

Spectral diagnostics of the heating and dynamics of the solar chromosphere

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The solar chromosphere is a highly dynamic and inhomogeneous layer in which spectral lines are formed under non-LTE conditions making the spectral diagnostics relatively difficult. In particular, during solar flares, the chromosphere is heated by non-thermal electrons (or heat conduction) from the corona, which produce hard X-ray emission and result in enhancements in chromospheric line emission, UV emission and possibly white-light emission. The chromosphere is also believed to be the energy release site of some small-scale activities like Ellerman bombs. Here, I make a brief review of the recent progress in diagnosing the heating and dynamics of the chromosphere in various solar activities using multi-wavelength line and continuum observations by especially ground-based telescopes.