

Predicted XUV Line Intensities  
CHIANTI database - Version 10.0.2

Calculated with Constant pressure= 1.00e+16 (cm<sup>-3</sup> K)  
50.3 to 149.9 Å

Number of lines: 139

Minimum intensity = 2280.00

Units are: erg cm<sup>-2</sup> sr<sup>-1</sup> s<sup>-1</sup>

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

Calculated: Wed Jun 8 14:39:58 2022

Ionization Fractions file: chianti.ioneq  
ionization equilibrium: CHIANTI

produced as part of the CHIANTI atomic data base collaboration

Created on Fri Oct 9 11:46:20 2020

Elemental Abundance file: sun\_photospheric\_2015\_scott.abund

created for the CHIANTI atomic database by Peter Young, 16-Aug-2017

abundances (F to Ca):

Scott et al., 2015, A&A, 573, A25

DOI: 10.1051/0004-6361/201424109

abundances (Sc to Ni):

Scott et al., 2015, A&A, 573, A26

DOI: 10.1051/0004-6361/201424110

abundances (Cu & Zn):

Grevesse et al., 2015, A&A, 573, A27

DOI: 10.1051/0004-6361/201424111

abundances (other elements):

Asplund, M., Grevesse, N., Sauval, A.J., & Scott, P. 2009, ARAA, 47, 481

DOI: 10.1146/annurev.astro.46.060407.145222

comment:

This updates the Asplund et al. (2009) results for elements F and higher. The  
changes  
are mostly small.

