

Predicted XUV Line Intensities
CHIANTI database - Version 11.0.1

Calculated with Constant pressure= 1.00e+16 (cm⁻³ K)
***** to ***** Å

Number of lines: 171

Minimum intensity = 1.00000

Units are: erg cm-2 sr-1 s-1

Lines marked with a "s" are satellite lines from autoionizing levels.

Lines marked with a * do not have observed energy levels
and have approximate wavelengths.

Calculated: Thu Apr 17 10:23:57 2025

Ionization Fractions file: temp.ioneq
ionization equilibrium filename: temp.ioneq
the following ions have advanced models:

c_1 included in density effects model
c_2 included in density effects model
c_3 included in density effects model
c_4 included in density effects model
c_5 included in density effects model
n_1 included in density effects model
n_2 included in density effects model
n_3 included in density effects model
n_4 included in density effects model
n_5 included in density effects model
n_6 included in density effects model
o_1 included in density effects model
o_2 included in density effects model
o_3 included in density effects model
o_4 included in density effects model
o_5 included in density effects model
o_6 included in density effects model
o_7 included in density effects model
ne_1 included in density effects model
ne_2 included in density effects model
ne_3 included in density effects model
ne_4 included in density effects model
ne_5 included in density effects model
ne_6 included in density effects model
ne_7 included in density effects model
ne_8 included in density effects model
ne_9 included in density effects model
mg_1 included in density effects model

mg_2 included in density effects model
mg_3 included in density effects model
mg_4 included in density effects model
mg_5 included in density effects model
mg_6 included in density effects model
mg_7 included in density effects model
mg_8 included in density effects model
mg_9 included in density effects model
mg_10 included in density effects model
mg_11 included in density effects model
si_1 included in density effects model
si_2 included in density effects model
si_3 included in density effects model
si_4 included in density effects model
si_5 included in density effects model
si_6 included in density effects model
si_7 included in density effects model
si_8 included in density effects model
si_9 included in density effects model
si_10 included in density effects model
si_11 included in density effects model
si_12 included in density effects model
si_13 included in density effects model
s_1 included in density effects model
s_2 included in density effects model
s_3 included in density effects model
s_4 included in density effects model
s_5 included in density effects model
s_6 included in density effects model
s_7 included in density effects model
s_8 included in density effects model
s_9 included in density effects model
s_10 included in density effects model
s_11 included in density effects model
s_12 included in density effects model
s_13 included in density effects model
s_14 included in density effects model
s_15 included in density effects model

Model used constant pressure= 1.00000e+16

Produced as part of the CHIANTI atomic data base collaboration

Created on Thu Apr 17 10:21:18 2025

Elemental Abundance file: sun_photospheric_2021_asplund.abund
created for the CHIANTI atomic database by Enrico Landi, 21-Jul-2022

abundances: Asplund, M., Amarsi, A.M., & Grevesse, N. 2021, A&A, 653, A141

comment: This compilation upgrades Asplund et al. (2009) with the advances in

photospheric modeling and atomic data in the last decade. Notably, it preserves a low O abundance but increases Ne/O to 0.24, in line with Young 2018 and Landi & Testa 2017 determinations in the solar atmosphere.

Minimum abundance = 8.70964e-08

Differential Emission Measure file: flare_ext.dem

filename: flare.dem

dem: Dere, K.P., Cook, J.W., 1979, ApJ, 229, 772

comment: composite of August 9 1553 and 1554 UT data of an M2 X-ray class flare

comment: modifies at high temperature (7.3 to 8.0) by G.Del Zanna to calculate

the emissivities of the hottest ions.

produced as part of the Arcetri/Cambridge/NRL 'CHIANTI' atomic data base collaboration

K.P.Dere and G. Del Zanna - Aug 2002

Calculation performed with population lookup tables.

