RESOLVED STRUCTURE IN THE NUCLEAR REGION OF THE ULTRALUMINOUS INFRARED GALAXY MRK 273

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As an example of the power of near-infrared (NIR) Adaptive Optics imaging in the detailed study of central regions of galaxies, we present high-resolution K-band imaging of Mrk 273, in combination with interferometric radio continuum data.

1. Introduction

Ultraluminous infrared galaxies (ULIRGs) are among the brightest known galaxies, some with $L_{bol} \geq 10^{12} L_{\odot}$, comparable with quasars. They are probably powered by AGNs or massive nuclear starbursts, triggered by galactic mergers. Mrk 273, one of the most luminous ULIRGs, was reported to have multiple structure at the scale of $\sim$1 arcsec in the NIR (Majewski *et al.*, 1993) and at 3.6 cm (Condon *et al.*, 1991). We report new K-band and radio continuum images, all with resolution better than 150 mas.

2. Observations

The K-band image was obtained in March 1997 with the CFHT using the adaptive optics system PUEO, and the NIR camera MONICA. The

Y. Sofue (ed.), The Central Regions of the Galaxy and Galaxies, 111-112.

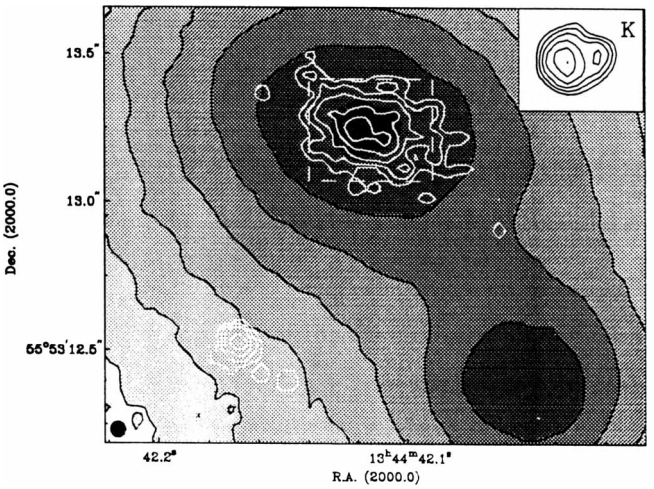

Figure 1. Contours of the 6 cm radio image overlaid on the K band image of the nuclear region of Mrk 273. The inset shows the twin peaks region in K.

corrected spatial resolution is better than 150 mas. Mrk 273 was observed at 6 cm and 18 cm with MERLIN, with a beam size of 55 mas at 6 cm and 170 mas at 18 cm.

3. Central Morphology of Mrk 273

The morphology of the central kpc region of Mrk 273 is shown in Fig. 1. The main multiple structure reported before is confirmed, but at 50 mas resolution at 6 cm, the center of the main component is resolved into two peaks, separated by 90 ± 5 mas ($\sim$70 pc). The K image also shows a double-peaked feature (Fig. 1).

4. Summary

We have combined state-of-the-art radio and NIR imaging, all at resolutions around 150 mas, to study the nuclear region of the ULIRG Mrk 273. The radio source within the main component is resolved into a twin-peaked structure. A similar double structure is detected in our K-band image. The two peaks could represent distinct core remnants from a recent merger. More discussion can be found in Knapen *et al.* (1997).

References

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Knapen, J. H., Laine, S., Yates, J., Robinson, A., Richards, A.M.S., Doyon, R., Nadeau, D. 1997, ApJL, in press
Majewski, S.R., Hereld, M., Koo, D.C., Illingworth, G.D., Heckman, T.M. 1993, ApJ 402, 125

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