112E-05 -0.967E-06 -0.785E-06 -0.687E-06 -0.519E-06	0.115E-05 0.155E-05 0.220E-05 0.267E-05 0.312E-05 0.381E-05	-0.127E-05 -0.154E-05 -0.194E-05 -0.218E-05 -0.240E-05 -0.264E-05	0.103E-05 0.134E-05 0.177E-05 0.222E-05 0.240E-05 0.293E-05	-0.107E-05 -0.130E-05 -0.160E-05 -0.183E-05 -0.198E-05 -0.227E-05

Table 1. (continued)

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
BeIII 1S-5P 83.2 Å C = 0.13E+14	10000.	0.238E-04	-0.378E-05	0.406E-05	-0.401E-05	0.355E-05	-0.336E-05
	20000.	0.199E-04	-0.353E-05	0.524E-05	-0.489E-05	0.447E-05	-0.411E-05
	50000.	0.160E-04	-0.282E-05	0.684E-05	-0.578E-05	0.580E-05	-0.491E-05
	100000.	0.135E-04	-0.226E-05	0.812E-05	-0.657E-05	0.617E-05	-0.553E-05
	150000.	0.121E-04	-0.194E-05	0.966E-05	-0.701E-05	0.753E-05	-0.612E-05
300000.	0.986E-05	-0.142E-05	0.112E-04	-0.773E-05	0.870E-05	-0.667E-05	
BeIII 2S-4P 503.3 Å C = 0.97E+15	10000.	0.373E-03	-0.406E-04	0.405E-04	-0.450E-04	0.363E-04	-0.378E-04
	20000.	0.299E-03	-0.401E-04	0.547E-04	-0.544E-04	0.473E-04	-0.461E-04
	50000.	0.230E-03	-0.351E-04	0.779E-04	-0.685E-04	0.623E-04	-0.565E-04
	100000.	0.189E-03	-0.287E-04	0.942E-04	-0.770E-04	0.783E-04	-0.644E-04
	150000.	0.168E-03	-0.252E-04	0.110E-03	-0.848E-04	0.847E-04	-0.699E-04
300000.	0.137E-03	-0.192E-04	0.134E-03	-0.932E-04	0.103E-03	-0.800E-04	
BeIII 2S-5P 453.0 Å C = 0.39E+15	10000.	0.714E-03	-0.111E-03	0.120E-03	-0.119E-03	0.105E-03	-0.997E-04
	20000.	0.599E-03	-0.105E-03	0.155E-03	-0.145E-03	0.133E-03	-0.122E-03
	50000.	0.481E-03	-0.843E-04	0.203E-03	-0.171E-03	0.172E-03	-0.146E-03
	100000.	0.404E-03	-0.679E-04	0.241E-03	-0.195E-03	0.183E-03	-0.164E-03
	150000.	0.361E-03	-0.582E-04	0.286E-03	-0.208E-03	0.223E-03	-0.181E-03
300000.	0.295E-03	-0.429E-04	0.331E-03	-0.229E-03	0.258E-03	-0.198E-03	
BeIII 3S-3P 21322.9 Å C = 0.42E+19	10000.	0.325	-0.304E-01	0.118E-01	-0.179E-01	0.115E-01	-0.161E-01
	20000.	0.249	-0.281E-01	0.209E-01	-0.246E-01	0.195E-01	-0.207E-01
	50000.	0.184	-0.273E-01	0.319E-01	-0.312E-01	0.276E-01	-0.265E-01
	100000.	0.149	-0.247E-01	0.417E-01	-0.370E-01	0.345E-01	-0.310E-01
	150000.	0.132	-0.229E-01	0.478E-01	-0.396E-01	0.386E-01	-0.331E-01
300000.	0.108	-0.190E-01	0.584E-01	-0.451E-01	0.442E-01	-0.380E-01	
BeIII 3S-4P 1916.5 Å C = 0.14E+17	10000.	0.619E-02	-0.720E-03	0.607E-03	-0.670E-03	0.541E-03	-0.563E-03
	20000.	0.497E-02	-0.699E-03	0.812E-03	-0.813E-03	0.704E-03	-0.687E-03
	50000.	0.384E-02	-0.620E-03	0.115E-02	-0.101E-02	0.924E-03	-0.850E-03
	100000.	0.316E-02	-0.517E-03	0.139E-02	-0.114E-02	0.114E-02	-0.958E-03
	150000.	0.282E-02	-0.464E-03	0.163E-02	-0.125E-02	0.127E-02	-0.103E-02
300000.	0.230E-02	-0.361E-03	0.201E-02	-0.137E-02	0.151E-02	-0.118E-02	
BeIII 3S-5P 1347.4 Å C = 0.35E+16	10000.	0.664E-02	-0.112E-02	0.107E-02	-0.106E-02	0.933E-03	-0.886E-03
	20000.	0.558E-02	-0.987E-03	0.139E-02	-0.129E-02	0.118E-02	-0.108E-02
	50000.	0.449E-02	-0.801E-03	0.180E-02	-0.153E-02	0.152E-02	-0.129E-02
	100000.	0.378E-02	-0.651E-03	0.215E-02	-0.175E-02	0.164E-02	-0.146E-02
	150000.	0.338E-02	-0.564E-03	0.253E-02	-0.185E-02	0.198E-02	-0.161E-02
300000.	0.277E-02	-0.420E-03	0.294E-02	-0.205E-02	0.227E-02	-0.176E-02	
BeIII 4S-4P 51150.9 Å C = 0.10E+20	10000.	5.72	-1.21	0.520	-0.564	0.464	-0.480
	20000.	4.71	-1.02	0.691	-0.690	0.592	-0.583
	50000.	3.76	-0.790	0.952	-0.854	0.789	-0.712
	100000.	3.16	-0.653	1.17	-0.984	0.905	-0.814
	150000.	2.84	-0.576	1.28	-1.04	1.04	-0.885
300000.	2.34	-0.435	1.52	-1.16	1.27	-0.981	
BeIII 4S-5P 4167.4 Å C = 0.33E+17	10000.	0.716E-01	-0.155E-01	0.106E-01	-0.105E-01	0.921E-02	-0.881E-02
	20000.	0.608E-01	-0.131E-01	0.136E-01	-0.126E-01	0.118E-01	-0.106E-01
	50000.	0.496E-01	-0.101E-01	0.178E-01	-0.152E-01	0.150E-01	-0.126E-01
	100000.	0.421E-01	-0.802E-02	0.213E-01	-0.173E-01	0.164E-01	-0.145E-01
	150000.	0.379E-01	-0.694E-02	0.251E-01	-0.183E-01	0.197E-01	-0.156E-01
300000.	0.311E-01	-0.519E-02	0.279E-01	-0.203E-01	0.231E-01	-0.178E-01	
BeIII 2P-5S 491.5 Å C = 0.24E+16	10000.	0.484E-03	0.177E-03	0.541E-04	0.598E-04	0.484E-04	0.509E-04
	20000.	0.425E-03	0.146E-03	0.719E-04	0.733E-04	0.614E-04	0.617E-04
	50000.	0.364E-03	0.113E-03	0.981E-04	0.895E-04	0.809E-04	0.749E-04
	100000.	0.320E-03	0.929E-04	0.119E-03	0.105E-03	0.995E-04	0.859E-04
	150000.	0.292E-03	0.787E-04	0.131E-03	0.112E-03	0.106E-03	0.915E-04
300000.	0.242E-03	0.611E-04	0.152E-03	0.131E-03	0.117E-03	0.102E-03	
BeIII 3P-4S 2196.2 Å C = 0.45E+17	10000.	0.595E-02	0.139E-02	0.333E-03	0.463E-03	0.331E-03	0.401E-03
	20000.	0.485E-02	0.117E-02	0.529E-03	0.576E-03	0.466E-03	0.486E-03
	50000.	0.388E-02	0.902E-03	0.753E-03	0.723E-03	0.638E-03	0.611E-03
	100000.	0.327E-02	0.782E-03	0.931E-03	0.838E-03	0.745E-03	0.703E-03
	150000.	0.295E-02	0.695E-03	0.107E-02	0.909E-03	0.845E-03	0.740E-03
300000.	0.244E-02	0.529E-03	0.129E-02	0.102E-02	0.102E-02	0.875E-03	

Table 1. (continued)

PERTURBERS ARE: TRANSITION		ELECTRONS		PROTONS		IONIZED HELIUM	
	T(K)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
BeIII 3P-5S 1459.1 Å C = 0.20E+17	10000.	0.493E-02	0.171E-02	0.499E-03	0.549E-03	0.444E-03	0.466E-03
	20000.	0.427E-02	0.140E-02	0.661E-03	0.669E-03	0.570E-03	0.570E-03
	50000.	0.361E-02	0.108E-02	0.886E-03	0.822E-03	0.748E-03	0.692E-03
	100000.	0.316E-02	0.868E-03	0.111E-02	0.948E-03	0.906E-03	0.770E-03
	150000.	0.288E-02	0.741E-03	0.118E-02	0.102E-02	0.982E-03	0.833E-03
300000.	0.239E-02	0.574E-03	0.147E-02	0.118E-02	0.113E-02	0.948E-03	
BeIII 4P-5S 88.3 Å C = 0.73E+14	10000.	0.442E-05	-0.348E-06	0.266E-06	-0.426E-06	0.261E-06	-0.378E-06
	20000.	0.332E-05	-0.355E-06	0.491E-06	-0.561E-06	0.427E-06	-0.476E-06
	50000.	0.245E-05	-0.340E-06	0.720E-06	-0.712E-06	0.603E-06	-0.601E-06
	100000.	0.197E-05	-0.292E-06	0.936E-06	-0.842E-06	0.770E-06	-0.697E-06
	150000.	0.173E-05	-0.251E-06	0.106E-05	-0.915E-06	0.846E-06	-0.748E-06
300000.	0.139E-05	-0.195E-06	0.133E-05	-0.102E-05	0.993E-06	-0.854E-06	
BeIII 2P-5D 489.5 Å C = 0.14E+14	10000.	0.119E-02	0.109E-03				
	20000.	0.977E-03	0.123E-03				
	50000.	0.743E-03	0.104E-03				
	100000.	0.595E-03	0.809E-04	*0.356E-02	*0.187E-02		
	150000.	0.520E-03	0.627E-04	*0.374E-02	*0.183E-02		
300000.	0.409E-03	0.393E-04	*0.423E-02	*0.221E-02	*0.361E-02	*0.179E-02	
BeIII 3P-3D C = 0.11E+21	10000.	6.66	0.519	0.325	0.479	0.327	0.431
	20000.	5.13	0.516	0.578	0.656	0.529	0.550
	50000.	3.76	0.499	0.869	0.832	0.744	0.703
	100000.	3.04	0.440	1.14	0.979	0.943	0.825
	150000.	2.70	0.400	1.33	1.06	1.02	0.879
300000.	2.21	0.324	1.66	1.22	1.27	1.03	
BeIII 3P-4D 2122.9 Å C = 0.66E+15	10000.	0.859E-02	0.845E-03	0.608E-02	0.476E-02	*0.465E-02	*0.403E-02
	20000.	0.696E-02	0.877E-03	0.853E-02	0.574E-02	0.606E-02	0.478E-02
	50000.	0.527E-02	0.763E-03	0.119E-01	0.683E-02	0.846E-02	0.582E-02
	100000.	0.424E-02	0.608E-03	0.153E-01	0.780E-02	0.102E-01	0.669E-02
	150000.	0.373E-02	0.515E-03	0.171E-01	0.828E-02	0.125E-01	0.706E-02
300000.	0.296E-02	0.365E-03	0.196E-01	0.895E-02	0.145E-01	0.772E-02	
BeIII 3P-5D 1442.2 Å C = 0.12E+15	10000.	0.109E-01	0.102E-02				
	20000.	0.893E-02	0.113E-02				
	50000.	0.680E-02	0.960E-03				
	100000.	0.546E-02	0.749E-03	*0.309E-01	*0.162E-01		
	150000.	0.477E-02	0.581E-03	*0.325E-01	*0.159E-01		
300000.	0.376E-02	0.374E-03	*0.368E-01	*0.192E-01	*0.313E-01	*0.155E-01	
BeIII 4P-5D 4576.7 Å C = 0.12E+16	10000.	0.128	0.132E-01				
	20000.	0.105	0.140E-01				
	50000.	0.808E-01	0.120E-01				
	100000.	0.653E-01	0.928E-02	*0.313	*0.165		
	150000.	0.573E-01	0.743E-02	*0.330	*0.162		
300000.	0.454E-01	0.495E-02	*0.371	*0.194	*0.314	*0.157	
BeIII 3D-4P 2065.1 Å C = 0.16E+17	10000.	0.670E-02	-0.720E-03	0.714E-03	-0.784E-03	0.635E-03	-0.659E-03
	20000.	0.538E-02	-0.731E-03	0.951E-03	-0.951E-03	0.826E-03	-0.804E-03
	50000.	0.414E-02	-0.646E-03	0.134E-02	-0.118E-02	0.109E-02	-0.998E-03
	100000.	0.340E-02	-0.532E-03	0.163E-02	-0.134E-02	0.135E-02	-0.112E-02
	150000.	0.303E-02	-0.472E-03	0.194E-02	-0.146E-02	0.148E-02	-0.120E-02
300000.	0.247E-02	-0.362E-03	0.237E-02	-0.160E-02	0.177E-02	-0.138E-02	
BeIII 3D-5P 1419.2 Å C = 0.38E+16	10000.	0.721E-02	-0.111E-02	0.119E-02	-0.117E-02	0.104E-02	-0.984E-03
	20000.	0.604E-02	-0.106E-02	0.154E-02	-0.143E-02	0.131E-02	-0.120E-02
	50000.	0.484E-02	-0.854E-03	0.201E-02	-0.170E-02	0.169E-02	-0.144E-02
	100000.	0.407E-02	-0.689E-03	0.240E-02	-0.195E-02	0.183E-02	-0.163E-02
	150000.	0.364E-02	-0.594E-03	0.283E-02	-0.205E-02	0.220E-02	-0.179E-02
300000.	0.298E-02	-0.439E-03	0.328E-02	-0.228E-02	0.253E-02	-0.196E-02	
BeIII 4D-5P 4459.5 Å C = 0.29E+16	10000.	0.963E-01	-0.137E-01	0.332E-01	-0.265E-01	*0.260E-01	-0.222E-01
	20000.	0.804E-01	-0.134E-01	0.449E-01	-0.322E-01	*0.334E-01	-0.268E-01
	50000.	0.639E-01	-0.109E-01	0.634E-01	-0.380E-01	*0.453E-01	-0.315E-01
	100000.	0.530E-01	-0.871E-02	0.789E-01	-0.418E-01	0.582E-01	-0.358E-01
	150000.	0.472E-01	-0.743E-02	0.866E-01	-0.457E-01	0.633E-01	-0.369E-01
300000.	0.382E-01	-0.537E-02	0.998E-01	-0.507E-01	0.805E-01	-0.480E-01	