Minimum abundance = 3.63078e-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	$\lambda$ (Å)	Transition	$T_{\max}$	Int
Fe XVII	50.2600	$2s^2 2p^5 3p \ ^3D_3 - 2s^2 2p^5 4d \ ^3F_4$	6.9	4.09e+03
Fe XVII *	50.3400	$2s^2 2p^5 3p \ ^3P_1 - 2s^2 2p^5 4d \ ^3D_2$	6.9	2.69e+03
Fe XVII *	50.3590	$2s^2 2p^5 3p \ ^1D_2 - 2s^2 2p^5 4d \ ^1F_3$	6.9	2.99e+03
Fe XVI	50.3610	$3s \ ^2S_{1/2} - 4p \ ^2P_{3/2}$	6.8	1.24e+04
Mg XI	50.4377	$1s 2s \ ^3S_1 - 1s 3p \ ^3P_2$	6.9	2.59e+03
Fe XVI	50.5650	$3s \ ^2S_{1/2} - 4p \ ^2P_{1/2}$	6.8	6.55e+03
Fe XVII *	50.6060	$2s 2p^6 3p \ ^1P_1 - 2s 2p^6 4d \ ^1D_2$	6.9	5.37e+03
Ni XVIII	51.0380	$3p \ ^2P_{3/2} - 4s \ ^2S_{1/2}$	6.9	3.69e+03
Ni XVIII	52.7200	$3d \ ^2D_{5/2} - 4f \ ^2F_{7/2}$	6.9	2.73e+03
Fe XV	52.9110	$3s^2 \ ^1S_0 - 3s 4p \ ^1P_1$	6.8	2.69e+03
Fe XVI	54.1260	$3p \ ^2P_{1/2} - 4d \ ^2D_{3/2}$	6.8	8.29e+03
Fe XVI	54.7100	$3p \ ^2P_{3/2} - 4d \ ^2D_{5/2}$	6.8	1.48e+04
Fe XVII	57.7100	$2s 2p^6 3p \ ^1P_1 - 2s 2p^6 4s \ ^1S_0$	6.9	3.79e+03
Mg X	57.8760	$1s^2 2s \ ^2S_{1/2} - 1s^2 3p \ ^2P_{3/2}$	6.9	9.72e+03
Mg X	57.9200	$1s^2 2s \ ^2S_{1/2} - 1s^2 3p \ ^2P_{1/2}$	6.9	4.92e+03
Fe XV	59.4050	$3s 3p \ ^1P_1 - 3s 4d \ ^1D_2$	6.7	3.81e+03
Fe XVI	62.8710	$3p \ ^2P_{1/2} - 4s \ ^2S_{1/2}$	6.8	1.18e+04
Mg X	63.1520	$1s^2 2p \ ^2P_{1/2} - 1s^2 3d \ ^2D_{3/2}$	6.8	6.26e+03
Mg X	63.2950	$1s^2 2p \ ^2P_{3/2} - 1s^2 3d \ ^2D_{5/2}$	6.8	1.05e+04
Fe XVI	63.7110	$3p \ ^2P_{3/2} - 4s \ ^2S_{1/2}$	6.8	2.44e+04
Ne X	65.6420	$2p \ ^2P_{3/2} - 3s \ ^2S_{1/2}$	7.1	3.09e+03
Mg X	65.6730	$1s^2 2p \ ^2P_{1/2} - 1s^2 3s \ ^2S_{1/2}$	6.8	2.60e+03
Mg X	65.8450	$1s^2 2p \ ^2P_{3/2} - 1s^2 3s \ ^2S_{1/2}$	6.8	5.15e+03
Fe XVI	66.2490	$3d \ ^2D_{3/2} - 4f \ ^2F_{5/2}$	6.8	1.22e+04
Fe XVI	66.3570	$3d \ ^2D_{5/2} - 4f \ ^2F_{7/2}$	6.8	1.76e+04
