CHIANTI - An atomic database for X-EUV spectral lines

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Abstract

CHIANTI provides a database of atomic energy levels, wavelengths, radiative transition probabilities and electron excitation data for a large number of ions of astrophysical interest. It also includes a suite of Interactive Data Language (IDL) programs to calculate optically thin synthetic spectra and to perform spectral analysis and plasma diagnostics. This database allows the calculation of theoretical line emissivities necessary for the analysis of optically thin emission line spectra.

The first version (1.01) of the CHIANTI database was released in 1996 $p$aper1. The second version, released in 1999, included continuum emission and data for additional ions (Landi et al. 1999). Both versions of the CHIANTI database have been used extensively by the astrophysical and solar communities to analyze emission line spectra from astrophysical sources.

Now the CHIANTI database has been extended to wavelengths shorter than 50Å by including atomic data for the hydrogen and helium isoelectronic sequences, inner-shell transitions and satellite lines and several other ions. In addition, some of the ions already present in the database have been updated and extended with new atomic data from published calculations.

CATEGORY: NORMAL STARS AND WHITE DWARFS