Table 1. (continued)

PERTURBERS ARE: TRANSITION		ELECTRONS		PROTONS		IONIZED HELIUM	
	T(K)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
BeIII 2S-4P 451.1 Å C = 0.26E+16	10000.	0.205E-03	0.109E-04	0.993E-05	0.109E-04	0.108E-04	0.965E-05
	20000.	0.169E-03	0.106E-04	0.155E-04	0.144E-04	0.147E-04	0.122E-04
	50000.	0.136E-03	0.981E-05	0.213E-04	0.183E-04	0.191E-04	0.154E-04
	100000.	0.116E-03	0.889E-05	0.259E-04	0.215E-04	0.228E-04	0.179E-04
	150000.	0.105E-03	0.758E-05	0.290E-04	0.234E-04	0.245E-04	0.191E-04
300000.	0.874E-04	0.600E-05	0.344E-04	0.261E-04	0.279E-04	0.218E-04	
BeIII 2S-5P 408.9 Å C = 0.11E+16	10000.	0.358E-03	0.364E-04	0.340E-04	0.321E-04	0.318E-04	0.271E-04
	20000.	0.322E-03	0.305E-04	0.435E-04	0.392E-04	0.396E-04	0.331E-04
	50000.	0.281E-03	0.281E-04	0.566E-04	0.485E-04	0.503E-04	0.406E-04
	100000.	0.247E-03	0.217E-04	0.675E-04	0.557E-04	0.572E-04	0.457E-04
	150000.	0.227E-03	0.188E-04	0.755E-04	0.589E-04	0.606E-04	0.491E-04
300000.	0.191E-03	0.154E-04	0.891E-04	0.659E-04	0.727E-04	0.562E-04	
BeIII 3S-4P 1754.7 Å C = 0.39E+17	10000.	0.362E-02	0.106E-03	0.140E-03	0.148E-03	0.155E-03	0.133E-03
	20000.	0.296E-02	0.983E-04	0.221E-03	0.200E-03	0.209E-03	0.168E-03
	50000.	0.238E-02	0.741E-04	0.299E-03	0.253E-03	0.275E-03	0.214E-03
	100000.	0.203E-02	0.668E-04	0.374E-03	0.296E-03	0.315E-03	0.249E-03
	150000.	0.184E-02	0.489E-04	0.409E-03	0.320E-03	0.358E-03	0.269E-03
300000.	0.153E-02	0.313E-04	0.508E-03	0.367E-03	0.407E-03	0.304E-03	
BeIII 3S-5P 1252.1 Å C = 0.10E+17	10000.	0.363E-02	0.276E-03	0.315E-03	0.297E-03	0.296E-03	0.250E-03
	20000.	0.323E-02	0.247E-03	0.403E-03	0.362E-03	0.366E-03	0.306E-03
	50000.	0.279E-02	0.222E-03	0.528E-03	0.446E-03	0.469E-03	0.378E-03
	100000.	0.246E-02	0.168E-03	0.623E-03	0.514E-03	0.532E-03	0.420E-03
	150000.	0.225E-02	0.142E-03	0.709E-03	0.542E-03	0.573E-03	0.452E-03
300000.	0.190E-02	0.114E-03	0.828E-03	0.603E-03	0.678E-03	0.519E-03	
BeIII 4S-4P 34750.0 Å C = 0.15E+20	10000.	1.85	-0.841E-01	0.374E-01	-0.222E-02	0.451E-01	-0.217E-02
	20000.	1.56	-0.923E-01	0.525E-01	-0.396E-02	0.578E-01	-0.371E-02
	50000.	1.30	-0.827E-01	0.653E-01	-0.668E-02	0.681E-01	-0.591E-02
	100000.	1.13	-0.760E-01	0.766E-01	-0.855E-02	0.750E-01	-0.729E-02
	150000.	1.03	-0.753E-01	0.839E-01	-0.953E-02	0.780E-01	-0.808E-02
300000.	0.868	-0.611E-01	0.100	-0.114E-01	0.843E-01	-0.963E-02	
BeIII 4S-5P 3882.5 Å C = 0.98E+17	10000.	0.401E-01	0.146E-02	0.274E-02	0.251E-02	0.259E-02	0.210E-02
	20000.	0.359E-01	0.929E-03	0.347E-02	0.304E-02	0.322E-02	0.258E-02
	50000.	0.314E-01	0.820E-03	0.461E-02	0.385E-02	0.406E-02	0.315E-02
	100000.	0.278E-01	0.368E-03	0.562E-02	0.434E-02	0.471E-02	0.370E-02
	150000.	0.255E-01	0.199E-03	0.598E-02	0.478E-02	0.512E-02	0.394E-02
300000.	0.216E-01	0.186E-03	0.764E-02	0.530E-02	0.583E-02	0.461E-02	
BeIII 5S-5P 69377.0 Å C = 0.31E+20	10000.	16.3	-1.87	0.515	0.996E-01	0.575	0.888E-01
	20000.	14.9	-1.55	0.617	0.140	0.653	0.123
	50000.	13.4	-1.06	0.749	0.185	0.750	0.157
	100000.	12.0	-0.964	0.858	0.222	0.796	0.186
	150000.	11.1	-0.852	0.944	0.245	0.831	0.200
300000.	9.40	-0.618	1.16	0.275	0.902	0.232	
BeIII 2P-4S 521.0 Å C = 0.78E+16	10000.	0.201E-03	0.581E-04	0.924E-05	0.148E-04	0.910E-05	0.131E-04
	20000.	0.164E-03	0.504E-04	0.170E-04	0.195E-04	0.149E-04	0.166E-04
	50000.	0.134E-03	0.388E-04	0.246E-04	0.248E-04	0.209E-04	0.209E-04
	100000.	0.114E-03	0.324E-04	0.312E-04	0.293E-04	0.264E-04	0.243E-04
	150000.	0.103E-03	0.296E-04	0.348E-04	0.318E-04	0.288E-04	0.260E-04
300000.	0.862E-04	0.232E-04	0.417E-04	0.357E-04	0.331E-04	0.297E-04	
BeIII 2P-5S 462.4 Å C = 0.31E+16	10000.	0.349E-03	0.145E-03	0.344E-04	0.395E-04	0.302E-04	0.333E-04
	20000.	0.305E-03	0.120E-03	0.460E-04	0.480E-04	0.398E-04	0.406E-04
	50000.	0.264E-03	0.904E-04	0.635E-04	0.594E-04	0.528E-04	0.504E-04
	100000.	0.234E-03	0.747E-04	0.747E-04	0.679E-04	0.645E-04	0.563E-04
	150000.	0.215E-03	0.640E-04	0.872E-04	0.734E-04	0.700E-04	0.605E-04
300000.	0.181E-03	0.488E-04	0.999E-04	0.809E-04	0.820E-04	0.701E-04	
BeIII 3P-4S 2127.8 Å C = 0.13E+18	10000.	0.428E-02	0.881E-03	0.148E-03	0.228E-03	0.148E-03	0.203E-03
	20000.	0.351E-02	0.735E-03	0.269E-03	0.305E-03	0.238E-03	0.257E-03
	50000.	0.286E-02	0.563E-03	0.384E-03	0.388E-03	0.334E-03	0.326E-03
	100000.	0.245E-02	0.487E-03	0.492E-03	0.451E-03	0.416E-03	0.384E-03
	150000.	0.222E-02	0.444E-03	0.550E-03	0.494E-03	0.473E-03	0.406E-03
300000.	0.186E-02	0.346E-03	0.682E-03	0.551E-03	0.542E-03	0.460E-03	

Table 1. (continued)