Table 1: *Line List*

Ion	λ (Å)	Transition	T_{\max}	Int
Al II	10079.1211	3s 3d 3D_3 - 3s 4p 3P_2	4.50	7.52e+00
Al II	10080.2393	3s 3d 3D_2 - 3s 4p 3P_2	4.50	1.34e+00
Al II	10110.2012	3s 3d 3D_2 - 3s 4p 3P_1	4.50	3.95e+00
Al II	10111.1211	3s 3d 3D_1 - 3s 4p 3P_1	4.50	1.32e+00
Al II	10125.4541	3s 3d 3D_1 - 3s 4p 3P_0	4.50	1.76e+00
He II	10125.9814	4s $^2S_{1/2}$ - 5p $^2P_{3/2}$	4.90	3.47e+00
He II	10126.0723	4s $^2S_{1/2}$ - 5p $^2P_{1/2}$	4.90	1.73e+00
He II	10126.2500	4p $^2P_{3/2}$ - 5d $^2D_{5/2}$	4.90	1.24e+01
He II	10126.2500	4d $^2D_{3/2}$ - 5f $^2F_{5/2}$	4.90	5.65e+01
He II	10126.3779	4p $^2P_{3/2}$ - 5d $^2D_{3/2}$	4.90	1.38e+00
He II	10126.3789	4p $^2P_{1/2}$ - 5d $^2D_{3/2}$	4.90	6.89e+00
He II	10126.4355	4f $^2F_{5/2}$ - 5g $^2G_{7/2}$	4.90	1.92e+01
He II	10126.4365	4d $^2D_{5/2}$ - 5f $^2F_{7/2}$	4.90	8.06e+01
He II	10126.5000	4d $^2D_{5/2}$ - 5f $^2F_{5/2}$	4.90	4.04e+00
He II	10126.5234	4f $^2F_{7/2}$ - 5g $^2G_{9/2}$	4.90	2.40e+01
He II	10126.7314	4p $^2P_{3/2}$ - 5s $^2S_{1/2}$	4.90	1.81e+01
He II	10126.7627	4p $^2P_{1/2}$ - 5s $^2S_{1/2}$	4.90	9.05e+00
Ar XIII	10148.7812	2s ² 2p ² 3P_0 - 2s ² 2p ² 3P_1	6.55	6.50e+01
S XIII	10300.7832	2s 2p 3P_1 - 2s 2p 3P_2	6.45	2.75e+01
Cl XII	10650.7617	2s ² 2p ² 3P_1 - 2s ² 2p ² 3P_2	6.45	1.36e+00
C I	10694.1768	2p 3s 3P_2 - 2p 3p 3D_3	4.50	1.05e+00
Fe XIII	10749.1055	3s ² 3p ² 3P_0 - 3s ² 3p ² 3P_1	6.30	5.93e+01
Fe XIII	10800.7686	3s ² 3p ² 3P_1 - 3s ² 3p ² 3P_2	6.30	5.91e+01
He I	10832.0576	1s 2s 3S_1 - 1s 2p 3P_0	4.50	1.99e+04
He I	10833.2168	1s 2s 3S_1 - 1s 2p 3P_1	4.50	5.92e+04
