

Elemental abundance gradients in galactic discs are important to our understanding the formation and evolution of spiral galaxies. Recombination lines provide the most accurate abundances because of their weak dependence on the gas electron temperature and density but most of the observed emission lines in nebulae are collisionally excited. The intensities of these lines depend exponentially on electron temperature thus the nebular to auroral line intensity ratios must be used in order to derive it. When the auroral lines are not strong enough, it is possible to use the cooling properties of the ionised gas to produce empirical calibrations relating the intensities of the stronger nebular lines.

However, the different metallicity regimes present in the extended disc of a spiral galaxy represent a challenge when determining an abundance gradient. In this session we are going to discuss which is the best method to derive abundances of different ions consistently and will see examples of galaxies observed with fibers, slits and integral field spectroscopy.