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Solar atmospheric modelling and diagnostics

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Radiation is the dominant energy transport mechanism in the solar atmosphere, and it is therefore important to have a good description of radiative transfer when modelling the solar atmosphere. For modelling purposes, it is only important to capture the radiative cooling/heating and not the details of the spectrum. For diagnostic purposes, we need the detailed spectrum and 3D radiative transfer modelling is necessary, at least for diagnostic lines formed in the outer atmosphere. I will discuss radiative transfer within this context of solar atmospheric modelling (multi-group opacities without and with scattering, non-equilibrium ionization) and diagnostics (3D non-LTE).

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