Fe XVII	68.5100	$2s^2 2p^5 3d \ ^1P_1 - 2s^2 2p^5 4p \ ^1S_0$	6.9	2.84e+03
Fe XV	69.6820	$3s 3p \ ^1P_1 - 3s 4s \ ^1S_0$	6.4	8.86e+03
Fe XV	73.4720	$3s 3d \ ^1D_2 - 3s 4f \ ^1F_3$	6.7	3.55e+03
Fe XVI	76.4970	$3d \ ^2D_{5/2} - 4p \ ^2P_{3/2}$	6.8	2.93e+03
Fe XIX	78.8890	$1s^2 2s^2 2p^4 \ ^3P_2 - 1s^2 2s 2p^5 \ ^1P_1$	7.0	6.07e+03
Fe XX	80.4890	$2s^2 2p^3 \ ^4S_{3/2} - 2s 2p^4 \ ^2P_{3/2}$	7.1	2.36e+03
Ni XXI	81.6890	$2s^2 2p^4 \ ^1D_2 - 2s 2p^5 \ ^1P_1$	7.1	2.92e+03
Ni XX	83.1790	$2s^2 2p^5 \ ^2P_{3/2} - 2s 2p^6 \ ^2S_{1/2}$	7.1	3.59e+04
Fe XX	83.2330	$2s^2 2p^3 \ ^2D_{3/2} - 2s 2p^4 \ ^2P_{1/2}$	7.1	2.88e+03
Ni XXIII	87.6670	$2s^2 2p^2 \ ^3P_1 - 2s 2p^3 \ ^3S_1$	7.2	3.58e+03
Ni XXI	88.8220	$2s^2 2p^4 \ ^3P_2 - 2s 2p^5 \ ^3P_1$	7.1	9.63e+03
Fe XVIII *	89.0170	$2s^2 2p^4 \ (^1D) 3d \ ^2G_{9/2} - 2s 2p^5 \ (^1P) 3d \ ^2F_{7/2}$	6.9	2.29e+03
Fe XVII	89.7600	$2s^2 2p^5 3s \ ^1P_1 - 2s 2p^6 3s \ ^1S_0$	6.9	1.51e+04
Fe XVII	90.3870	$2s^2 2p^5 3d \ ^3F_3 - 2s 2p^6 3d \ ^1D_2$	6.9	3.57e+03
Fe XX	90.5940	$2s^2 2p^3 \ ^2D_{3/2} - 2s 2p^4 \ ^2P_{3/2}$	7.1	7.14e+03
Fe XVII *	90.8200	$2s^2 2p^5 3s \ ^3P_2 - 2s 2p^6 3s \ ^3S_1$	6.9	2.37e+03
Fe XIX	91.0130	$1s^2 2s^2 2p^4 \ ^1D_2 - 1s^2 2s 2p^5 \ ^1P_1$	7.0	6.34e+04
Fe XXI	91.2680	$2s^2 2p^2 \ ^3P_0 - 2s 2p^3 \ ^3S_1$	7.1	3.67e+04
Fe XVII	91.5500	$2s^2 2p^5 3d \ ^1D_2 - 2s 2p^6 3d \ ^1D_2$	6.9	3.01e+03
Fe XVII *	91.6470	$2s^2 2p^5 3d \ ^3F_4 - 2s 2p^6 3d \ ^3D_3$	6.9	2.49e+03
Ni XXIII	91.8650	$2s^2 2p^2 \ ^3P_2 - 2s 2p^3 \ ^3S_1$	7.2	8.99e+03
Fe XVII	92.2710	$2s^2 2p^5 3d \ ^3D_3 - 2s 2p^6 3d \ ^1D_2$	6.9	5.09e+03
Fe XX	93.7810	$2s^2 2p^3 \ ^2D_{5/2} - 2s 2p^4 \ ^2P_{3/2}$	7.1	4.74e+04
Fe XVIII	93.9320	$2s^2 2p^5 \ ^2P_{3/2} - 2s 2p^6 \ ^2S_{1/2}$	6.9	4.17e+05