He I	10833.3066	1s 2s 3S_1 - 1s 2p 3P_2	4.50	9.93e+04
Mg II	10917.2734	3d $^2D_{5/2}$ - 4p $^2P_{3/2}$	4.50	2.69e+00
Mg II	10954.8252	3d $^2D_{3/2}$ - 4p $^2P_{1/2}$	4.50	1.49e+00
Al II	11251.5049	3s 4d 1D_2 - 3s 5f 1F_3	4.50	1.04e+00
Si III	11339.6680	3s 5s 3S_1 - 3s 5p 3P_1	4.70	1.78e+00
Si III	11346.6162	3s 5s 3S_1 - 3s 5p 3P_2	4.70	2.94e+00
O II	11659.0879	2s ² 2p ² 4p $^4D_{5/2}$ - 2s ² 2p ² 4d $^4F_{7/2}$	4.65	2.03e+00
O II	11666.1611	2s ² 2p ² 4p $^4D_{3/2}$ - 2s ² 2p ² 4d $^4F_{5/2}$	4.65	1.34e+00
O II	11676.6504	2s ² 2p ² 4p $^4P_{5/2}$ - 2s ² 2p ² 4d $^4D_{7/2}$	4.65	1.37e+00
O II	11681.1514	2s ² 2p ² 4p $^4D_{7/2}$ - 2s ² 2p ² 4d $^4F_{9/2}$	4.65	3.08e+00
C II s *	11757.9189	2s 2p 4s $^4P_{1/2}$ - 2s 2p 4p $^4P_{3/2}$	4.60	1.08e+00
C II s *	11760.4248	2s 2p 4s $^4P_{3/2}$ - 2s 2p 4p $^4P_{5/2}$	4.60	1.16e+00
C II s *	11806.3750	2s 2p 4s $^4P_{3/2}$ - 2s 2p 4p $^4P_{1/2}$	4.60	1.08e+00
C II s *	11812.1064	2s 2p 4s $^4P_{5/2}$ - 2s 2p 4p $^4P_{5/2}$	4.60	2.71e+00
C II s *	11840.6250	2s 2p 4s $^4P_{5/2}$ - 2s 2p 4p $^4P_{3/2}$	4.60	1.18e+00
He I	11972.3340	1s 3p 3P_2 - 1s 5d 3D_3	4.50	3.52e+01
He I	11972.3340	1s 3p 3P_2 - 1s 5d 3D_2	4.50	6.14e+00
He I	11972.3516	1s 3p 3P_1 - 1s 5d 3D_1	4.50	6.58e+00
He I	11972.3662	1s 3p 3P_1 - 1s 5d 3D_2	4.50	1.84e+01
He I	11972.7402	1s 3p 3P_0 - 1s 5d 3D_1	4.50	8.79e+00
C III	11984.5156	2s 4s 3S_1 - 2s 4p 3P_2	4.85	1.38e+00
S IX	12523.0000	2s ² 2p ⁴ 3P_2 - 2s ² 2p ⁴ 3P_1	6.10	9.15e+00
He I	12530.7461	1s 3s 3S_1 - 1s 4p 3P_0	4.50	6.48e+00
He I	12530.9180	1s 3s 3S_1 - 1s 4p 3P_1	4.50	1.95e+01

