MON R2: A BLISTER TYPE H II REGION

M. Massi, M. Felli, M. Catarzi
Osservatorio di Arcetri, Florence, Italy
M. Simon
State University of New York, Stony Brook, N.Y. USA

The compact H II region MONR2 has been studied with the VLA at 6 and 1.3 cm (Massi, Felli, and Simon 1985). With a resolution of 1" the source is now well resolved. The H II region has a circular shape 27" in diameter and a non uniform surface brightness distribution. The peak of the emission is concentrated in a small sharp strip along the SE edge.

This is suggestive of a blister type configuration in which the brightest part represents the ionization front which erodes a dense molecular cloud partially surrounding the H II region.

To reproduce the observed surface brightness distribution we have used a shell type configuration in which the ionized gas is confined in a thin spherical layer, i.e. the density contrast between the shell and the cavity is at least an order of magnitude. We have also let the volume emission measure vary along the shell. To create this effect we have displaced the ionizing star from the centre of the shell, so that parts of the shell will experience different ionizing fluxes, depending on the distance. Such a simple configuration is capable to give a good fit of the observed surface brightness distribution.

Comparison with IR maps of Beckwith *et al.* (1976) indicates that the sharp radio ridge coincides with an extended 20 μm source, while the position of the exciting star derived from our model coincides with the 1.65 μm peak which is believed to be the heavily obscured ionizing star of the nebula.

On the side opposite to the sharp edge, the radio emission decreases smoothly, indicating that the ionized gas is free to expand in this direction. To study the dynamics of the gas flow in the cavity as well as the mechanisms responsible for the confinement of the gas in the shell, we have re-observed the source with the VLA in the H69α recombination line ($\lambda \sim 2$ cm).

Preliminary results show the presence of a double peaked line, with a velocity separation between peaks of ~ 23 km s^{-1}.

REFERENCES

Massi, M., Felli, M., and Simon, M.: 1985, Astron. Astrophys. in press.
Beckwith, S., Evans II, N.J., Becklin, E.E., and Neugebauer, G.: 1976, Astrophys. J. 208, 390.