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
BeIII 3P-5S 1402.3 Å C = 0.28E+17	10000.	0.356E-02	0.129E-02	0.312E-03	0.359E-03	0.276E-03	0.302E-03
	20000.	0.311E-02	0.107E-02	0.419E-03	0.436E-03	0.362E-03	0.368E-03
	50000.	0.268E-02	0.802E-03	0.584E-03	0.540E-03	0.477E-03	0.456E-03
	100000.	0.238E-02	0.665E-03	0.685E-03	0.614E-03	0.587E-03	0.514E-03
	150000.	0.219E-02	0.570E-03	0.793E-03	0.671E-03	0.644E-03	0.552E-03
300000.	0.185E-02	0.434E-03	0.927E-03	0.733E-03	0.751E-03	0.632E-03	
BeIII 4P-5S 4664.8 Å C = 0.28E+18	10000.	0.507E-01	0.127E-01	0.304E-02	0.347E-02	0.279E-02	0.290E-02
	20000.	0.446E-01	0.105E-01	0.417E-02	0.420E-02	0.361E-02	0.355E-02
	50000.	0.390E-01	0.773E-02	0.562E-02	0.524E-02	0.487E-02	0.441E-02
	100000.	0.347E-01	0.637E-02	0.702E-02	0.609E-02	0.557E-02	0.500E-02
	150000.	0.320E-01	0.556E-02	0.736E-02	0.652E-02	0.623E-02	0.550E-02
300000.	0.270E-01	0.421E-02	0.929E-02	0.748E-02	0.686E-02	0.642E-02	
BeIII 2P-4D 510.0 Å C = 0.15E+15	10000.	0.354E-03	0.171E-04	0.100E-03	0.977E-04	0.828E-04	0.824E-04
	20000.	0.283E-03	0.126E-04	0.137E-03	0.119E-03	0.107E-03	0.100E-03
	50000.	0.212E-03	0.836E-05	0.204E-03	0.145E-03	0.154E-03	0.120E-03
	100000.	0.171E-03	0.594E-05	0.278E-03	0.164E-03	0.192E-03	0.135E-03
	150000.	0.151E-03	0.467E-05	0.318E-03	0.177E-03	0.227E-03	0.147E-03
300000.	0.120E-03	0.287E-05	0.385E-03	0.200E-03	0.279E-03	0.159E-03	
BeIII 2P-5D 458.0 Å C = 0.70E+14	10000.	0.826E-03	0.386E-04	0.317E-03	0.285E-03	*0.262E-03	*0.237E-03
	20000.	0.679E-03	0.348E-04	0.421E-03	0.346E-03	*0.331E-03	*0.288E-03
	50000.	0.524E-03	0.253E-04	0.596E-03	0.405E-03	0.422E-03	0.338E-03
	100000.	0.427E-03	0.179E-04	0.752E-03	0.445E-03	0.539E-03	0.388E-03
	150000.	0.377E-03	0.133E-04	0.852E-03	0.490E-03	0.568E-03	0.397E-03
300000.	0.301E-03	0.694E-05	0.106E-02	0.543E-03	0.805E-03	0.509E-03	
BeIII 3P-4D 1955.0 Å C = 0.22E+16	10000.	0.599E-02	0.174E-03	0.147E-02	0.143E-02	0.121E-02	0.120E-02
	20000.	0.480E-02	0.137E-03	0.201E-02	0.174E-02	0.158E-02	0.147E-02
	50000.	0.361E-02	0.831E-04	0.300E-02	0.211E-02	0.226E-02	0.176E-02
	100000.	0.293E-02	0.506E-04	0.408E-02	0.240E-02	0.281E-02	0.198E-02
	150000.	0.259E-02	0.322E-04	0.465E-02	0.259E-02	0.334E-02	0.215E-02
300000.	0.208E-02	0.149E-04	0.564E-02	0.291E-02	0.414E-02	0.232E-02	
BeIII 3P-5D 1362.4 Å C = 0.62E+15	10000.	0.768E-02	0.294E-03	0.280E-02	0.252E-02	*0.231E-02	*0.210E-02
	20000.	0.631E-02	0.281E-03	0.372E-02	0.305E-02	*0.292E-02	*0.254E-02
	50000.	0.487E-02	0.203E-03	0.527E-02	0.358E-02	0.373E-02	0.298E-02
	100000.	0.398E-02	0.139E-03	0.664E-02	0.394E-02	0.476E-02	0.342E-02
	150000.	0.351E-02	0.999E-04	0.754E-02	0.433E-02	0.502E-02	0.351E-02
300000.	0.281E-02	0.480E-04	0.942E-02	0.480E-02	0.710E-02	0.451E-02	
BeIII 4P-4D 78222.8 Å C = 0.36E+19	10000.	13.1	-0.167E-01	2.26	2.19	1.89	1.85
	20000.	10.7	-0.457E-01	3.13	2.65	2.47	2.25
	50000.	8.43	-0.119	4.75	3.22	3.47	2.74
	100000.	7.02	-0.148	6.36	3.77	4.33	3.09
	150000.	6.27	-0.138	7.31	4.01	5.02	3.34
300000.	5.12	-0.129	9.09	4.45	6.48	3.68	
BeIII 4P-5D 4250.3 Å C = 0.60E+16	10000.	0.846E-01	0.196E-02	0.272E-01	0.243E-01	*0.224E-01	*0.203E-01
	20000.	0.700E-01	0.193E-02	0.358E-01	0.294E-01	*0.282E-01	*0.245E-01
	50000.	0.548E-01	0.122E-02	0.505E-01	0.348E-01	0.363E-01	0.287E-01
	100000.	0.453E-01	0.672E-03	0.645E-01	0.381E-01	0.459E-01	0.328E-01
	150000.	0.402E-01	0.410E-03	0.736E-01	0.417E-01	0.493E-01	0.336E-01
300000.	0.324E-01	0.139E-04	0.909E-01	0.464E-01	0.676E-01	0.439E-01	
BeIII 3D-4P 2137.0 Å C = 0.58E+17	10000.	0.503E-02	0.282E-03	0.239E-03	0.259E-03	0.258E-03	0.229E-03
	20000.	0.412E-02	0.268E-03	0.366E-03	0.338E-03	0.348E-03	0.288E-03
	50000.	0.330E-02	0.247E-03	0.501E-03	0.431E-03	0.451E-03	0.366E-03
	100000.	0.280E-02	0.226E-03	0.620E-03	0.507E-03	0.531E-03	0.417E-03
	150000.	0.254E-02	0.191E-03	0.703E-03	0.547E-03	0.568E-03	0.452E-03
300000.	0.212E-02	0.151E-03	0.828E-03	0.615E-03	0.663E-03	0.520E-03	
BeIII 3D-5P 1435.3 Å C = 0.13E+17	10000.	0.460E-02	0.436E-03	0.423E-03	0.399E-03	0.396E-03	0.337E-03
	20000.	0.411E-02	0.389E-03	0.543E-03	0.487E-03	0.495E-03	0.412E-03
	50000.	0.356E-02	0.357E-03	0.708E-03	0.606E-03	0.623E-03	0.505E-03
	100000.	0.314E-02	0.279E-03	0.842E-03	0.694E-03	0.716E-03	0.568E-03
	150000.	0.287E-02	0.241E-03	0.937E-03	0.731E-03	0.768E-03	0.619E-03
300000.	0.242E-02	0.197E-03	0.111E-02	0.815E-03	0.900E-03	0.700E-03	

Table 1. (continued)

PERTURBERS ARE: TRANSITION		ELECTRONS		PROTONS		IONIZED HELIUM	
	T(K)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
BeIII 4D-5P 4629.6 Å C = 0.13E+17	10000.	0.694E-01	0.319E-02	0.642E-02	-0.572E-02	0.555E-02	-0.485E-02
	20000.	0.605E-01	0.290E-02	0.905E-02	-0.697E-02	0.724E-02	-0.588E-02
	50000.	0.508E-01	0.296E-02	0.137E-01	-0.861E-02	0.987E-02	-0.720E-02
	100000.	0.438E-01	0.236E-02	0.190E-01	-0.969E-02	0.126E-01	-0.803E-02
	150000.	0.398E-01	0.208E-02	0.225E-01	-0.105E-01	0.149E-01	-0.861E-02
300000.	0.330E-01	0.180E-02	0.292E-01	-0.119E-01	0.192E-01	-0.971E-02	
BeIII 4D-5F 4487.8 Å C = 0.50E+15	10000.	0.102	-0.431E-02				
	20000.	0.839E-01	-0.275E-02				
	50000.	0.636E-01	-0.148E-02				
	100000.	0.510E-01	-0.108E-02				
	150000.	0.446E-01	-0.952E-03	*0.336	*0.161		
300000.	0.352E-01	-0.465E-03	*0.365	*0.192			
BeIII 4F-5D 4506.4 Å C = 0.67E+16	10000.	0.906E-01	0.424E-02	0.337E-01	0.297E-01	*0.277E-01	*0.250E-01
	20000.	0.745E-01	0.400E-02	0.456E-01	0.355E-01	*0.345E-01	*0.294E-01
	50000.	0.577E-01	0.288E-02	0.626E-01	0.422E-01	*0.463E-01	*0.357E-01
	100000.	0.471E-01	0.193E-02	0.790E-01	0.469E-01	0.595E-01	0.395E-01
	150000.	0.416E-01	0.140E-02	0.948E-01	0.519E-01	0.619E-01	0.432E-01
300000.	0.333E-01	0.631E-03	0.116	0.558E-01	0.930E-01	0.496E-01	
PERTURBER DENSITY = 1.E+16 cm <sup>-3</sup>							
BeIII 1S-3P 88.3 Å C = 0.73E+15	10000.	0.332E-04	-0.288E-05	0.151E-05	-0.226E-05	0.150E-05	-0.197E-05
	20000.	0.254E-04	-0.212E-05	0.265E-05	-0.320E-05	0.260E-05	-0.274E-05
	50000.	0.184E-04	-0.201E-05	0.431E-05	-0.417E-05	0.371E-05	-0.351E-05
	100000.	0.147E-04	-0.177E-05	0.569E-05	-0.497E-05	0.473E-05	-0.420E-05
	150000.	0.130E-04	-0.155E-05	0.664E-05	-0.541E-05	0.535E-05	-0.451E-05
300000.	0.106E-04	-0.123E-05	0.801E-05	-0.622E-05	0.651E-05	-0.526E-05	
BeIII 1S-4P 84.8 Å C = 0.28E+15	10000.	0.102E-03	-0.110E-04	0.115E-04	-0.119E-04	0.103E-04	-0.991E-05
	20000.	0.823E-04	-0.105E-04	0.155E-04	-0.150E-04	0.134E-04	-0.127E-04
	50000.	0.635E-04	-0.943E-05	0.220E-04	-0.193E-04	0.177E-04	-0.159E-04
	100000.	0.522E-04	-0.780E-05	0.267E-04	-0.218E-04	0.222E-04	-0.183E-04
	150000.	0.464E-04	-0.683E-05	0.312E-04	-0.240E-04	0.240E-04	-0.198E-04
300000.	0.378E-04	-0.519E-05	0.381E-04	-0.264E-04	0.293E-04	-0.227E-04	
BeIII 1S-5P 83.2 Å C = 0.13E+15	10000.	0.237E-03	-0.335E-04	*0.405E-04	-0.360E-04	*0.352E-04	-0.295E-04
	20000.	0.199E-03	-0.316E-04	*0.527E-04	-0.469E-04	*0.449E-04	-0.392E-04
	50000.	0.160E-03	-0.269E-04	*0.684E-04	-0.575E-04	*0.580E-04	-0.488E-04
	100000.	0.135E-03	-0.224E-04	0.812E-04	-0.657E-04	*0.617E-04	-0.553E-04
	150000.	0.121E-03	-0.192E-04	0.966E-04	-0.701E-04	*0.753E-04	-0.612E-04
300000.	0.986E-04	-0.142E-04	0.112E-03	-0.773E-04	*0.870E-04	-0.667E-04	
BeIII 2S-3P 661.3 Å C = 0.41E+17	10000.	0.210E-02	-0.154E-03	0.863E-04	-0.129E-03	0.852E-04	-0.112E-03
	20000.	0.159E-02	-0.133E-03	0.151E-03	-0.182E-03	0.148E-03	-0.156E-03
	50000.	0.115E-02	-0.129E-03	0.245E-03	-0.237E-03	0.210E-03	-0.200E-03
	100000.	0.918E-03	-0.116E-03	0.322E-03	-0.282E-03	0.272E-03	-0.238E-03
	150000.	0.810E-03	-0.103E-03	0.376E-03	-0.305E-03	0.299E-03	-0.255E-03
300000.	0.659E-03	-0.846E-04	0.462E-03	-0.357E-03	0.372E-03	-0.295E-03	
BeIII 2S-4P 503.3 Å C = 0.97E+16	10000.	0.373E-02	-0.380E-03	0.405E-03	-0.422E-03	0.362E-03	-0.350E-03
	20000.	0.299E-02	-0.377E-03	0.547E-03	-0.531E-03	0.473E-03	-0.447E-03
	50000.	0.230E-02	-0.342E-03	0.779E-03	-0.682E-03	0.623E-03	-0.563E-03
	100000.	0.189E-02	-0.285E-03	0.942E-03	-0.770E-03	0.783E-03	-0.644E-03
	150000.	0.168E-02	-0.251E-03	0.110E-02	-0.848E-03	0.847E-03	-0.699E-03
300000.	0.137E-02	-0.192E-03	0.134E-02	-0.932E-03	0.103E-02	-0.800E-03	
BeIII 2S-5P 453.0 Å C = 0.39E+16	10000.	0.714E-02	-0.982E-03	*0.120E-02	-0.107E-02	*0.105E-02	-0.876E-03
	20000.	0.598E-02	-0.940E-03	*0.156E-02	-0.139E-02	*0.133E-02	-0.116E-02
	50000.	0.481E-02	-0.804E-03	*0.203E-02	-0.170E-02	*0.172E-02	-0.145E-02
	100000.	0.404E-02	-0.671E-03	0.241E-02	-0.195E-02	*0.183E-02	-0.164E-02
	150000.	0.361E-02	-0.576E-03	0.286E-02	-0.208E-02	*0.223E-02	-0.181E-02
300000.	0.295E-02	-0.429E-03	0.331E-02	-0.229E-02	*0.258E-02	-0.198E-02	
BeIII 3S-3P 21322.9 Å C = 0.42E+20	10000.	3.25	-0.295	0.118	-0.172	0.115	-0.153
	20000.	2.49	-0.275	0.209	-0.242	0.194	-0.203
	50000.	1.84	-0.271	0.319	-0.311	0.276	-0.264
	100000.	1.49	-0.246	0.417	-0.370	0.345	-0.310
	150000.	1.32	-0.229	0.478	-0.396	0.386	-0.331
300000.	1.08	-0.190	0.584	-0.451	0.442	-0.380	



Table 1. (continued)

PERTURBERS ARE: TRANSITION		ELECTRONS		PROTONS		IONIZED HELIUM	
	T(K)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
BeIII 3S-4P 1916.5 Å C = 0.14E+18	10000.	0.619E-01	-0.676E-02	0.607E-02	-0.628E-02	0.543E-02	-0.520E-02
	20000.	0.497E-01	-0.662E-02	0.813E-02	-0.792E-02	0.704E-02	-0.665E-02
	50000.	0.384E-01	-0.607E-02	0.115E-01	-0.100E-01	0.924E-02	-0.846E-02
	100000.	0.316E-01	-0.515E-02	0.139E-01	-0.114E-01	0.114E-01	-0.958E-02
	150000.	0.282E-01	-0.462E-02	0.163E-01	-0.125E-01	0.127E-01	-0.103E-01
300000.	0.230E-01	-0.361E-02	0.201E-01	-0.137E-01	0.151E-01	-0.118E-01	
BeIII 3S-5P 1347.4 Å C = 0.35E+17	10000.	0.664E-01	-0.100E-01	*0.107E-01	-0.949E-02	*0.931E-02	-0.779E-02
	20000.	0.558E-01	-0.889E-02	*0.139E-01	-0.123E-01	*0.118E-01	-0.103E-01
	50000.	0.449E-01	-0.766E-02	*0.180E-01	-0.152E-01	*0.152E-01	-0.128E-01
	100000.	0.378E-01	-0.644E-02	0.215E-01	-0.175E-01	*0.164E-01	-0.146E-01
	150000.	0.338E-01	-0.558E-02	0.253E-01	-0.185E-01	*0.198E-01	-0.161E-01
300000.	0.277E-01	-0.420E-02	0.294E-01	-0.205E-01	*0.227E-01	-0.176E-01	
BeIII 4S-5P 4167.4 Å C = 0.33E+18	10000.	0.716	-0.143	*0.106	-0.934E-01	*0.927E-01	-0.769E-01
	20000.	0.607	-0.121	*0.136	-0.120	*0.119	-0.999E-01
	50000.	0.496	-0.977E-01	*0.178	-0.151	*0.150	-0.125
	100000.	0.421	-0.796E-01	*0.213	-0.173	*0.164	-0.145
	150000.	0.379	-0.689E-01	0.251	-0.183	*0.197	-0.156
300000.	0.311	-0.519E-01	0.279	-0.203	*0.231	-0.178	
BeIII 2P-5S 491.5 Å C = 0.24E+17	10000.	0.484E-02	0.172E-02	0.542E-03	0.554E-03	0.487E-03	0.465E-03
	20000.	0.425E-02	0.143E-02	0.719E-03	0.711E-03	0.615E-03	0.596E-03
	50000.	0.364E-02	0.112E-02	0.981E-03	0.891E-03	0.809E-03	0.745E-03
	100000.	0.320E-02	0.927E-03	0.119E-02	0.105E-02	0.995E-03	0.859E-03
	150000.	0.292E-02	0.785E-03	0.131E-02	0.112E-02	0.106E-02	0.915E-03
300000.	0.242E-02	0.611E-03	0.152E-02	0.131E-02	0.117E-02	0.102E-02	
BeIII 3P-4S 2196.2 Å C = 0.45E+18	10000.	0.595E-01	0.136E-01	0.332E-02	0.439E-02	0.331E-02	0.378E-02
	20000.	0.485E-01	0.115E-01	0.530E-02	0.564E-02	0.467E-02	0.475E-02
	50000.	0.388E-01	0.894E-02	0.753E-02	0.721E-02	0.638E-02	0.609E-02
	100000.	0.327E-01	0.780E-02	0.931E-02	0.838E-02	0.745E-02	0.703E-02
	150000.	0.295E-01	0.694E-02	0.107E-01	0.909E-02	0.845E-02	0.740E-02
300000.	0.244E-01	0.529E-02	0.129E-01	0.102E-01	0.102E-01	0.875E-02	
BeIII 3P-5S 1459.1 Å C = 0.20E+18	10000.	0.493E-01	0.167E-01	0.498E-02	0.508E-02	0.442E-02	0.424E-02
	20000.	0.427E-01	0.137E-01	0.661E-02	0.649E-02	0.569E-02	0.548E-02
	50000.	0.361E-01	0.106E-01	0.886E-02	0.819E-02	0.748E-02	0.688E-02
	100000.	0.316E-01	0.867E-02	0.111E-01	0.948E-02	0.906E-02	0.770E-02
	150000.	0.288E-01	0.739E-02	0.118E-01	0.102E-01	0.982E-02	0.833E-02
300000.	0.239E-01	0.574E-02	0.147E-01	0.118E-01	0.113E-01	0.948E-02	
BeIII 4P-5S 88.3 Å C = 0.73E+15	10000.	0.442E-04	-0.329E-05	0.265E-05	-0.407E-05	0.261E-05	-0.359E-05
	20000.	0.332E-04	-0.340E-05	0.491E-05	-0.552E-05	0.428E-05	-0.467E-05
	50000.	0.245E-04	-0.334E-05	0.720E-05	-0.710E-05	0.603E-05	-0.600E-05
	100000.	0.197E-04	-0.291E-05	0.936E-05	-0.842E-05	0.770E-05	-0.697E-05
	150000.	0.173E-04	-0.251E-05	0.106E-04	-0.915E-05	0.846E-05	-0.748E-05
300000.	0.139E-04	-0.195E-05	0.133E-04	-0.102E-04	0.993E-05	-0.854E-05	
BeIII 2P-5D 489.5 Å C = 0.14E+15	10000.	0.101E-01	0.685E-03				
	20000.	0.846E-02	0.705E-03				
	50000.	0.660E-02	0.714E-03				
	100000.	0.537E-02	0.692E-03				
	150000.	0.472E-02	0.532E-03				
300000.	0.375E-02	0.393E-03					
BeIII 3P-4D 2122.9 Å C = 0.66E+16	10000.	0.791E-01	0.558E-02				
	20000.	0.649E-01	0.584E-02				
	50000.	0.497E-01	0.610E-02				
	100000.	0.403E-01	0.568E-02	*0.153	*0.780E-01		
	150000.	0.355E-01	0.482E-02	*0.171	*0.828E-01		
300000.	0.284E-01	0.365E-02	*0.196	*0.895E-01	*0.145	*0.772E-01	
BeIII 3P-5D 1442.2 Å C = 0.12E+16	10000.	0.929E-01	0.666E-02				
	20000.	0.779E-01	0.677E-02				
	50000.	0.608E-01	0.675E-02				
	100000.	0.495E-01	0.647E-02				
	150000.	0.436E-01	0.498E-02				
300000.	0.347E-01	0.374E-02					

Table 1. (continued)

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
BeIII 4P-5D 4576.7 Å C = 0.12E+17	10000.	1.12	0.941E-01				
	20000.	0.939	0.916E-01				
	50000.	0.736	0.901E-01				
	100000.	0.602	0.824E-01				
	150000.	0.531	0.659E-01				
300000.	0.424	0.495E-01					
BeIII 3D-4P 2065.1 Å C = 0.16E+18	10000.	0.670E-01	-0.670E-02	0.714E-02	-0.734E-02	0.637E-02	-0.608E-02
	20000.	0.538E-01	-0.687E-02	0.952E-02	-0.927E-02	0.826E-02	-0.779E-02
	50000.	0.414E-01	-0.632E-02	0.134E-01	-0.117E-01	0.109E-01	-0.994E-02
	100000.	0.340E-01	-0.529E-02	0.163E-01	-0.134E-01	0.135E-01	-0.112E-01
	150000.	0.303E-01	-0.469E-02	0.194E-01	-0.146E-01	0.148E-01	-0.120E-01
300000.	0.247E-01	-0.362E-02	0.237E-01	-0.160E-01	0.177E-01	-0.138E-01	
BeIII 3D-5P 1419.2 Å C = 0.38E+17	10000.	0.721E-01	-0.980E-02	*0.119E-01	-0.105E-01	*0.104E-01	-0.865E-02
	20000.	0.604E-01	-0.948E-02	*0.155E-01	-0.137E-01	*0.131E-01	-0.115E-01
	50000.	0.484E-01	-0.816E-02	*0.201E-01	-0.169E-01	*0.169E-01	-0.143E-01
	100000.	0.407E-01	-0.682E-02	0.240E-01	-0.195E-01	*0.183E-01	-0.163E-01
	150000.	0.364E-01	-0.588E-02	0.283E-01	-0.205E-01	*0.220E-01	-0.179E-01
300000.	0.298E-01	-0.439E-02	0.328E-01	-0.228E-01	*0.253E-01	-0.196E-01	
BeIII 4D-5P 4459.5 Å C = 0.29E+17	10000.	0.932	-0.112				
	20000.	0.783	-0.110				
	50000.	0.625	-0.986E-01				
	100000.	0.521	-0.846E-01				
	150000.	0.464	-0.723E-01				
300000.	0.377	-0.537E-01	*0.998	-0.507			
BeIII 2S-4P 451.1 Å C = 0.26E+17	10000.	0.205E-02	0.104E-03	0.991E-04	0.104E-03	0.108E-03	0.917E-04
	20000.	0.169E-02	0.102E-03	0.155E-03	0.141E-03	0.147E-03	0.119E-03
	50000.	0.136E-02	0.965E-04	0.213E-03	0.182E-03	0.191E-03	0.154E-03
	100000.	0.116E-02	0.886E-04	0.259E-03	0.215E-03	0.228E-03	0.179E-03
	150000.	0.105E-02	0.756E-04	0.290E-03	0.234E-03	0.245E-03	0.191E-03
300000.	0.874E-03	0.600E-04	0.344E-03	0.261E-03	0.279E-03	0.218E-03	
BeIII 2S-5P 408.9 Å C = 0.11E+17	10000.	0.358E-02	0.342E-03	0.339E-03	0.300E-03	0.319E-03	0.250E-03
	20000.	0.322E-02	0.287E-03	0.435E-03	0.381E-03	0.396E-03	0.321E-03
	50000.	0.281E-02	0.273E-03	0.566E-03	0.483E-03	0.503E-03	0.405E-03
	100000.	0.247E-02	0.216E-03	0.675E-03	0.557E-03	0.572E-03	0.457E-03
	150000.	0.227E-02	0.187E-03	0.755E-03	0.589E-03	0.606E-03	0.491E-03
300000.	0.191E-02	0.154E-03	0.891E-03	0.659E-03	0.727E-03	0.562E-03	
BeIII 3S-4P 1754.7 Å C = 0.39E+18	10000.	0.362E-01	0.100E-02	0.140E-02	0.142E-02	0.155E-02	0.126E-02
	20000.	0.296E-01	0.933E-03	0.220E-02	0.196E-02	0.210E-02	0.165E-02
	50000.	0.238E-01	0.715E-03	0.299E-02	0.252E-02	0.275E-02	0.214E-02
	100000.	0.203E-01	0.665E-03	0.374E-02	0.296E-02	0.315E-02	0.249E-02
	150000.	0.184E-01	0.486E-03	0.409E-02	0.320E-02	0.358E-02	0.269E-02
300000.	0.153E-01	0.313E-03	0.508E-02	0.367E-02	0.407E-02	0.304E-02	
BeIII 3S-5P 1252.1 Å C = 0.10E+18	10000.	0.363E-01	0.255E-02	0.314E-02	0.277E-02	0.294E-02	0.231E-02
	20000.	0.323E-01	0.231E-02	0.403E-02	0.352E-02	0.366E-02	0.297E-02
	50000.	0.279E-01	0.216E-02	0.528E-02	0.444E-02	0.469E-02	0.377E-02
	100000.	0.246E-01	0.167E-02	0.623E-02	0.514E-02	0.532E-02	0.420E-02
	150000.	0.225E-01	0.141E-02	0.709E-02	0.542E-02	0.573E-02	0.452E-02
300000.	0.190E-01	0.114E-02	0.828E-02	0.603E-02	0.678E-02	0.519E-02	
BeIII 4S-4P 34750.0 Å C = 0.15E+21	10000.	18.5	-0.827	0.373	-0.216E-01	0.450	-0.211E-01
	20000.	15.6	-0.935	0.525	-0.393E-01	0.578	-0.368E-01
	50000.	13.0	-0.829	0.653	-0.667E-01	0.681	-0.591E-01
	100000.	11.3	-0.759	0.766	-0.855E-01	0.750	-0.729E-01
	150000.	10.3	-0.753	0.839	-0.953E-01	0.780	-0.808E-01
300000.	8.68	-0.611	1.00	-0.114	0.843	-0.963E-01	
BeIII 4S-5P 3882.5 Å C = 0.98E+18	10000.	0.401	0.131E-01	0.274E-01	0.236E-01	0.258E-01	0.195E-01
	20000.	0.359	0.782E-02	0.347E-01	0.297E-01	0.322E-01	0.250E-01
	50000.	0.314	0.766E-02	0.461E-01	0.383E-01	0.406E-01	0.314E-01
	100000.	0.278	0.358E-02	0.562E-01	0.434E-01	0.471E-01	0.370E-01
	150000.	0.255	0.192E-02	0.598E-01	0.478E-01	0.512E-01	0.394E-01
300000.	0.216	0.186E-02	0.764E-01	0.530E-01	0.583E-01	0.461E-01	

