

High Resolution Spectrum of the Starburst Galaxy Tololo 1924-416 (= ESO 338-IG04) (Proceedings of Japan-France Seminar on Chemical Evolution of Galaxies with Active Star Formation)

著者	IYE Masanori
journal or publication title	The science reports of the Tohoku University. Ser. 8, Physics and astronomy
volume	7
number	3
page range	343-343
year	1987-03-20
URL	http://hdl.handle.net/10097/25623

High Resolution Spectrum of the Starburst Galaxy
Tololo 1924-416 (= ESO 338-IG04)

Masanori IYE

Tokyo Astronomical Observatory, Mitaka 181 Japan

A high resolution (0.5A) spectrum of the central region of a starburst galaxy Tololo 1924-416 is presented. HeI emission at 5016A was detected for the first time in an extragalactic object. The observed line ratio $I(\text{HeI}\lambda 5016)/I(\text{HeI}\lambda 4471) = 0.5$ indicates a very large optical depth consistent with the classical case B approximation. Accurate rotation curve and velocity dispersion curve are derived for the central 2 kpc region of this galaxy where an intense burst of star formation takes place.

A decomposition analysis of the asymmetric emission line profiles of [OIII] $\lambda\lambda$ 5007, 4959, and H β suggests the presence of two systems of emitting clouds. A He/H abundance ratio of $0.082_{\pm 0.014}$ is derived. The measured line ratio of [OIII], $I(\lambda 5007)/I(\lambda 4959) = 3.17_{\pm 0.04}$, suggests a possible discrepancy with the theoretical predictions.

The full version of this paper will be published elsewhere.