Table 1: (continued)

Ion	$\lambda$ (Å)	Transition	$T_{\max}$	Int
Ni XX	94.4950	$2s^2 2p^5 {}^2P_{1/2} - 2s 2p^6 {}^2S_{1/2}$	7.1	1.07e+04
Fe XX	94.6430	$2s^2 2p^3 {}^2D_{3/2} - 2s 2p^4 {}^2S_{1/2}$	7.1	1.03e+04
Ni XXI	95.8630	$2s^2 2p^4 {}^3P_2 - 2s 2p^5 {}^3P_2$	7.1	2.79e+04
Ni XXI	96.8030	$2s^2 2p^4 {}^3P_0 - 2s 2p^5 {}^3P_1$	7.1	4.03e+03
Fe XXI	97.8640	$2s^2 2p^2 {}^3P_1 - 2s 2p^3 {}^3S_1$	7.1	9.22e+04
Fe XX	98.0730	$2s 2p^4 {}^2D_{3/2} - 2p^5 {}^2P_{1/2}$	7.1	3.14e+03
Fe XVII	98.2490	$2s^2 2p^5 3s {}^3P_1 - 2s 2p^6 3s {}^1S_0$	6.9	8.64e+03
Ne VIII	98.2590	$1s^2 2p {}^2P_{3/2} - 1s^2 3d {}^2D_{5/2}$	6.7	2.56e+03
Fe XX	98.3550	$2s^2 2p^3 {}^2P_{3/2} - 2s 2p^4 {}^2P_{1/2}$	7.1	8.23e+03
Fe XXI	98.3930	$2s^2 2p^2 {}^1D_2 - 2s 2p^3 {}^1P_1$	7.1	8.83e+03
Ni XXI	100.2450	$2s^2 2p^4 {}^3P_1 - 2s 2p^5 {}^3P_1$	7.1	2.92e+03
Fe XVII	100.6400	$2s^2 2p^5 3d {}^1F_3 - 2s 2p^6 3d {}^1D_2$	6.9	3.94e+03
Fe XXII	100.7740	$1s^2 2s^2 2p {}^2P_{1/2} - 1s^2 2s 2p^2 {}^2P_{3/2}$	7.1	2.37e+04
Fe XIX	101.5500	$1s^2 2s^2 2p^4 {}^3P_2 - 1s^2 2s 2p^5 {}^3P_1$	7.0	1.68e+05
Fe XX	101.8190	$2s^2 2p^3 {}^2P_{1/2} - 2s 2p^4 {}^2P_{3/2}$	7.1	3.97e+03
Ni XXIV	102.1150	$2s^2 2p {}^2P_{3/2} - 2s 2p^2 {}^2P_{3/2}$	7.2	6.07e+03
Fe XXII	102.2130	$1s^2 2s^2 2p {}^2P_{1/2} - 1s^2 2s 2p^2 {}^2S_{1/2}$	7.1	3.19e+03
Fe XXI	102.2170	$2s^2 2p^2 {}^3P_2 - 2s 2p^3 {}^3S_1$	7.1	2.10e+05
O VIII	102.3550	$2s {}^2S_{1/2} - 3p {}^2P_{3/2}$	7.1	3.74e+03
O VIII	102.3920	$2p {}^2P_{1/2} - 3s {}^2S_{1/2}$	7.1	2.43e+03
O VIII	102.4900	$2p {}^2P_{3/2} - 3d {}^2D_{5/2}$	7.1	2.65e+03
O VIII	102.5500	$2p {}^2P_{3/2} - 3s {}^2S_{1/2}$	7.1	4.90e+03
Ni XXIII	103.2460	$2s^2 2p^2 {}^3P_1 - 2s 2p^3 {}^3P_1$	7.2	7.27e+03
Ni XXII	103.3090	$2s^2 2p^3 {}^4S_{3/2} - 2s 2p^4 {}^4P_{1/2}$	7.1	1.17e+04
Fe XVIII	103.9480	$2s^2 2p^5 {}^2P_{1/2} - 2s 2p^6 {}^2S_{1/2}$	6.9	1.38e+05