Table 1: (continued)

Ion	λ (Å)	Transition	T_{\max}	Int
He I	12530.9326	1s 3s 3S_1 - 1s 4p 3P_2	4.50	3.24e+01
He I	12788.4160	1s 3d 3D_2 - 1s 5f 3F_2	4.50	6.50e+00
He I	12788.4199	1s 3d 3D_3 - 1s 5f 3F_4	4.50	7.49e+01
He I	12788.4248	1s 3d 3D_3 - 1s 5f 3F_3	4.50	6.49e+00
He I	12788.4268	1s 3d 3D_2 - 1s 5f 3F_3	4.50	5.18e+01
He I	12788.4873	1s 3d 3D_1 - 1s 5f 3F_2	4.50	3.50e+01
He I	12794.0000	1s 3d 1D_2 - 1s 5f 1F_3	4.50	1.94e+01
H I	12821.4316	3p $^2P_{1/2}$ - 5d $^2D_{3/2}$	4.50	1.38e+02
H I	12821.4502	3s $^2S_{1/2}$ - 5p $^2P_{3/2}$	4.50	6.97e+01
H I	12821.4658	3p $^2P_{1/2}$ - 5s $^2S_{1/2}$	4.50	1.15e+02
H I	12821.4883	3s $^2S_{1/2}$ - 5p $^2P_{1/2}$	4.50	3.48e+01
H I	12821.5957	3d $^2D_{3/2}$ - 5f $^2F_{5/2}$	4.50	3.24e+02
H I	12821.5957	3p $^2P_{3/2}$ - 5d $^2D_{5/2}$	4.50	2.47e+02
H I	12821.6094	3p $^2P_{3/2}$ - 5d $^2D_{3/2}$	4.50	2.75e+01
H I	12821.6436	3p $^2P_{3/2}$ - 5s $^2S_{1/2}$	4.50	2.30e+02
H I	12821.6475	3d $^2D_{3/2}$ - 5p $^2P_{1/2}$	4.50	3.18e+00
H I	12821.6494	3d $^2D_{5/2}$ - 5f $^2F_{7/2}$	4.50	4.62e+02
H I	12821.6553	3d $^2D_{5/2}$ - 5f $^2F_{5/2}$	4.50	2.32e+01
H I	12821.6680	3d $^2D_{5/2}$ - 5p $^2P_{3/2}$	4.50	5.74e+00
He I	12849.4570	1s 3p 3P_2 - 1s 5s 3S_1	4.50	3.42e+01
He I	12849.4932	1s 3p 3P_1 - 1s 5s 3S_1	4.50	2.06e+01
He I	12849.9414	1s 3p 3P_0 - 1s 5s 3S_1	4.50	6.86e+00
He I	12971.9766	1s 3p 1P_1 - 1s 5d 1D_2	4.50	1.22e+01
He I	12988.4053	1s 3d 3D_1 - 1s 5p 3P_0	4.50	1.50e+00
He I	12988.4248	1s 3d 3D_2 - 1s 5p 3P_1	4.50	3.36e+00
He I	12988.4297	1s 3d 3D_3 - 1s 5p 3P_2	4.50	6.29e+00
He I	12988.4316	1s 3d 3D_2 - 1s 5p 3P_2	4.50	1.12e+00
He I	12988.4990	1s 3d 3D_1 - 1s 5p 3P_1	4.50	1.12e+00
O II	13039.0000	2s ² 2p ² 4s $^2P_{3/2}$ - 2s ² 2p ² 4p $^2D_{5/2}$	4.65	1.77e+00
Ca XIV	13147.8613	2s ² 2p ³ $^2D_{3/2}$ - 2s ² 2p ³ $^2D_{5/2}$	6.65	2.00e+00
He I	13415.3525	1s 3p 1P_1 - 1s 5s 1S_0	4.50	1.42e+01
Cl XII	13812.1553	2s ² 2p ² 3P_0 - 2s ² 2p ² 3P_1	6.45	1.08e+00
S XI	13927.3828	2s ² 2p ² 3P_1 - 2s ² 2p ² 3P_2	6.35	2.23e+01
O II	14015.0244	2s ² 2p ² 4s $^4P_{5/2}$ - 2s ² 2p ² 4p $^4D_{7/2}$	4.65	1.67e+00
Al II	14082.1270	3s 5p 3P_2 - 3s 5d 3D_3	4.50	1.86e+00
Si X	14304.7188	2s ² 2p $^2P_{1/2}$ - 2s ² 2p $^2P_{3/2}$	6.20	1.58e+01
He I	15087.7725	1s 3s 1S_0 - 1s 4p 1P_1	4.50	1.17e+00
He I	17006.9785	1s 3p 3P_2 - 1s 4d 3D_1	4.50	1.01e+00
He I	17007.0332	1s 3p 3P_2 - 1s 4d 3D_2	4.50	1.42e+01
He I	17007.0371	1s 3p 3P_2 - 1s 4d 3D_3	4.50	8.12e+01
He I	17007.0430	1s 3p 3P_1 - 1s 4d 3D_1	4.50	1.51e+01
He I	17007.0977	1s 3p 3P_1 - 1s 4d 3D_2	4.50	4.25e+01
He I	17007.8262	1s 3p 3P_0 - 1s 4d 3D_1	4.50	2.01e+01
Al II	17765.7754	3s 5s 3S_1 - 3s 5p 3P_2	4.50	4.41e+00
Al II	17806.5859	3s 5s 3S_1 - 3s 5p 3P_1	4.50	2.60e+00
He I	18690.3965	1s 3d 3D_2 - 1s 4f 3F_2	4.50	1.97e+01
He I	18690.4258	1s 3d 3D_3 - 1s 4f 3F_4	4.50	2.28e+02
He I	18690.4492	1s 3d 3D_3 - 1s 4f 3F_3	4.50	2.62e+00
He I	18690.4531	1s 3d 3D_2 - 1s 4f 3F_3	4.50	2.10e+01

Table 1: (continued)

