

## IV. Envelopes

## IR Fabry-Perot Imaging of NGC 3132

L.E. Allen, M.C.B. Ashley, S.D. Ryder, J.W.V. Storey, Y-S. Sun and M.G. Burton

University of New South Wales

Near-infrared ( $1-3\mu\text{m}$ ) emission lines of molecular and ionized hydrogen are excellent tools for investigating the morphology, energetics and kinematics of planetary nebulae, especially those PNe which contain large amounts of dust and are thus obscured at shorter wavelengths. The southern planetary nebula NGC 3132 was imaged with UNSWIRF (University of New South Wales Infrared Fabry-Perot) and IRIS on the 3.9m AAT. Images in the  $\text{H}_2$   $\nu=1-0$  S(1) and  $\text{H}_2$   $\nu=2-1$  S(1) lines at  $2.12\mu\text{m}$  and  $2.25\mu\text{m}$ , and in  $\text{HII Br}\gamma$  at  $2.16\mu\text{m}$  are presented.

Intensities were derived through the fitting of the instrumental (Lorentzian) profile to find the peak emission, and the fitted intensity images were calibrated from standard stars observed on the same night. Total fluxes in each of the three lines, measured within a rectangular aperture  $68'' \times 65''$  are as follows.  $\text{H}_2$  (1-0):  $5.87 \times 10^{-12} \text{ erg s}^{-1} \text{ cm}^{-2}$ ,  $\text{H}_2$  (2-1):  $6.31 \times 10^{-13} \text{ erg s}^{-1} \text{ cm}^{-2}$ , and  $\text{Br}\gamma$ :  $3.2 \times 10^{-12} \text{ erg s}^{-1} \text{ cm}^{-2}$ .

Contour plots of the calibrated intensity images (each  $1.7'$  on a side; north up) are shown. Contour levels of the first three are in units of  $10^{-14} \text{ erg s}^{-1} \text{ cm}^{-2}$ , and are as follows.  $\text{H}_2$  (1-0): 18-98, at intervals of 10.  $\text{H}_2$  (2-1): 3-20, 2.  $\text{Br}\gamma$ : 10-46, 4. The  $\text{H}_2$  (1-0)/ $\text{H}_2$  (2-1) line ratio map is contoured from 1-11 at intervals of 2.