Ni XXIV	104.6250	$2s^2 2p {}^2P_{1/2} - 2s 2p^2 {}^2P_{1/2}$	7.2	3.80e+04
Ni XXII	106.0450	$2s^2 2p^3 {}^4S_{3/2} - 2s 2p^4 {}^4P_{3/2}$	7.1	2.27e+04
Fe XIX	106.1050	$1s^2 2s^2 2p^4 {}^1S_0 - 1s^2 2s 2p^5 {}^1P_1$	7.0	3.98e+03
Fe XIX	106.3170	$1s^2 2s^2 2p^4 {}^3P_1 - 1s^2 2s 2p^5 {}^3P_0$	7.0	9.39e+03
Fe XX	106.9610	$2s^2 2p^3 {}^2P_{1/2} - 2s 2p^4 {}^2S_{1/2}$	7.1	7.53e+03
Fe XXI	108.1170	$2s^2 2p^2 {}^3P_0 - 2s 2p^3 {}^3P_1$	7.1	4.86e+04
Fe XIX	108.3550	$1s^2 2s^2 2p^4 {}^3P_2 - 1s^2 2s 2p^5 {}^3P_2$	7.0	4.60e+05
Fe XX	108.8030	$2s^2 2p^3 {}^2P_{3/2} - 2s 2p^4 {}^2P_{3/2}$	7.1	3.96e+03
Ni XXI	109.3060	$2s^2 2p^4 {}^3P_1 - 2s 2p^5 {}^3P_2$	7.1	6.18e+03
Fe XX	109.6460	$2s 2p^4 {}^2D_{3/2} - 2p^5 {}^2P_{3/2}$	7.1	2.56e+03
Fe XIX	109.9520	$1s^2 2s^2 2p^4 {}^3P_0 - 1s^2 2s 2p^5 {}^3P_1$	7.0	7.87e+04
Fe XX	110.6270	$2s^2 2p^3 {}^2D_{3/2} - 2s 2p^4 {}^2D_{3/2}$	7.1	3.40e+04
Fe XX	111.5790	$2s 2p^4 {}^2D_{5/2} - 2p^5 {}^2P_{3/2}$	7.1	6.18e+03
Fe XIX	111.6950	$1s^2 2s^2 2p^4 {}^3P_1 - 1s^2 2s 2p^5 {}^3P_1$	7.0	6.04e+04
Ni XXIII	111.8440	$2s^2 2p^2 {}^3P_0 - 2s 2p^3 {}^3D_1$	7.2	5.30e+04
Fe XXI	113.2910	$2s^2 2p^2 {}^1D_2 - 2s 2p^3 {}^1D_2$	7.1	9.75e+03
Fe XX	113.3490	$2s^2 2p^3 {}^2D_{5/2} - 2s 2p^4 {}^2D_{5/2}$	7.1	2.34e+04
Cr XIX	114.0110	$2s^2 2p^2 {}^3P_2 - 2s 2p^3 {}^3S_1$	7.0	2.43e+03
Fe XXII	114.4090	$1s^2 2s^2 2p {}^2P_{3/2} - 1s^2 2s 2p^2 {}^2P_{3/2}$	7.1	1.59e+05
Mn XVIII	115.3650	$2s^2 2p^4 {}^3P_2 - 2s 2p^5 {}^3P_2$	6.9	2.97e+03
Fe XIX	115.3960	$1s^2 2s 2p^5 {}^1P_1 - 1s^2 2p^6 {}^1S_0$	7.0	6.03e+03
Fe XXII	116.2680	$1s^2 2s^2 2p {}^2P_{3/2} - 1s^2 2s 2p^2 {}^2S_{1/2}$	7.1	3.76e+04
Fe XXII	117.1440	$1s^2 2s^2 2p {}^2P_{1/2} - 1s^2 2s 2p^2 {}^2P_{1/2}$	7.1	8.38e+05
Fe XXI	117.4990	$2s^2 2p^2 {}^3P_1 - 2s 2p^3 {}^3P_1$	7.1	1.65e+05