Table 1. (continued)

PERTURBERS ARE: TRANSITION		ELECTRONS		PROTONS		IONIZED HELIUM	
	T(K)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
BeIII 2P-4S 521.0 Å C = 0.78E+17	10000.	0.201E-02	0.575E-03	0.923E-04	0.142E-03	0.911E-04	0.125E-03
	20000.	0.164E-02	0.496E-03	0.170E-03	0.192E-03	0.149E-03	0.163E-03
	50000.	0.134E-02	0.386E-03	0.246E-03	0.247E-03	0.209E-03	0.209E-03
	100000.	0.114E-02	0.323E-03	0.312E-03	0.293E-03	0.264E-03	0.243E-03
	150000.	0.103E-02	0.296E-03	0.348E-03	0.318E-03	0.288E-03	0.260E-03
300000.	0.862E-03	0.232E-03	0.417E-03	0.357E-03	0.331E-03	0.297E-03	
BeIII 2P-5S 462.4 Å C = 0.31E+17	10000.	0.349E-02	0.142E-02	0.344E-03	0.370E-03	0.303E-03	0.306E-03
	20000.	0.305E-02	0.118E-02	0.460E-03	0.468E-03	0.398E-03	0.393E-03
	50000.	0.264E-02	0.897E-03	0.635E-03	0.592E-03	0.528E-03	0.502E-03
	100000.	0.234E-02	0.746E-03	0.747E-03	0.679E-03	0.645E-03	0.563E-03
	150000.	0.215E-02	0.639E-03	0.872E-03	0.734E-03	0.700E-03	0.605E-03
300000.	0.181E-02	0.488E-03	0.999E-03	0.809E-03	0.820E-03	0.701E-03	
BeIII 3P-4S 2127.8 Å C = 0.13E+19	10000.	0.428E-01	0.873E-02	0.147E-02	0.218E-02	0.148E-02	0.194E-02
	20000.	0.351E-01	0.724E-02	0.268E-02	0.300E-02	0.238E-02	0.253E-02
	50000.	0.286E-01	0.559E-02	0.384E-02	0.387E-02	0.334E-02	0.325E-02
	100000.	0.245E-01	0.487E-02	0.492E-02	0.451E-02	0.416E-02	0.384E-02
	150000.	0.222E-01	0.443E-02	0.550E-02	0.494E-02	0.473E-02	0.406E-02
300000.	0.186E-01	0.346E-02	0.682E-02	0.551E-02	0.542E-02	0.460E-02	
BeIII 3P-5S 1402.3 Å C = 0.28E+18	10000.	0.356E-01	0.127E-01	0.312E-02	0.336E-02	0.277E-02	0.279E-02
	20000.	0.311E-01	0.106E-01	0.420E-02	0.424E-02	0.362E-02	0.357E-02
	50000.	0.268E-01	0.796E-02	0.584E-02	0.538E-02	0.477E-02	0.454E-02
	100000.	0.238E-01	0.664E-02	0.685E-02	0.614E-02	0.587E-02	0.514E-02
	150000.	0.219E-01	0.568E-02	0.793E-02	0.671E-02	0.644E-02	0.552E-02
300000.	0.185E-01	0.434E-02	0.927E-02	0.733E-02	0.751E-02	0.632E-02	
BeIII 4P-5S 4664.8 Å C = 0.28E+19	10000.	0.507	0.125	0.304E-01	0.326E-01	0.279E-01	0.269E-01
	20000.	0.446	0.103	0.416E-01	0.409E-01	0.361E-01	0.345E-01
	50000.	0.390	0.767E-01	0.562E-01	0.523E-01	0.487E-01	0.439E-01
	100000.	0.347	0.637E-01	0.702E-01	0.609E-01	0.557E-01	0.500E-01
	150000.	0.320	0.555E-01	0.736E-01	0.652E-01	0.623E-01	0.550E-01
300000.	0.270	0.421E-01	0.929E-01	0.748E-01	0.686E-01	0.642E-01	
BeIII 2P-4D 510.0 Å C = 0.15E+16	10000.	0.348E-02	0.759E-04	*0.101E-02	*0.889E-03	*0.826E-03	*0.735E-03
	20000.	0.279E-02	0.481E-04	0.138E-02	0.115E-02	*0.107E-02	*0.962E-03
	50000.	0.210E-02	0.532E-04	0.204E-02	0.144E-02	*0.154E-02	*0.120E-02
	100000.	0.169E-02	0.540E-04	0.278E-02	0.164E-02	*0.192E-02	*0.135E-02
	150000.	0.149E-02	0.424E-04	0.318E-02	0.177E-02	*0.227E-02	*0.147E-02
300000.	0.119E-02	0.287E-04	0.385E-02	0.200E-02	0.279E-02	0.159E-02	
BeIII 2P-5D 458.0 Å C = 0.70E+15	10000.	0.776E-02	0.671E-05				
	20000.	0.644E-02	0.102E-04				
	50000.	0.502E-02	0.109E-03				
	100000.	0.412E-02	0.150E-03				
	150000.	0.364E-02	0.110E-03	*0.852E-02	*0.490E-02		
300000.	0.292E-02	0.694E-04	*0.106E-01	*0.543E-02			
BeIII 3P-4D 1955.0 Å C = 0.22E+17	10000.	0.590E-01	0.318E-03	*0.148E-01	*0.130E-01	*0.121E-01	*0.108E-01
	20000.	0.473E-01	0.234E-03	0.201E-01	0.168E-01	*0.157E-01	*0.140E-01
	50000.	0.357E-01	0.383E-03	0.300E-01	0.210E-01	*0.226E-01	*0.175E-01
	100000.	0.290E-01	0.428E-03	0.408E-01	0.240E-01	*0.281E-01	*0.198E-01
	150000.	0.256E-01	0.259E-03	0.465E-01	0.259E-01	*0.334E-01	*0.215E-01
300000.	0.207E-01	0.149E-03	0.564E-01	0.291E-01	0.414E-01	0.232E-01	
BeIII 3P-5D 1362.4 Å C = 0.62E+16	10000.	0.724E-01	-0.419E-03				
	20000.	0.600E-01	-0.174E-03				
	50000.	0.468E-01	0.754E-03				
	100000.	0.384E-01	0.114E-02				
	150000.	0.340E-01	0.789E-03	*0.754E-01	*0.433E-01		
300000.	0.273E-01	0.480E-03	*0.942E-01	*0.480E-01			
BeIII 4P-5D 4250.3 Å C = 0.60E+17	10000.	0.803	-0.128E-01				
	20000.	0.670	-0.938E-02				
	50000.	0.530	-0.181E-04				
	100000.	0.440	0.425E-02				
	150000.	0.391	0.208E-02	*0.736	*0.417		
300000.	0.316	0.139E-03	*0.909	*0.464			

Table 1. (continued)

PERTURBERS ARE:		ELECTRONS		PROTONS		IONIZED HELIUM	
TRANSITION	T(K)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
BeIII 3D-4P 2137.0 Å C = 0.58E+18	10000.	0.503E-01	0.270E-02	0.238E-02	0.247E-02	0.258E-02	0.218E-02
	20000.	0.412E-01	0.259E-02	0.366E-02	0.333E-02	0.348E-02	0.282E-02
	50000.	0.330E-01	0.242E-02	0.501E-02	0.430E-02	0.451E-02	0.365E-02
	100000.	0.280E-01	0.225E-02	0.620E-02	0.507E-02	0.531E-02	0.417E-02
	150000.	0.254E-01	0.191E-02	0.703E-02	0.547E-02	0.568E-02	0.452E-02
300000.	0.212E-01	0.151E-02	0.828E-02	0.615E-02	0.663E-02	0.520E-02	
BeIII 3D-5P 1435.3 Å C = 0.13E+18	10000.	0.460E-01	0.408E-02	0.423E-02	0.373E-02	0.398E-02	0.312E-02
	20000.	0.411E-01	0.367E-02	0.542E-02	0.474E-02	0.494E-02	0.399E-02
	50000.	0.356E-01	0.348E-02	0.708E-02	0.603E-02	0.623E-02	0.503E-02
	100000.	0.314E-01	0.278E-02	0.842E-02	0.694E-02	0.716E-02	0.568E-02
	150000.	0.287E-01	0.239E-02	0.937E-02	0.731E-02	0.768E-02	0.619E-02
300000.	0.242E-01	0.197E-02	0.111E-01	0.815E-02	0.900E-02	0.700E-02	
BeIII 4D-5P 4629.6 Å C = 0.13E+18	10000.	0.689	0.370E-01	0.644E-01	-0.529E-01	*0.554E-01	-0.443E-01
	20000.	0.602	0.331E-01	0.905E-01	-0.676E-01	*0.727E-01	-0.569E-01
	50000.	0.506	0.311E-01	0.137	-0.857E-01	0.987E-01	-0.716E-01
	100000.	0.437	0.238E-01	0.190	-0.969E-01	0.126	-0.803E-01
	150000.	0.396	0.210E-01	0.225	-0.105	0.149	-0.861E-01
300000.	0.330	0.180E-01	0.292	-0.119	0.192	-0.971E-01	
BeIII 4F-5D 4506.4 Å C = 0.67E+17	10000.	0.855	-0.129E-03				
	20000.	0.710	0.252E-02				
	50000.	0.555	0.132E-01				
	100000.	0.456	0.162E-01				
	150000.	0.403	0.115E-01				
300000.	0.324	0.631E-02	*1.16	*0.558			
PERTURBER DENSITY = 1.E+17 cm <sup>-3</sup>							
BeIII 1S-3P 88.3 Å C = 0.73E+16	10000.	0.332E-03	-0.282E-04	0.151E-04	-0.198E-04	0.149E-04	-0.169E-04
	20000.	0.254E-03	-0.194E-04	0.265E-04	-0.301E-04	0.260E-04	-0.255E-04
	50000.	0.184E-03	-0.187E-04	0.431E-04	-0.415E-04	0.371E-04	-0.350E-04
	100000.	0.147E-03	-0.171E-04	0.569E-04	-0.495E-04	0.473E-04	-0.418E-04
	150000.	0.130E-03	-0.154E-04	0.664E-04	-0.541E-04	0.535E-04	-0.451E-04
300000.	0.106E-03	-0.122E-04	0.801E-04	-0.622E-04	0.651E-04	-0.526E-04	
BeIII 1S-4P 84.8 Å C = 0.28E+16	10000.	0.102E-02	-0.825E-04	*0.114E-03	-0.933E-04		
	20000.	0.821E-03	-0.844E-04	*0.155E-03	-0.133E-03	*0.134E-03	-0.108E-03
	50000.	0.633E-03	-0.797E-04	*0.220E-03	-0.192E-03	*0.177E-03	-0.158E-03
	100000.	0.521E-03	-0.721E-04	*0.267E-03	-0.216E-03	*0.222E-03	-0.181E-03
	150000.	0.463E-03	-0.675E-04	*0.312E-03	-0.240E-03	*0.240E-03	-0.198E-03
300000.	0.377E-03	-0.510E-04	*0.381E-03	-0.264E-03	*0.293E-03	-0.227E-03	
BeIII 1S-5P 83.2 Å C = 0.13E+16	10000.	0.229E-02	-0.186E-03				
	20000.	0.194E-02	-0.212E-03				
	50000.	0.157E-02	-0.192E-03				
	100000.	0.132E-02	-0.191E-03				
	150000.	0.119E-02	-0.187E-03				
300000.	0.972E-03	-0.137E-03					
BeIII 2S-3P 661.3 Å C = 0.41E+18	10000.	0.210E-01	-0.145E-02	0.860E-03	-0.113E-02	0.847E-03	-0.964E-03
	20000.	0.159E-01	-0.121E-02	0.151E-02	-0.171E-02	0.148E-02	-0.145E-02
	50000.	0.115E-01	-0.121E-02	0.245E-02	-0.236E-02	0.210E-02	-0.199E-02
	100000.	0.918E-02	-0.113E-02	0.322E-02	-0.281E-02	0.272E-02	-0.237E-02
	150000.	0.810E-02	-0.103E-02	0.376E-02	-0.305E-02	0.299E-02	-0.255E-02
300000.	0.659E-02	-0.841E-03	0.462E-02	-0.357E-02	0.372E-02	-0.295E-02	
BeIII 2S-4P 503.3 Å C = 0.97E+17	10000.	0.372E-01	-0.283E-02	*0.404E-02	-0.330E-02		
	20000.	0.298E-01	-0.304E-02	*0.546E-02	-0.470E-02	*0.475E-02	-0.383E-02
	50000.	0.230E-01	-0.290E-02	*0.779E-02	-0.677E-02	*0.623E-02	-0.558E-02
	100000.	0.189E-01	-0.264E-02	*0.942E-02	-0.764E-02	*0.783E-02	-0.639E-02
	150000.	0.168E-01	-0.248E-02	*0.110E-01	-0.848E-02	*0.847E-02	-0.699E-02
300000.	0.137E-01	-0.189E-02	*0.134E-01	-0.932E-02	*0.103E-01	-0.800E-02	
BeIII 2S-5P 453.0 Å C = 0.39E+17	10000.	0.689E-01	-0.542E-02				
	20000.	0.582E-01	-0.631E-02				
	50000.	0.470E-01	-0.575E-02				
	100000.	0.396E-01	-0.575E-02				
	150000.	0.355E-01	-0.562E-02				
300000.	0.291E-01	-0.414E-02					

Table 1. (continued)

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
BeIII 3S-4P 1916.5 Å C = 0.14E+19	10000.	0.617	-0.522E-01	*0.602E-01	-0.488E-01		
	20000.	0.496	-0.551E-01	*0.819E-01	-0.696E-01	*0.703E-01	-0.569E-01
	50000.	0.383	-0.529E-01	*0.115	-0.996E-01	*0.924E-01	-0.839E-01
	100000.	0.316	-0.483E-01	*0.139	-0.114	*0.114	-0.950E-01
	150000.	0.281	-0.457E-01	*0.163	-0.125	*0.127	-0.103
300000.	0.230	-0.356E-01	*0.201	-0.137	*0.151	-0.118	
BeIII 3S-5P 1347.4 Å C = 0.35E+18	10000.	*0.642	-0.605E-01				
	20000.	0.543	-0.613E-01				
	50000.	0.440	-0.562E-01				
	100000.	0.371	-0.558E-01				
	150000.	0.333	-0.546E-01				
300000.	0.273	-0.407E-01					
BeIII 4S-5P 4167.4 Å C = 0.33E+19	10000.	*6.95	-1.03				
	20000.	5.93	-0.932				
	50000.	4.88	-0.773				
	100000.	4.15	-0.710				
	150000.	3.74	-0.677				
300000.	3.07	-0.507					
BeIII 2P-5S 491.5 Å C = 0.24E+18	10000.	0.484E-01	0.157E-01	*0.539E-02	*0.412E-02		
	20000.	0.425E-01	0.132E-01	*0.715E-02	*0.612E-02		
	50000.	0.364E-01	0.104E-01	*0.981E-02	*0.883E-02		
	100000.	0.320E-01	0.896E-02	*0.119E-01	*0.104E-01	*0.994E-02	*0.850E-02
	150000.	0.292E-01	0.780E-02	*0.131E-01	*0.112E-01	*0.106E-01	*0.915E-02
300000.	0.242E-01	0.606E-02	*0.152E-01	*0.131E-01	*0.117E-01	*0.102E-01	
BeIII 3P-4S 2196.2 Å C = 0.45E+19	10000.	0.595	0.128	0.332E-01	0.364E-01	*0.329E-01	*0.302E-01
	20000.	0.485	0.110	0.528E-01	0.514E-01	*0.470E-01	*0.422E-01
	50000.	0.388	0.855E-01	0.753E-01	0.717E-01	*0.638E-01	*0.605E-01
	100000.	0.327	0.764E-01	0.931E-01	0.834E-01	*0.745E-01	*0.699E-01
	150000.	0.295	0.692E-01	0.107	0.909E-01	0.845E-01	0.740E-01
300000.	0.244	0.527E-01	0.129	0.102	0.102	0.875E-01	
BeIII 3P-5S 1459.1 Å C = 0.20E+19	10000.	0.493	0.153	*0.498E-01	*0.375E-01		
	20000.	0.427	0.128	*0.666E-01	*0.559E-01		
	50000.	0.361	0.993E-01	*0.886E-01	*0.811E-01		
	100000.	0.316	0.838E-01	*0.111	*0.941E-01	*0.906E-01	*0.762E-01
	150000.	0.288	0.734E-01	*0.118	*0.102	*0.982E-01	*0.833E-01
300000.	0.239	0.570E-01	*0.147	*0.118	*0.113	*0.948E-01	
BeIII 4P-5S 88.3 Å C = 0.73E+16	10000.	0.442E-03	-0.265E-04	0.265E-04	-0.348E-04	0.261E-04	-0.300E-04
	20000.	0.332E-03	-0.293E-04	0.491E-04	-0.511E-04	0.425E-04	-0.426E-04
	50000.	0.245E-03	-0.303E-04	0.720E-04	-0.707E-04	0.603E-04	-0.596E-04
	100000.	0.197E-03	-0.278E-04	0.936E-04	-0.838E-04	0.770E-04	-0.694E-04
	150000.	0.173E-03	-0.249E-04	0.106E-03	-0.915E-04	0.846E-04	-0.748E-04
300000.	0.139E-03	-0.193E-04	0.133E-03	-0.102E-03	0.993E-04	-0.854E-04	
BeIII 2P-5D 489.5 Å C = 0.14E+16	10000.	0.791E-01	0.336E-02				
	20000.	0.691E-01	0.426E-02				
	50000.	0.561E-01	0.374E-02				
	100000.	0.467E-01	0.416E-02				
	150000.	0.415E-01	0.509E-02				
300000.	0.334E-01	0.308E-02					
BeIII 3P-4D 2122.9 Å C = 0.66E+17	10000.	0.688	0.331E-01				
	20000.	0.576	0.400E-01				
	50000.	0.452	0.406E-01				
	100000.	0.371	0.432E-01				
	150000.	0.329	0.459E-01				
300000.	0.266	0.326E-01					
BeIII 3P-5D 1442.2 Å C = 0.12E+17	10000.	*0.743	*0.355E-01				
	20000.	0.645	0.430E-01				
	50000.	0.522	0.377E-01				
	100000.	0.434	0.406E-01				
	150000.	0.386	0.477E-01				
300000.	0.312	0.300E-01					

Table 1. (continued)

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
BeIII 4P-5D 4576.7 Å C = 0.12E+18	10000.	*9.31	*0.551				
	20000.	8.02	0.612				
	50000.	6.49	0.563				
	100000.	5.41	0.566				
	150000.	4.81	0.636				
	300000.	3.89	0.417				
BeIII 3D-4P 2065.1 Å C = 0.16E+19	10000.	0.668	-0.487E-01	*0.707E-01	-0.571E-01		
	20000.	0.536	-0.557E-01	*0.957E-01	-0.812E-01		
	50000.	0.413	-0.540E-01	*0.134	-0.116	*0.109	-0.984E-01
	100000.	0.340	-0.492E-01	*0.163	-0.133	*0.135	-0.111
	150000.	0.303	-0.464E-01	*0.194	-0.146	*0.148	-0.120
	300000.	0.247	-0.356E-01	0.237	-0.160	0.177	-0.138
BeIII 3D-5P 1419.2 Å C = 0.38E+18	10000.	*0.697	-0.539E-01				
	20000.	0.587	-0.642E-01				
	50000.	0.474	-0.589E-01				
	100000.	0.400	-0.587E-01				
	150000.	0.358	-0.574E-01				
	300000.	0.294	-0.424E-01				
BeIII 4D-5P 4459.5 Å C = 0.29E+18	10000.	*8.62	-0.596				
	20000.	7.34	-0.726				
	50000.	5.95	-0.679				
	100000.	5.00	-0.695				
	150000.	4.47	-0.700				
	300000.	3.64	-0.507				
BeIII 2S-4P 451.1 Å C = 0.26E+18	10000.	0.205E-01	0.845E-03	0.981E-03	0.887E-03	*0.106E-02	*0.765E-03
	20000.	0.169E-01	0.908E-03	0.155E-02	0.131E-02	*0.145E-02	*0.109E-02
	50000.	0.136E-01	0.885E-03	0.213E-02	0.181E-02	0.191E-02	0.153E-02
	100000.	0.116E-01	0.853E-03	0.259E-02	0.214E-02	0.228E-02	0.178E-02
	150000.	0.105E-01	0.751E-03	0.290E-02	0.234E-02	0.245E-02	0.191E-02
	300000.	0.874E-02	0.595E-03	0.344E-02	0.261E-02	0.279E-02	0.218E-02
BeIII 2S-5P 408.9 Å C = 0.11E+18	10000.	0.358E-01	0.263E-02	*0.334E-02	*0.232E-02		
	20000.	0.322E-01	0.234E-02	*0.432E-02	*0.334E-02		
	50000.	0.280E-01	0.236E-02	*0.565E-02	*0.479E-02	*0.503E-02	*0.401E-02
	100000.	0.247E-01	0.201E-02	*0.675E-02	*0.553E-02	*0.572E-02	*0.453E-02
	150000.	0.227E-01	0.184E-02	*0.755E-02	*0.589E-02	*0.606E-02	*0.491E-02
	300000.	0.191E-01	0.152E-02	*0.891E-02	*0.659E-02	*0.727E-02	*0.562E-02
BeIII 3S-4P 1754.7 Å C = 0.39E+19	10000.	0.362	0.778E-02	0.139E-01	0.122E-01	*0.152E-01	*0.106E-01
	20000.	0.296	0.790E-02	0.220E-01	0.182E-01	*0.208E-01	*0.151E-01
	50000.	0.238	0.610E-02	0.299E-01	0.251E-01	0.275E-01	0.212E-01
	100000.	0.203	0.621E-02	0.374E-01	0.295E-01	0.315E-01	0.247E-01
	150000.	0.183	0.479E-02	0.409E-01	0.320E-01	0.358E-01	0.269E-01
	300000.	0.153	0.306E-02	0.508E-01	0.367E-01	0.407E-01	0.304E-01
BeIII 3S-5P 1252.1 Å C = 0.10E+19	10000.	0.362	0.182E-01	*0.309E-01	*0.215E-01		
	20000.	0.322	0.182E-01	*0.400E-01	*0.308E-01		
	50000.	0.279	0.182E-01	*0.528E-01	*0.440E-01	*0.469E-01	*0.373E-01
	100000.	0.246	0.153E-01	*0.623E-01	*0.511E-01	*0.532E-01	*0.416E-01
	150000.	0.225	0.139E-01	*0.709E-01	*0.542E-01	*0.573E-01	*0.452E-01
	300000.	0.190	0.112E-01	*0.828E-01	*0.603E-01	*0.678E-01	0.519E-01
BeIII 4S-5P 3882.5 Å C = 0.98E+19	10000.	4.00	0.722E-01	*0.268	*0.186		
	20000.	3.59	0.403E-01	*0.344	*0.261		
	50000.	3.14	0.493E-01	*0.461	*0.381	*0.405	*0.311
	100000.	2.78	0.250E-01	*0.562	*0.431	*0.471	*0.367
	150000.	2.55	0.175E-01	*0.598	*0.478	*0.512	*0.394
	300000.	2.16	0.169E-01	*0.764	*0.530	*0.583	*0.461
BeIII 2P-4S 521.0 Å C = 0.78E+18	10000.	0.201E-01	0.553E-02	0.923E-03	0.121E-02	0.907E-03	0.104E-02
	20000.	0.164E-01	0.482E-02	0.170E-02	0.178E-02	0.148E-02	0.148E-02
	50000.	0.134E-01	0.376E-02	0.246E-02	0.246E-02	0.209E-02	0.207E-02
	100000.	0.114E-01	0.319E-02	0.312E-02	0.292E-02	0.264E-02	0.241E-02
	150000.	0.103E-01	0.295E-02	0.348E-02	0.318E-02	0.288E-02	0.260E-02
	300000.	0.862E-02	0.231E-02	0.417E-02	0.357E-02	0.331E-02	0.297E-02

Table 1. (continued)