Ion	λ (Å)	Transition	T_{\max}	Int
He I	18690.5508	1s 3d 3D_1 - 1s 4f 3F_2	4.50	1.06e+02
He I	18702.3164	1s 3d 1D_2 - 1s 4f 1F_3	4.50	4.89e+01
H I	18755.8047	3p $^2P_{1/2}$ - 4d $^2D_{3/2}$	4.50	2.29e+02
H I	18755.8418	3s $^2S_{1/2}$ - 4p $^2P_{3/2}$	4.50	1.05e+02
H I	18755.9473	3p $^2P_{1/2}$ - 4s $^2S_{1/2}$	4.50	2.10e+02
H I	18756.0020	3s $^2S_{1/2}$ - 4p $^2P_{1/2}$	4.50	5.22e+01
H I	18756.1309	3d $^2D_{3/2}$ - 4f $^2F_{5/2}$	4.50	7.52e+02
H I	18756.1309	3p $^2P_{3/2}$ - 4d $^2D_{5/2}$	4.50	4.13e+02
H I	18756.1836	3p $^2P_{3/2}$ - 4d $^2D_{3/2}$	4.50	4.57e+01
H I	18756.1836	3d $^2D_{3/2}$ - 4p $^2P_{3/2}$	4.50	1.19e+00
H I	18756.2285	3d $^2D_{5/2}$ - 4f $^2F_{7/2}$	4.50	1.08e+03
H I	18756.2578	3d $^2D_{5/2}$ - 4f $^2F_{5/2}$	4.50	5.36e+01
H I	18756.3105	3d $^2D_{5/2}$ - 4p $^2P_{3/2}$	4.50	1.07e+01
H I	18756.3281	3p $^2P_{3/2}$ - 4s $^2S_{1/2}$	4.50	4.19e+02
H I	18756.3418	3d $^2D_{3/2}$ - 4p $^2P_{1/2}$	4.50	5.94e+00
He I	19094.5703	1s 3p 1P_1 - 1s 4d 1D_2	4.50	3.79e+01
S XI	19201.2285	2s ² 2p ² 3P_0 - 2s ² 2p ² 3P_1	6.35	8.27e+00
Si XI	19364.8320	2s 2p 3P_1 - 2s 2p 3P_2	6.25	3.46e+00
He I	19548.1758	1s 3d 3D_1 - 1s 4p 3P_0	4.50	4.08e+00
He I	19548.4277	1s 3d 3D_2 - 1s 4p 3P_1	4.50	9.21e+00
He I	19548.4570	1s 3d 3D_3 - 1s 4p 3P_2	4.50	1.71e+01
He I	19548.4629	1s 3d 3D_2 - 1s 4p 3P_2	4.50	3.06e+00
He I	19548.5957	1s 3d 3D_1 - 1s 4p 3P_1	4.50	3.06e+00
Si VI	19630.0449	2s ² 2p ⁵ $^2P_{3/2}$ - 2s ² 2p ⁵ $^2P_{1/2}$	5.60	1.56e+00
He I	20586.9004	1s 2s 1S_0 - 1s 2p 1P_1	4.50	6.80e+00
He I	21125.7852	1s 3p 3P_2 - 1s 4s 3S_1	4.50	1.87e+01
He I	21125.8828	1s 3p 3P_1 - 1s 4s 3S_1	4.50	1.12e+01
He I	21127.0918	1s 3p 3P_0 - 1s 4s 3S_1	4.50	3.75e+00
He I	21137.7969	1s 3p 1P_1 - 1s 4s 1S_0	4.50	3.22e+01
Ca XIII	22609.0898	2s ² 2p ⁴ 3P_1 - 2s ² 2p ⁴ 3P_0	6.60	1.91e+00
Al II	23594.9219	3s 4d 3D_3 - 3s 5p 3P_2	4.50	1.25e+00
Si IX	25846.4727	2s ² 2p ² 3P_1 - 2s ² 2p ² 3P_2	6.10	1.26e+00
He I	28550.2695	1s 4s 3S_1 - 1s 5p 3P_2	4.50	1.59e+00
He I	37035.5156	1s 4p 3P_2 - 1s 5d 3D_3	4.50	4.27e+00
He I	37035.6367	1s 4p 3P_1 - 1s 5d 3D_2	4.50	2.24e+00
He I	37037.0117	1s 4p 3P_0 - 1s 5d 3D_1	4.50	1.07e+00
He I	40377.2188	1s 4d 3D_2 - 1s 5f 3F_2	4.50	1.16e+00
He I	40377.2695	1s 4d 3D_3 - 1s 5f 3F_4	4.50	1.34e+01
He I	40377.3164	1s 4d 3D_3 - 1s 5f 3F_3	4.50	1.16e+00
He I	40377.3359	1s 4d 3D_2 - 1s 5f 3F_3	4.50	9.23e+00
He I	40377.5312	1s 4d 3D_1 - 1s 5f 3F_2	4.50	6.22e+00
He I	40409.3477	1s 4d 1D_2 - 1s 5f 1F_3	4.50	3.45e+00
He I	40490.0742	1s 4f 3F_3 - 1s 5g 3G_4	4.50	5.88e+00
He I	40490.1406	1s 4f 3F_4 - 1s 5g 3G_5	4.50	7.66e+00
He I	40490.2383	1s 4f 3F_2 - 1s 5g 3G_3	4.50	4.34e+00
He I	40490.3555	1s 4f 1F_3 - 1s 5g 1G_4	4.50	2.47e+00
H I	40521.8711	4p $^2P_{1/2}$ - 5d $^2D_{3/2}$	4.50	1.91e+01
H I	40521.9375	4s $^2S_{1/2}$ - 5p $^2P_{3/2}$	4.50	9.91e+00
H I	40522.2188	4p $^2P_{1/2}$ - 5s $^2S_{1/2}$	4.50	2.60e+01

