SN 1987A DECONVOLVED BY MIM

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Modelling of PNs from blurred images, as from the *Hubble Space Telescope*, needs good deconvolution, and the better that is, the more reliable are the results. As an example, we have MIM-deconvolved the HST image of SN 1987A taken in August 1990 by the FOC in [O III] λ5007 Å (F501N). MIM (*minimum information method*) is a linear deconvolution method with a local smoothness constraint (Pfleiderer 1991). Our results are similar to those already published (Jakobson et al. 1991, Panagia et al. 1991) but we were able to decrease some of the uncertainties. The ring, centered on the SN, has diameter 1680 ± 20 mas ($\equiv$ 1.3 ly) and tilt $44.5° \pm 1.5°$ (Fig 1.). The lumps deviate from the ellipse by up to ≤ 0.05 ly , the ratio of brightest to faintest knots being ≈ 10 (Fig.3).The SN is resolved (Fig.2), being *not* a uniformly illuminated disk but brighter in the center. Its FWHM is 100 ± 10 mas, i.e. an average expansion velocity since the explosion of $v \approx 3\,500$ km s^{-1}.

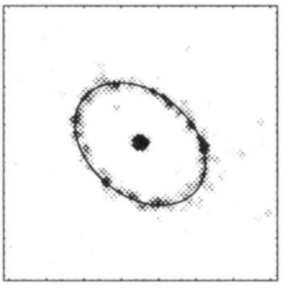

FIG. 1 MIM - processed image. The displayed area is a 141 pixel square submatrix.

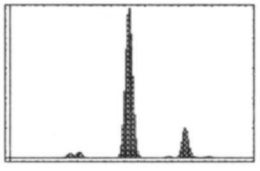

FIG. 2 The flux (in arbitrary units) along a line centered on the SN.

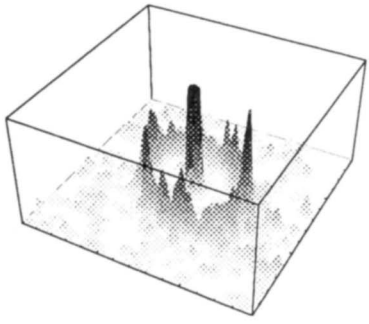

FIG. 3 North is to the upper right corner, and east is to the upper left corner.

References

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Panagia, N.,Gilmozzi, R.,Machetto, F.,Adorf, H. M.,Kirshner, R.P.: 1991, *ApJ* **380**, L23
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