

CHAPTER OVERVIEW

10: Line Profiles

Spectrum lines are not infinitesimally narrow; they have a finite width. A graph of radiance or intensity per unit wavelength (or frequency) versus wavelength (or frequency) is the *line profile*. There are several causes of line broadening, some internal to the atom, others external, and each produces its characteristic profile. Some types of profile, for example, have a broad core and small wings; others have a narrow core and extensive, broad wings. Analysis of the exact shape of a line profile may give us information about the physical conditions, such as temperature and pressure, in a stellar atmosphere.

[10.1: Natural Broadening \(Radiation Damping\)](#)

[10.2: Thermal Broadening](#)

[10.3: Microturbulence](#)

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[10.5: Pressure Broadening](#)

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