



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.

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NGC 2363, A GIANT EXTRAGALACTIC H II REGION

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NGC 2363 is one of the extragalactic H II regions with the highest surface brightness in $H\alpha$ and in $\lambda 5007$. We discuss the physical conditions within this star-forming region. In particular, from spectrophotometric studies in the 1200–7400 Å 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.

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 $N(\text{He})/N(\text{H}) = 0.077 \pm 0.006$ (3σ), which corresponds to $Y = 0.235 \pm 0.013$ (3σ). A full account of these results is given in *Astron. Astrophys.* 158, 266, 1986.

MRK 273: A NEW OH MEGAMASER

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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.