

EMISSION LINE GAS IN EARLY-TYPE GALAXIES: KINEMATICS AND PHYSICAL CONDITIONS

S.E. Deustua (IGPP/LLNL), A.P. Koratkar (STScI) and G. MacAlpine (U. Mich)

Recent studies have found line emission gas in nearby early-type galaxies, but the properties of the emission-line gas in these "normal" galaxies remain enigmatic. In terms of activity in the nucleus, these LINER-like galaxies form an important link between giant H II region galaxies and low-luminosity Seyferts. Despite their large numbers and evolutionary significance, we do not know whether these galaxies form a homogeneous class of objects; nor do we know how the distribution, and kinematics of the line emission gas are affected by the host galaxy's environment or by the properties of the central engine if present.

To address these issues we are conducting a magnitude and volume limited survey of nearby early-type galaxies at Lick Observatory and the Michigan-Dartmouth-MIT Observatory. We have selected ≈ 100 galaxies from radio catalogs: the "monsters" from Condon and Broderick (1988) and Condon, Frayer and Broderick (1991), the possibly active galaxies from Wrobel and Heechen (1990) and from Sadler, Jenkins and Kotanyi (1989). A large sample is necessary because while studies of individual "LINERs" have led to a certain understanding of the phenomenon, these studies have not provided a global framework.

Here we present results from our first run of medium resolution ($\sim 5\text{\AA}$ FWHM) spectroscopy. Kinematic data and line ratios determined along the major and minor axes of 6 galaxies are discussed. The information gleaned from spectroscopic data, when combined with data at other wavelengths, will enable a thorough investigation into the nature of low luminosity nuclear activity.

References

- Condon, J.J. and Broderick, J.J., 1988, *A.J.*, **96**, 30.
Condon, J.J., Frayer and Broderick, J.J., 1991, *A.J.*, **101**, 362.
Sadler, E.M., Jenkins, C.R. and Kotanyi, C.G., 1989, *M.N.R.A.S.*, **240**, 591.
Wrobel, J.M., 1991, *A.J.*, **101**, 125.
Wrobel, J.M. and Heeschen D., 1991, *A.J.*, **101**, 148.