PERTURBERS ARE: TRANSITION		ELECTRONS		PROTONS		IONIZED HELIUM	
	T(K)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
BeIII 2P-5S 462.4 Å C = 0.31E+18	10000. 20000. 50000. 100000. 150000. 300000.	0.349E-01 0.305E-01 0.264E-01 0.234E-01 0.215E-01 0.181E-01	0.133E-01 0.112E-01 0.854E-02 0.728E-02 0.637E-02 0.485E-02	*0.342E-02 *0.462E-02 *0.635E-02 *0.747E-02 *0.872E-02 *0.999E-02	*0.288E-02 *0.410E-02 *0.587E-02 *0.674E-02 *0.734E-02 *0.809E-02	*0.397E-02 *0.528E-02 *0.645E-02 *0.700E-02 *0.820E-02	*0.336E-02 *0.497E-02 *0.558E-02 *0.605E-02 *0.701E-02
BeIII 3P-4S 2127.8 Å C = 0.13E+20	10000. 20000. 50000. 100000. 150000. 300000.	0.428 0.351 0.286 0.245 0.222 0.186	0.839E-01 0.703E-01 0.543E-01 0.480E-01 0.442E-01 0.345E-01	0.147E-01 0.268E-01 0.384E-01 0.492E-01 0.550E-01 0.682E-01	0.187E-01 0.278E-01 0.385E-01 0.449E-01 0.494E-01 0.551E-01	0.148E-01 0.238E-01 0.334E-01 0.416E-01 0.473E-01 0.542E-01	0.162E-01 0.231E-01 0.323E-01 0.383E-01 0.406E-01 0.460E-01
BeIII 3P-5S 1402.3 Å C = 0.28E+19	10000. 20000. 50000. 100000. 150000. 300000.	0.356 0.311 0.268 0.238 0.219 0.185	0.119 0.100 0.756E-01 0.648E-01 0.566E-01 0.431E-01	*0.310E-01 *0.423E-01 *0.584E-01 *0.685E-01 *0.793E-01 *0.927E-01	*0.262E-01 *0.373E-01 *0.534E-01 *0.609E-01 *0.671E-01 *0.733E-01	*0.362E-01 *0.477E-01 *0.587E-01 *0.644E-01 *0.751E-01	*0.305E-01 *0.450E-01 *0.509E-01 *0.552E-01 *0.632E-01
BeIII 4P-5S 4664.8 Å C = 0.28E+20	10000. 20000. 50000. 100000. 150000. 300000.	5.07 4.46 3.90 3.47 3.20 2.70	1.18 0.979 0.730 0.622 0.553 0.419	*0.304 *0.417 *0.562 *0.702 *0.736 *0.929	*0.258 *0.364 *0.519 *0.605 *0.652 *0.748	*0.277 *0.363 *0.487 *0.557 *0.623 *0.686	*0.202 *0.298 *0.435 *0.496 *0.550 *0.642
BeIII 2P-4D 510.0 Å C = 0.15E+17	10000. 20000. 50000. 100000. 150000. 300000.	0.314E-01 0.256E-01 0.195E-01 0.159E-01 0.141E-01 0.113E-01	-0.589E-03 -0.488E-03 -0.338E-03 0.461E-04 0.323E-03 0.184E-03				
BeIII 2P-5D 458.0 Å C = 0.70E+16	10000. 20000. 50000. 100000. 150000. 300000.	0.635E-01 0.547E-01 0.442E-01 0.370E-01 0.330E-01 0.268E-01	-0.280E-02 -0.208E-02 -0.137E-02 -0.175E-03 0.723E-03 0.260E-03				
BeIII 3P-4D 1955.0 Å C = 0.22E+18	10000. 20000. 50000. 100000. 150000. 300000.	0.539 0.439 0.336 0.275 0.244 0.198	-0.168E-01 -0.117E-01 -0.877E-02 -0.291E-02 0.111E-02 -0.814E-05				
BeIII 3P-5D 1362.4 Å C = 0.62E+17	10000. 20000. 50000. 100000. 150000. 300000.	0.599 0.514 0.415 0.347 0.310 0.252	-0.297E-01 -0.209E-01 -0.141E-01 -0.340E-02 0.460E-02 0.969E-03				
BeIII 4P-5D 4250.3 Å C = 0.60E+18	10000. 20000. 50000. 100000. 150000. 300000.	*6.82 5.87 4.78 4.03 3.61 2.95	-0.362 -0.272 -0.205 -0.986E-01 -0.109E-01 -0.355E-01				
BeIII 3D-4P 2137.0 Å C = 0.58E+19	10000. 20000. 50000. 100000. 150000. 300000.	0.503 0.412 0.330 0.280 0.254 0.212	0.231E-01 0.233E-01 0.224E-01 0.217E-01 0.190E-01 0.150E-01	0.236E-01 0.365E-01 0.500E-01 0.620E-01 0.703E-01 0.828E-01	0.211E-01 0.307E-01 0.428E-01 0.505E-01 0.547E-01 0.615E-01	*0.254E-01 *0.347E-01 0.451E-01 0.532E-01 0.568E-01 0.663E-01	*0.181E-01 *0.258E-01 0.363E-01 0.415E-01 0.452E-01 0.520E-01

Table 1. (continued)

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
BeIII 3D-5P 1435.3 Å	10000.	0.459	0.310E-01	*0.416E-01	*0.288E-01		
C = 0.13E+19	20000.	0.411	0.301E-01	*0.537E-01	*0.414E-01		
	50000.	0.356	0.302E-01	*0.708E-01	*0.599E-01	*0.623E-01	*0.498E-01
	100000.	0.314	0.259E-01	*0.842E-01	*0.689E-01	*0.716E-01	*0.563E-01
	150000.	0.287	0.236E-01	*0.937E-01	*0.731E-01	*0.768E-01	*0.619E-01
	300000.	0.242	0.194E-01	*0.111	*0.815E-01	*0.900E-01	*0.700E-01
BeIII 4D-5P 4629.6 Å	10000.	6.60	0.380				
C = 0.13E+19	20000.	5.82	0.344				
	50000.	4.94	0.335				
	100000.	4.28	0.260				
	150000.	3.89	0.216				
	300000.	3.25	0.185				
BeIII 4F-5D 4506.4 Å	10000.	*6.99	-0.361				
C = 0.67E+18	20000.	6.03	-0.245				
	50000.	4.88	-0.159				
	100000.	4.09	-0.294E-01				
	150000.	3.65	0.727E-01				
	300000.	2.97	0.152E-01				
PERTURBER DENSITY = 1.E+18 cm <sup>-3</sup>							
BeIII 1S-3P 88.3 Å	10000.	0.329E-02	-0.167E-03	*0.146E-03	-0.128E-03	*0.141E-03	-0.990E-04
C = 0.73E+17	20000.	0.252E-02	-0.128E-03	*0.263E-03	-0.240E-03	*0.258E-03	-0.194E-03
	50000.	0.183E-02	-0.143E-03	*0.435E-03	-0.372E-03	*0.373E-03	-0.307E-03
	100000.	0.147E-02	-0.135E-03	*0.568E-03	-0.474E-03	*0.476E-03	-0.399E-03
	150000.	0.130E-02	-0.125E-03	*0.664E-03	-0.537E-03	*0.535E-03	-0.447E-03
	300000.	0.106E-02	-0.110E-03	*0.801E-03	-0.619E-03	*0.651E-03	-0.523E-03
BeIII 1S-4P 84.8 Å	10000.	*0.928E-02	*0.182E-04				
C = 0.28E+17	20000.	*0.765E-02	-0.293E-03				
	50000.	0.600E-02	-0.450E-03				
	100000.	0.498E-02	-0.423E-03				
	150000.	0.445E-02	-0.425E-03				
	300000.	0.364E-02	-0.400E-03				
BeIII 1S-5P 83.2 Å	10000.						
C = 0.13E+17	20000.	*0.159E-01	-0.318E-03				
	50000.	*0.137E-01	-0.776E-03				
	100000.	0.118E-01	-0.825E-03				
	150000.	0.107E-01	-0.873E-03				
	300000.	0.890E-02	-0.903E-03				
BeIII 2S-3P 661.3 Å	10000.	0.208	-0.807E-02	*0.834E-02	-0.724E-02	*0.801E-02	-0.562E-02
C = 0.41E+19	20000.	0.158	-0.816E-02	*0.149E-01	-0.136E-01	*0.147E-01	-0.110E-01
	50000.	0.114	-0.955E-02	*0.247E-01	-0.210E-01	*0.212E-01	-0.174E-01
	100000.	0.913E-01	-0.924E-02	*0.319E-01	-0.269E-01	*0.273E-01	-0.226E-01
	150000.	0.807E-01	-0.865E-02	*0.376E-01	-0.303E-01	*0.299E-01	-0.252E-01
	300000.	0.657E-01	-0.774E-02	*0.462E-01	-0.356E-01	*0.372E-01	-0.293E-01
BeIII 2S-4P 503.3 Å	10000.	*0.339	*0.144E-02				
C = 0.97E+18	20000.	*0.279	-0.108E-01				
	50000.	0.218	-0.167E-01				
	100000.	0.181	-0.159E-01				
	150000.	0.161	-0.159E-01				
	300000.	0.132	-0.150E-01				
BeIII 2S-5P 453.0 Å	10000.						
C = 0.39E+18	20000.	*0.480	-0.953E-02				
	50000.	*0.410	-0.237E-01				
	100000.	0.354	-0.253E-01				
	150000.	0.321	-0.267E-01				
	300000.	0.267	-0.275E-01				
BeIII 3S-4P 1916.5 Å	10000.	*5.70	-0.734E-01				
C = 0.14E+20	20000.	*4.68	-0.254				
	50000.	3.67	-0.343				
	100000.	3.04	-0.324				
	150000.	2.72	-0.324				
	300000.	2.23	-0.297				



Table 1. (continued)

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
BeIII 3S-5P 1347.4 Å C = 0.35E+19	10000.						
	20000.	*4.53	-0.133				
	50000.	*3.86	-0.259				
	100000.	3.34	-0.270				
	150000.	3.03	-0.282				
300000.	2.52	-0.283					
BeIII 2P-5S 491.5 Å C = 0.24E+19	10000.	*0.470	*0.100				
	20000.	*0.417	*0.955E-01				
	50000.	0.359	0.818E-01				
	100000.	0.317	0.713E-01				
	150000.	0.289	0.634E-01				
300000.	0.240	0.547E-01					
BeIII 3P-4S 2196.2 Å C = 0.45E+20	10000.	*5.92	*0.999				
	20000.	4.83	0.907				
	50000.	3.87	0.737				
	100000.	3.26	0.671				
	150000.	2.94	0.617				
300000.	2.43	0.496	*1.29	*1.01			
BeIII 3P-5S 1459.1 Å C = 0.20E+20	10000.						
	20000.	*4.19	*0.932				
	50000.	*3.56	*0.781				
	100000.	3.12	0.667				
	150000.	2.85	0.598				
300000.	2.37	0.514					
BeIII 4P-5S 88.3 Å C = 0.73E+17	10000.	0.434E-02	-0.281E-04	*0.257E-03	-0.197E-03		
	20000.	0.328E-02	-0.140E-03	*0.488E-03	-0.379E-03		
	50000.	0.243E-02	-0.207E-03	*0.725E-03	-0.613E-03		
	100000.	0.196E-02	-0.201E-03	*0.938E-03	-0.798E-03		
	150000.	0.172E-02	-0.186E-03	*0.106E-02	-0.906E-03	*0.846E-03	-0.739E-03
	300000.	0.138E-02	-0.168E-03	*0.133E-02	-0.102E-02	*0.995E-03	-0.848E-03
BeIII 2P-5D 489.5 Å C = 0.14E+17	10000.						
	20000.	*0.491	*0.106E-01				
	50000.	*0.431	*0.166E-01				
	100000.	0.374	0.171E-01				
	150000.	0.339	0.183E-01				
300000.	0.281	0.188E-01					
BeIII 3P-4D 2122.9 Å C = 0.66E+18	10000.	*5.59	-0.104E-01				
	20000.	*4.82	*0.158				
	50000.	3.91	0.245				
	100000.	3.28	0.245				
	150000.	2.94	0.242				
300000.	2.41	0.234					
BeIII 3P-5D 1442.2 Å C = 0.12E+18	10000.						
	20000.	*4.71	*0.134				
	50000.	*4.09	*0.184				
	100000.	3.54	0.185				
	150000.	3.20	0.187				
300000.	2.65	0.193					
BeIII 3D-4P 2065.1 Å C = 0.16E+20	10000.	*6.12	*0.425E-01				
	20000.	*5.03	-0.206				
	50000.	3.93	-0.321				
	100000.	3.26	-0.305				
	150000.	2.92	-0.307				
300000.	2.39	-0.287					
BeIII 3D-5P 1419.2 Å C = 0.38E+19	10000.						
	20000.	*4.87	-0.106				
	50000.	*4.15	-0.251				
	100000.	3.58	-0.266				
	150000.	3.25	-0.280				
300000.	2.70	-0.286					

Table 1. (continued)

