CHIANTI - an atomic database for astrophysical plasmas

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The CHIANTI spectral code consists of an atomic database and a suite of computer programs to calculate the optically thin spectrum of astrophysical objects and carry out spectroscopic plasma diagnostics. The database includes atomic energy levels, wavelengths, radiative transition probabilities, collision excitation rate coefficients, ionization and recombination rate coefficients, as well as data to calculate free-free, free-bound and two-photon continuum emission. All CHIANTI data are critically evaluated in two different ways: by comparing individual atomic data and rates with other calculations and laboratory measurements, and by comparing predicted spectral line intensities with observed spectra from the laboratory (when available) and from astrophysical sources.
In this talk, I will introduce the main features of CHIANTI, discuss its current status in light of current and future atomic data needs, describe the past and ongoing activities to benchmark and validate CHIANTI atomic data and rates, and outline future developments of the database.