Table 1: (continued)

Ion	$\lambda$ (Å)	Transition	$T_{\max}$	Int
Ni XXII	117.9170	$2s^2 2p^3 {}^4S_{3/2} - 2s 2p^4 {}^4P_{5/2}$	7.1	2.62e+04
Ni XXV	117.9390	$2s^2 {}^1S_0 - 2s 2p {}^1P_1$	7.2	1.01e+05
Ni XXIV	118.5540	$2s^2 2p {}^2P_{1/2} - 2s 2p^2 {}^2D_{3/2}$	7.2	3.47e+04
Fe XX	118.6800	$2s^2 2p^3 {}^4S_{3/2} - 2s 2p^4 {}^4P_{1/2}$	7.1	2.16e+05
Fe XXI	118.6970	$2s^2 2p^2 {}^3P_1 - 2s 2p^3 {}^3P_0$	7.1	3.07e+03
Co XXII	119.9270	$2s^2 2p^2 {}^3P_0 - 2s 2p^3 {}^3D_1$	7.1	2.86e+03
Fe XIX	119.9830	$1s^2 2s^2 2p^4 {}^3P_1 - 1s^2 2s 2p^5 {}^3P_2$	7.0	1.12e+05
Fe XXII	120.0020	$1s^2 2s 2p^2 {}^2D_{3/2} - 1s^2 2p^3 {}^2P_{1/2}$	7.1	2.68e+03
Fe XXI	121.2130	$2s^2 2p^2 {}^3P_2 - 2s 2p^3 {}^3P_2$	7.1	1.88e+04
Fe XX	121.8450	$2s^2 2p^3 {}^4S_{3/2} - 2s 2p^4 {}^4P_{3/2}$	7.1	4.14e+05
Cr XVII	122.9720	$2s^2 2p^4 {}^3P_2 - 2s 2p^5 {}^3P_2$	6.9	3.22e+03
Fe XXI	123.8310	$2s^2 2p^2 {}^3P_2 - 2s 2p^3 {}^3P_1$	7.1	2.73e+04
Mn XXI	124.0800	$2s^2 2p {}^2P_{1/2} - 2s 2p^2 {}^2P_{1/2}$	7.1	7.05e+03
Co XXIV	125.1500	$2s^2 {}^1S_0 - 2s 2p {}^1P_1$	7.2	5.96e+03
Fe XXI	128.7520	$2s^2 2p^2 {}^3P_0 - 2s 2p^3 {}^3D_1$	7.1	9.42e+05
Mn XIX	130.5780	$2s^2 2p^3 {}^4S_{3/2} - 2s 2p^4 {}^4P_{3/2}$	7.0	3.06e+03
Cr XX	131.5320	$2s^2 2p {}^2P_{1/2} - 2s 2p^2 {}^2P_{1/2}$	7.1	1.01e+04
Fe XIX	132.6190	$1s^2 2s^2 2p^4 {}^1D_2 - 1s^2 2s 2p^5 {}^3P_2$	7.0	2.14e+04
Fe XX	132.8400	$2s^2 2p^3 {}^4S_{3/2} - 2s 2p^4 {}^4P_{5/2}$	7.1	5.31e+05
Fe XXIII	132.9060	$2s^2 {}^1S_0 - 2s 2p {}^1P_1$	7.2	2.28e+06
Fe XXII	135.8120	$1s^2 2s^2 2p {}^2P_{1/2} - 1s^2 2s 2p^2 {}^2D_{3/2}$	7.1	7.11e+05
Fe XX	136.0520	$2s^2 2p^3 {}^2P_{3/2} - 2s 2p^4 {}^2D_{5/2}$	7.1	3.64e+03
Fe XXIII	136.5310	$2s 2p {}^3P_2 - 2p^2 {}^1D_2$	7.2	4.75e+03
Mn XX	138.3680	$2s^2 2p^2 {}^3P_0 - 2s 2p^3 {}^3D_1$	7.1	7.07e+03
Cr XVIII	139.9680	$2s^2 2p^3 {}^4S_{3/2} - 2s 2p^4 {}^4P_{3/2}$	6.9	3.76e+03
Fe XX	140.4210	$2s 2p^4 {}^2P_{3/2} - 2p^5 {}^2P_{3/2}$	7.1	3.43e+03
Mn XIX	141.0310	$2s^2 2p^3 {}^4S_{3/2} - 2s 2p^4 {}^4P_{5/2}$	7.0	4.15e+03
Mn XXII	141.0890	$2s^2 {}^1S_0 - 2s 2p {}^1P_1$	7.1	2.12e+04
Fe XX	142.0430	$2s^2 2p^3 {}^2D_{3/2} - 2s 2p^4 {}^4P_{1/2}$	7.1	2.51e+03
Fe XXI	142.1430	$2s^2 2p^2 {}^3P_1 - 2s 2p^3 {}^3D_2$	7.1	2.42e+04
Fe XXI	142.2810	$2s^2 2p^2 {}^3P_1 - 2s 2p^3 {}^3D_1$	7.1	5.94e+04
Ca XV	144.3090	$2s^2 2p^2 {}^3P_2 - 2s 2p^3 {}^3S_1$	6.7	2.57e+03
Fe XXIII	144.3890	$2s 2p {}^3P_1 - 2p^2 {}^3P_2$	7.2	2.97e+03
Mn XXI	145.4460	$2s^2 2p {}^2P_{1/2} - 2s 2p^2 {}^2D_{3/2}$	7.1	5.92e+03
Fe XXI	145.7330	$2s^2 2p^2 {}^3P_2 - 2s 2p^3 {}^3D_3$	7.1	9.57e+03
Fe XXIII	147.2540	$2s 2p {}^3P_0 - 2p^2 {}^3P_1$	7.2	6.81e+03
Ni XI	148.3770	$3s^2 3p^6 {}^1S_0 - 3s^2 3p^5 3d {}^1P_1$	6.2	2.91e+03
Cr XIX	148.6810	$2s^2 2p^2 {}^3P_0 - 2s 2p^3 {}^3D_1$	7.0	8.67e+03
Fe XXIII	149.2110	$2s 2p {}^1P_1 - 2p^2 {}^1S_0$	7.2	6.72e+03
Cr XVIII	149.8280	$2s^2 2p^3 {}^4S_{3/2} - 2s 2p^4 {}^4P_{5/2}$	6.9	5.27e+03
Cr XXI	149.9070	$2s^2 {}^1S_0 - 2s 2p {}^1P_1$	7.1	3.31e+04