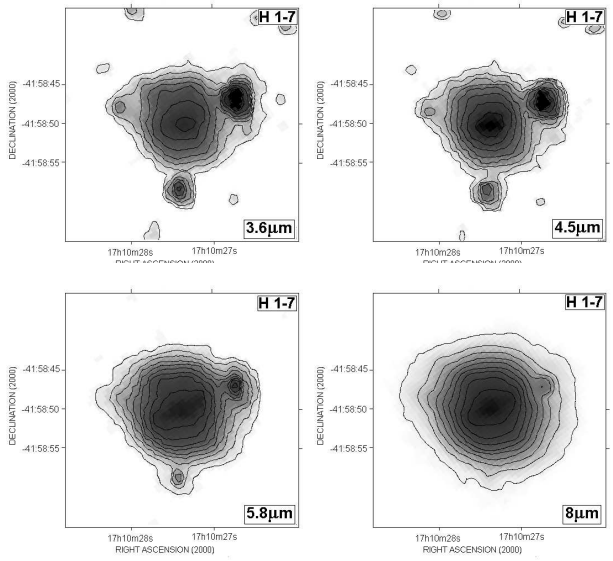

Fig. 14. IRAC mapping of H 1-7, where the contour parameters [A, B, C] are given by [5.8, 1.75, 0.2313] at 3.6 μm, [4.3, 0.57, 0.2150] at 4.5 μm, [12, 5.71, 0.1592] at 5.8 μm, and [30.6, 17.23, 0.1720] at 8.0 μm. Although the innermost contours are elliptical, the outer structure appears to be more circular. Note the strong variation in dimensions between shorter and longer MIR wavelengths.

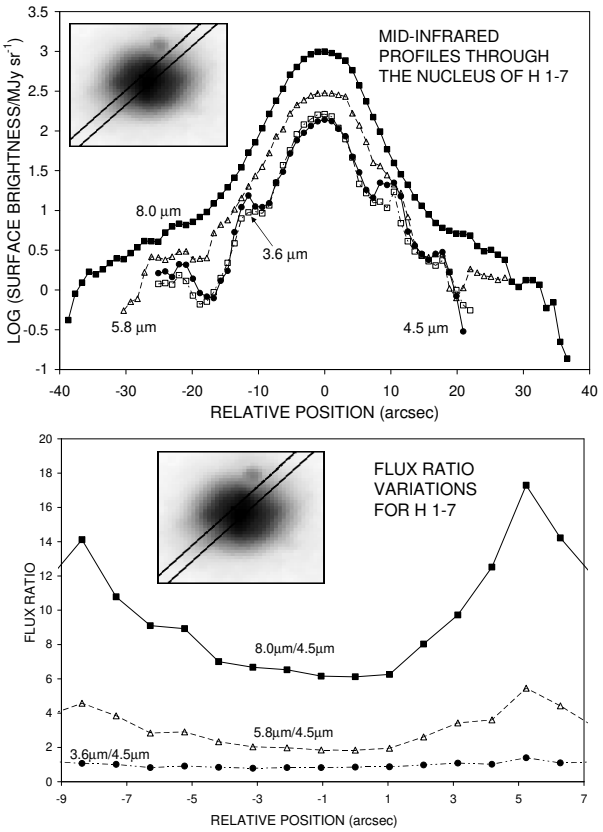

Fig. 15. As for Figure 3, but for the case of H 1-7; where in this case, the upper profiles are represented in terms of logarithmic surface brightness. The profiles have a mostly Gaussian emission fall-off, whilst there is evidence for an increase in 8.0 μm/4.5 μm and 5.8 μm/4.5 μm ratios towards the limits of the interior shell.

field star, having as it does stronger emission in the shorter wave IRAC channels), whilst the 8.0 μm profile extends to RP $\cong -36$ arcsec and +32 arcsec. There is, apart from this, very little discernible structure, and the appearance is similar to those of many other PNe observed in this survey. Examples of these (mostly more compact) sources are discussed in § 3.11.

Finally, the differing IRAC band ratios are shown in the lower panel of Figure 15. It is again clear, as for Pe 2-12 (§ 3.1), that there is a marked increase in 5.8 μm/4.5 μm and 8.0 μm/ 4.5μm ratios close to the edges of the central shell, perhaps arising from an increase in PAH emission within an enveloping PDR. There is little comparable variation for 3.6 μm/4.5 μm, however, which remains (for the most part) close to unity.

3.7. *M 1−29*

M 1-29 is an interesting PN with optical dimensions of ∼7.6 arcsec (Cahn & