CCD ECHELLOGRAM OF THE STARBURST GALAXY TOL 1924-416

Masanori Iye
Tokyo Astronomical Observatory, Japan
European Southern Observatory

The starburst galaxy Tol 1924-416 was observed on May 18, 1985 using an echelle spectrograph coupled with a cooled CCD camera (CASPEC) mounted at the Cassegrain focus of the ESO 3.6-m telescope. The echellogram covers the 4320-5260 A spectral range with 0.33 A/pixel and a spatial extent of 12 arcsec at 1.5 arcsec seeing. The estimated spectral resolution is 25 km s^{-1} and the velocity calibration error is as small as 3 km s^{-1}.

The obtained echellogram shows He I and He II emission in addition to strong Balmer lines and [O III] emission. Among others, a high optical depth line He I 5016 is detected.

A preliminary analysis has revealed that the mean heliocentric velocity is 2843±9 km s^{-1}. A small but distinct rotation of about 4 km s^{-1} $arcsec^{-1}$ has been found for the central region. The FWHM of the emission lines is about 85 km s^{-1}. The emission line profiles are slightly asymmetric.

The line ratio of [O III] 5007/4363 gives T_e = 13 500 K. The line ratio of [O III] 5007/4959 is found to be 3.2±0.1, deviating from the theoretical value of 2.9.

The present high resolution spectroscopic observation thus provides spatially resolved kinematical and physical information for the first time on the nuclear H II region of the starburst galaxy Tol 1924-416. The full paper will be published elsewhere.

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