Table 1: (continued)

Ion	λ (Å)	Transition	T_{\max}	Int
H I	40522.3164	4s $^2S_{1/2}$ - 5p $^2P_{1/2}$	4.50	4.95e+00
H I	40522.4805	4p $^2P_{3/2}$ - 5d $^2D_{5/2}$	4.50	3.44e+01
H I	40522.4805	4d $^2D_{3/2}$ - 5f $^2F_{5/2}$	4.50	5.83e+01
H I	40522.6133	4p $^2P_{3/2}$ - 5d $^2D_{3/2}$	4.50	3.82e+00
H I	40522.6602	4f $^2F_{5/2}$ - 5g $^2G_{7/2}$	4.50	5.66e+01
H I	40522.6602	4d $^2D_{5/2}$ - 5f $^2F_{7/2}$	4.50	8.31e+01
H I	40522.7266	4d $^2D_{5/2}$ - 5f $^2F_{5/2}$	4.50	4.16e+00
H I	40522.7617	4f $^2F_{7/2}$ - 5g $^2G_{9/2}$	4.50	7.60e+01
H I	40522.7930	4f $^2F_{7/2}$ - 5g $^2G_{7/2}$	4.50	4.05e+00
H I	40522.8594	4d $^2D_{5/2}$ - 5p $^2P_{3/2}$	4.50	2.29e+00
H I	40522.8594	4f $^2F_{7/2}$ - 5d $^2D_{5/2}$	4.50	1.11e+00
H I	40522.9570	4p $^2P_{3/2}$ - 5s $^2S_{1/2}$	4.50	5.20e+01
H I	40522.9883	4d $^2D_{3/2}$ - 5p $^2P_{1/2}$	4.50	1.26e+00
He I	41227.3047	1s 4p 1P_1 - 1s 5d 1D_2	4.50	1.78e+00
He I	42440.6797	1s 4d 3D_2 - 1s 5p 3P_1	4.50	1.25e+00
He I	42440.7344	1s 4d 3D_3 - 1s 5p 3P_2	4.50	2.34e+00
He I	42954.1094	1s 3s 3S_1 - 1s 3p 3P_0	4.50	1.00e+01
He I	42959.1094	1s 3s 3S_1 - 1s 3p 3P_1	4.50	3.01e+01
He I	42959.5156	1s 3s 3S_1 - 1s 3p 3P_2	4.50	4.99e+01
He I	46066.0078	1s 4p 1P_1 - 1s 5s 1S_0	4.50	3.07e+00
He I	46949.4375	1s 4p 3P_2 - 1s 5s 3S_1	4.50	7.04e+00
He I	46949.6367	1s 4p 3P_1 - 1s 5s 3S_1	4.50	4.23e+00
He I	46952.0586	1s 4p 3P_0 - 1s 5s 3S_1	4.50	1.41e+00
He I	108822.5703	1s 4s 3S_1 - 1s 4p 3P_2	4.50	1.39e+00