

Calibration of Blue Emission Line Widths in Spiral Galaxies

Young-Jong Sohn

Center for Space Astrophysics, Yonsei University

HII region emission line of H alpha 6563A is mostly often used in study of galaxy rotation at low- z . However, optical line widths of distant spiral galaxies ($z > 4$) will have to be measured using blue optical emission lines, such as [OII] 3727A, H beta 4861A, [OIII] 4959A, 5007A. There has been assumed that the spatial distributions and velocity fields of these blue emission lines are similar to those of H alpha. However, some uncertainty still remains regarding the shape of these blue emission line profiles, as they are affected by dust absorption much more severely than H alpha. Moreover, the radial distributions of [OII] and [OIII] will depend on the abundance and temperature of the HII regions in a complicated way compared to H alpha. Here, we discuss the first careful intercomparison of optical rotation curves for blue emission lines and H alpha at low- z using the optical rotation curves for 33 Sc galaxies.