Calculation of temperature using a thermal balance of electrons

Jiří Kubát

Astronomický ústav AV ČR, 251 65 Ondřejov, Czech Republic

Instead of the standard equation of radiative equilibrium the equation of thermal balance of the electron gas is used for the determination of the temperature structure of the stellar atmosphere. The thermal balance method is extremely useful in outer parts of stellar atmospheres with optically thick lines, where sometimes the common method based on radiative equilibrium fails to converge. On the other hand, thermal balance method sometimes fails at the inner parts of the atmosphere where collisions dominate.