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
BeIII 2S-4P 451.1 Å C = 0.26E+19	10000.	*0.204	*0.257E-02				
	20000.	0.168	0.510E-02				
	50000.	0.136	0.643E-02	*0.211E-01	*0.158E-01		
	100000.	0.115	0.658E-02	*0.261E-01	*0.204E-01		
	150000.	0.104	0.596E-02	*0.290E-01	*0.232E-01		
300000.	0.872E-01	0.534E-02	*0.344E-01	*0.259E-01	*0.280E-01	*0.216E-01	
BeIII 2S-5P 408.9 Å C = 0.11E+19	10000.	*0.337	*0.353E-03				
	20000.	*0.309	*0.632E-02				
	50000.	*0.273	*0.131E-01				
	100000.	0.242	0.113E-01				
	150000.	0.222	0.112E-01				
300000.	0.188	0.122E-01					
BeIII 3S-4P 1754.7 Å C = 0.39E+20	10000.	*3.60	-0.212E-02	*0.125	*0.706E-01		
	20000.	2.95	0.256E-01	*0.214	*0.138		
	50000.	2.38	0.285E-01	*0.298	*0.218		
	100000.	2.02	0.363E-01	*0.373	*0.280		
	150000.	1.83	0.269E-01	*0.409	*0.317		
300000.	1.53	0.225E-01	*0.509	*0.365	*0.406	*0.302	
BeIII 3S-5P 1252.1 Å C = 0.10E+20	10000.						
	20000.	*3.11	*0.253E-01				
	50000.	*2.72	*0.850E-01				
	100000.	2.41	0.726E-01				
	150000.	2.21	0.722E-01				
300000.	1.87	0.843E-01					
BeIII 2P-4S 521.0 Å C = 0.78E+19	10000.	*0.201	*0.475E-01	*0.894E-02	*0.685E-02		
	20000.	0.164	0.433E-01	*0.169E-01	*0.132E-01		
	50000.	0.134	0.345E-01	*0.248E-01	*0.213E-01		
	100000.	0.114	0.294E-01	*0.313E-01	*0.278E-01		
	150000.	0.103	0.275E-01	*0.348E-01	*0.315E-01	*0.288E-01	*0.257E-01
300000.	0.862E-01	0.223E-01	*0.417E-01	*0.355E-01	*0.331E-01	*0.295E-01	
BeIII 2P-5S 462.4 Å C = 0.31E+19	10000.	*0.346	*0.101				
	20000.	*0.303	*0.911E-01				
	50000.	0.263	0.724E-01				
	100000.	0.233	0.626E-01				
	150000.	0.214	0.554E-01				
300000.	0.180	0.452E-01					
BeIII 3P-4S 2127.8 Å C = 0.13E+21	10000.	*4.28	*0.719	*0.142	*0.107		
	20000.	3.51	0.627	*0.267	*0.209		
	50000.	2.86	0.496	*0.385	*0.333		
	100000.	2.45	0.442	*0.488	*0.429	*0.417	*0.358
	150000.	2.22	0.412	*0.550	*0.490	*0.473	*0.401
300000.	1.86	0.331	*0.683	*0.548	*0.541	*0.457	
BeIII 3P-5S 1402.3 Å C = 0.28E+20	10000.	*3.54	*0.904				
	20000.	*3.10	*0.811				
	50000.	2.67	0.638				
	100000.	2.37	0.555				
	150000.	2.18	0.492				
300000.	1.84	0.401					
BeIII 2P-4D 510.0 Å C = 0.15E+18	10000.	*0.256	-0.602E-02				
	20000.	0.215	-0.667E-02				
	50000.	0.169	-0.544E-02				
	100000.	0.141	-0.393E-02				
	150000.	0.126	-0.314E-02				
300000.	0.103	-0.151E-02					
BeIII 2P-5D 458.0 Å C = 0.70E+17	10000.						
	20000.	*0.416	-0.121E-01				
	50000.	*0.358	-0.115E-01				
	100000.	0.311	-0.899E-02				
	150000.	0.282	-0.757E-02				
300000.	0.234	-0.609E-02					

Table 1. (continued)

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
BeIII 3P-4D 1955.0 Å C = 0.22E+19	10000.	*4.54	-0.158				
	20000.	3.79	-0.137				
	50000.	2.98	-0.114				
	100000.	2.49	-0.906E-01				
	150000.	2.23	-0.799E-01				
	300000.	1.83	-0.482E-01				
BeIII 3P-5D 1362.4 Å C = 0.62E+18	10000.						
	20000.	*3.98	-0.130				
	50000.	*3.40	-0.120				
	100000.	2.94	-0.967E-01				
	150000.	2.67	-0.837E-01				
	300000.	2.22	-0.666E-01				
BeIII 3D-4P 2137.0 Å C = 0.58E+20	10000.	*5.00	*0.879E-01				
	20000.	4.11	0.138				
	50000.	3.29	0.165	*0.498	*0.367		
	100000.	2.80	0.171	*0.617	*0.477		
	150000.	2.53	0.152	*0.703	*0.542		
	300000.	2.12	0.135	*0.829	*0.611	*0.663	*0.515
BeIII 3D-5P 1435.3 Å C = 0.13E+20	10000.						
	20000.	*3.95	*0.880E-01				
	50000.	*3.47	*0.170				
	100000.	3.07	0.150				
	150000.	2.82	0.146				
	300000.	2.39	0.157				
PERTURBER DENSITY = 1.E+19 cm <sup>-3</sup>							
BeIII 1S-3P 88.3 Å C = 0.73E+18	10000.	*0.285E-01	*0.908E-03				
	20000.	*0.228E-01	*0.463E-03				
	50000.	0.170E-01	-0.394E-03				
	100000.	0.138E-01	-0.622E-03				
	150000.	0.123E-01	-0.622E-03				
	300000.	0.101E-01	-0.642E-03				
BeIII 1S-4P 84.8 Å C = 0.28E+18	10000.						
	20000.						
	50000.	*0.485E-01	*0.341E-05				
	100000.	*0.419E-01	-0.993E-03				
	150000.	0.381E-01	-0.126E-02				
	300000.	0.319E-01	-0.162E-02				
BeIII 1S-5P 83.2 Å C = 0.13E+18	10000.						
	20000.						
	50000.						
	100000.	*0.888E-01	-0.552E-03				
	150000.	*0.833E-01	-0.137E-02				
	300000.	*0.723E-01	-0.240E-02				
BeIII 2S-3P 661.3 Å C = 0.41E+20	10000.	*1.84	*0.664E-01				
	20000.	*1.45	*0.183E-01				
	50000.	1.07	-0.359E-01				
	100000.	0.865	-0.505E-01				
	150000.	0.768	-0.501E-01				
	300000.	0.630	-0.511E-01				
BeIII 2S-4P 503.3 Å C = 0.97E+19	10000.						
	20000.						
	50000.	*1.77	-0.791E-02				
	100000.	*1.53	-0.441E-01				
	150000.	1.39	-0.535E-01				
	300000.	1.16	-0.658E-01				
BeIII 2S-5P 453.0 Å C = 0.39E+19	10000.						
	20000.						
	50000.						
	100000.	*2.67	-0.240E-01				
	150000.	*2.51	-0.480E-01				
	300000.	*2.17	-0.783E-01				

Table 1. (continued)

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
BeIII 2P-5S 491.5 Å C = 0.24E+20	10000.						
	20000.						
	50000.						
	100000.	*2.69	*0.342				
	150000.	*2.50	*0.312				
300000.	*2.13	*0.310					
BeIII 4P-5S 88.3 Å C = 0.73E+18	10000.	*0.333E-01	*0.469E-02				
	20000.	*0.276E-01	*0.224E-02				
	50000.	0.214E-01	0.516E-04				
	100000.	0.176E-01	-0.555E-03				
	150000.	0.156E-01	-0.606E-03				
300000.	0.127E-01	-0.747E-03					
BeIII 2P-5D 489.5 Å C = 0.14E+18	10000.						
	20000.						
	50000.						
	100000.	*2.62	*0.729E-01				
	150000.	*2.47	*0.828E-01				
300000.	*2.15	*0.888E-01					
BeIII 2S-4P 451.1 Å C = 0.26E+20	10000.						
	20000.						
	50000.	*1.26	*0.384E-02				
	100000.	*1.09	*0.229E-01				
	150000.	0.992	0.225E-01				
300000.	0.835	0.262E-01					
BeIII 2S-5P 408.9 Å C = 0.11E+20	10000.						
	20000.						
	50000.						
	100000.	*2.04	*0.164E-01				
	150000.	*1.92	*0.213E-01				
300000.	*1.67	*0.476E-01					
BeIII 2P-4S 521.0 Å C = 0.78E+20	10000.						
	20000.	*1.58	*0.246				
	50000.	*1.31	*0.238				
	100000.	1.12	0.220				
	150000.	1.02	0.212				
300000.	0.851	0.182					
BeIII 2P-5S 462.4 Å C = 0.31E+20	10000.						
	20000.						
	50000.						
	100000.	*2.11	*0.364				
	150000.	*1.96	*0.331				
300000.	1.68	0.296					
BeIII 2P-4D 510.0 Å C = 0.15E+19	10000.						
	20000.	*1.62	*0.393E-01				
	50000.	*1.36	-0.160E-02				
	100000.	1.17	-0.581E-02				
	150000.	1.06	-0.663E-02				
300000.	0.891	-0.663E-02					
BeIII 2P-5D 458.0 Å C = 0.70E+18	10000.						
	20000.						
	50000.						
	100000.	*2.30	*0.107E-01				
	150000.	*2.16	*0.928E-02				
300000.	*1.87	-0.963E-02					
PERTURBER DENSITY = 1.E+20 cm <sup>-3</sup>							
BeIII 1S-3P 88.3 Å C = 0.73E+19	10000.						
	20000.						
	50000.	*0.132	*0.742E-02				
	100000.	*0.113	*0.230E-02				
	150000.	*0.103	*0.827E-03				
300000.	0.868E-01	-0.606E-03					

Table 1. (continued)

PERTURBERS ARE: TRANSITION	T(K)	ELECTRONS		PROTONS		IONIZED HELIUM	
		WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)	WIDTH (Å)	SHIFT (Å)
BeIII 1S-4P 84.8 Å C = 0.28E+19	10000.						
	20000.						
	50000.						
	100000.						
	150000.						
300000.		*0.243		*0.204E-02			
BeIII 2S-3P 661.3 Å C = 0.41E+21	10000.						
	20000.						
	50000.		*8.58		*0.334		
	100000.		*7.24		*0.993E-02		
	150000.		*6.55		-0.764E-01		
300000.		5.51		-0.163			
BeIII 2S-4P 503.3 Å C = 0.97E+20	10000.						
	20000.						
	50000.						
	100000.						
	150000.						
300000.		*8.95		-0.418E-02			
BeIII 4P-5S 88.3 Å C = 0.73E+19	10000.						
	20000.						
	50000.		*0.155		*0.136E-01		
	100000.		*0.144		*0.377E-02		
	150000.		*0.134		*0.816E-03		
300000.		0.115		-0.200E-02			
BeIII 2S-4P 451.1 Å C = 0.26E+21	10000.						
	20000.						
	50000.						
	100000.						
	150000.						
300000.		*6.85		*0.430E-01			
BeIII 2P-4S 521.0 Å C = 0.78E+21	10000.						
	20000.						
	50000.						
	100000.						
	150000.		*8.30		*0.808		
300000.		*7.20		*0.828			
BeIII 2P-4D 510.0 Å C = 0.15E+20	10000.						
	20000.						
	50000.						
	100000.						
	150000.		*7.79		*0.269		
300000.		*6.90		*0.208			
PERTURBER DENSITY = 1.E+21 cm <sup>-3</sup>							
BeIII 1S-3P 88.3 Å C = 0.73E+20	10000.						
	20000.						
	50000.						
	100000.						
	150000.						
300000.		*0.641		*0.267E-01			
BeIII 4P-5S 88.3 Å C = 0.73E+20	10000.						
	20000.						
	50000.						
	100000.						
	150000.						
300000.		*0.649		*0.290E-01			

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  $0.1 < NV \leq 0.5$  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 or Griem 1974). In the region between where neither of these two approximations is valid, a unified type theory should be used. For example in Barnard, Cooper and Smith (1974), a simple analytical formula for such a case is given. The accuracy of the results obtained decreases when broadening by ion interactions becomes important.

The discussion of obtained results will be given in Dimitrijević *et al.* (2003).

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## ТАБЕЛЕ ПАРАМЕТАРА ШТАРКОВОГ ШИРЕЊА СПЕКТРАЛНИХ ЛИНИЈА Ве III

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

протонима и јонима хелијума, за 52 мултиплета Ве III. Резултати су дати у функцији температуре и концентрације пертурбера.