The N/C and N/H ratios in NGC 2363 compared to those in Orion Nebula are $\sim$ 1 and $\sim$ 1/17, respectively. We also derive a value of N(He)/N(H) = 0.077±0.006 (3σ), which corresponds to Y = 0.235±0.013 (3σ). 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-Burnet[1], L. Gouguenheim[1,2], I. Kazès[1], A.M. Le Squeren[1], I. Patey[1], L.J. Rickard[3], B.E. Turner[3]
[1]Département de Radioastronomie, Observatoire de Paris-Meudon F-92195 Meudon, France
[2]Université Paris-Sud, Centre d'Orsay, F-91405 Orsay Cedex, France
[3]National 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 H I 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 H I 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.

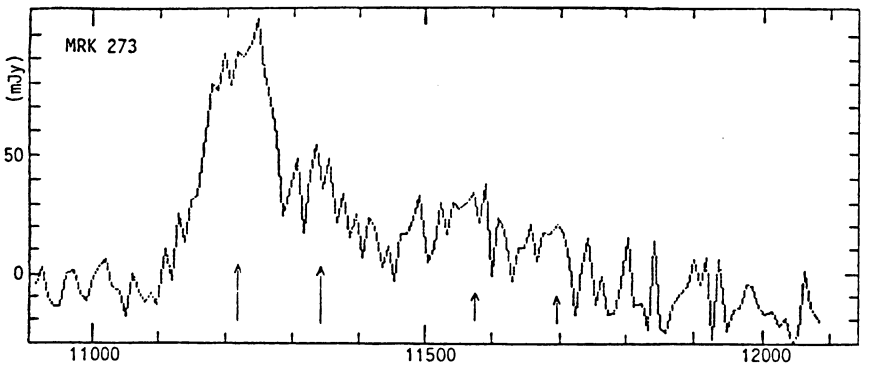

Fig. 1. Average (linear H and V polarizations) OH spectrum of Mrk 273, centered for the rest frequency of the 1667 MHz transition and at the observing velocity 11525 km s^{-1}, with a velocity resolution of 9 km s^{-1}. Radial velocities are given in terms of heliocentric optical redshift $c\ \Delta\lambda/\lambda_0$. The left-hand feature corresponds to the 1667 MHz transition. The 1665 MHz transition is redshifted 352 km s^{-1} relative to the 1667 MHz feature. The arrows indicate the systemic velocities of 11220 km s^{-1} and 11340 km s^{-1} for the 1667 MHz components; short arrows correspond to 1665 MHz components.

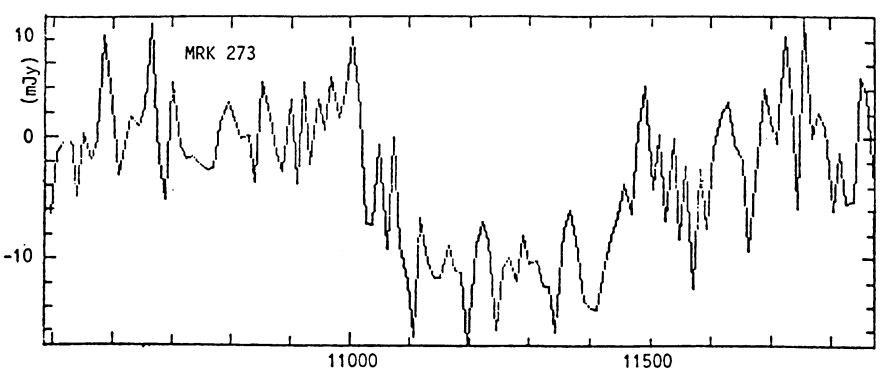

Fig. 2. Average (linear H and V polarizations) H I profile of Mrk 273, with a velocity resolution of 10.5 km s^{-1}, after removal of the instrumental baseline by using a first-order polynomial. Radial velocities are given in terms of heliocentric optical redshift $c\ \Delta\lambda/\lambda_0$.

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