CONTRIBUTED PAPERS 635

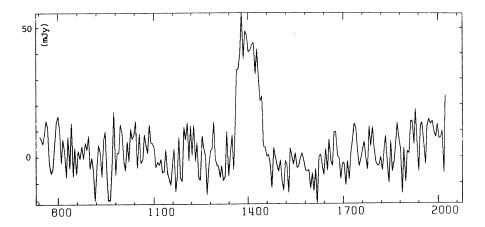


Figure 1. Average (linear H and V polarizations) HI profile of Ames 802, with a velocity resolution of 5.3 km s⁻¹ (without removal of the instrumental baseline). Radial velocities are given in terms of heliocentric optical redshift.

REFERENCES

Arakelian, M.A., Dibai, E.A., Esipov, V.F. 1975 Astrophysics 11,8
Binggeli, B., Sandage, A., Tammann, G.A. 1985 Astron. J. 90,1681
Huchra, J., Davis, M., Latham, D., Tonry, J. 1983 Astrophys. J. Suppl. Ser. 52,89
Lake, G., Schommer, R.A. 1984 Astrophys. J. 280,107
Nilson, P. 1973 Uppsala General Catalogue
Tonry, J.L. 1981 Astrophys. J. 251, L1

NGC 2363, A GIANT EXTRAGALACTIC HII REGION

M. Peimbert, M.Peña, S. Torres-Peimbert Instituto de Astronomía, Universidad Nacional Autónoma de México.

NGC 2363 is one of the extragalactic HII regions with the highest surface brightness in $H\alpha$ and in $\lambda5007.$ We discuss the physical conditions within this star-forming region. In particular, from spectrophometric studies in the 1200-7400 A range we have determined its chemical abundance. We find that the O/H is an order of magnitude smaller than in the solar vicinity, and that the C/O ratio is a factor of two smaller.

636 CONTRIBUTED PAPERS

The N/C and N/H ratios in NGC 2363 compared to those in Orion Nebula are ~ 1 and $\sim 1/17$, respectively. We also derive a value of N(He)/N(H) = 0.077 \pm 0.006 (3 σ), which corresponds to Y = 0.235 \pm 0.013 (3 σ). A full account of these results is given in Astron. Astrophys. 158, 266, 1986.

MRK 273: A NEW OH MEGAMASER

L. Bottinelli^{1,2}, D. Fraix-Burnet¹, L. Gouguenheim^{1,2}, I. Kazès¹, A.M. Le Squeren¹, I. Patey¹, L.J. Rickard³, B.E. Turner³

¹Département de Radioastronomie, Observatoire de Paris-Meudon F-92195 Meudon, France

²Université Paris-Sud, Centre d'Orsay, F-91405 Orsay Cedex, France

³National Radio Astronomy Observatory, Edgemont Road, Charlottesville, VA 22901 USA

Since the first detection of OH molecules in external galaxies, in 1971, hydroxyl observations have led to several detections of absorption lines in extragalactic systems. Though more seldom, OH maser emission has been observed in the 1667 and 1665 MHz main lines in NGC 253 and in the 1667 MHz line in M82. More recently, very powerful masers have been observed in IC 4553, NGC 3690 and Mrk 231.

We report here on the detection of a new strong OH maser (Figure 1) and a broad HI absorption line (Figure 2) in the peculiar galaxy Mrk 273 which has been made with the Nançay radio telescope as part of a survey of galaxies with strong infrared emission (Bottinelli et al.: 1985, IAU Circ. 4074).

Mrk 273 has most of its properties comparable to the three other galaxies in which powerful OH megamasers have been detected: continuum flux of a few tenths of Jansky, relatively broad emission components in the 1667 MHz line, hyperfine ratio 1667/1665 around 3, very broad HI absorption line and high value of the IR to blue luminosity ratio. The powerful maser emission can be interpreted as being due to the amplification of the radio continuum nuclear emission by foreground molecular gas clouds (Baan, W.A.: 1985, Nature 315, 26). Available IR data do not allow to conclude whether Mrk 273 is a Seyfert or a starburst galaxy.

It is generally considered that these OH strong masers have experienced recent bursts of star formation and that this phenomenon is due to the coexistence of: a radio continuum source, UV radiation (converted in IR by the dust) and molecular gas clouds.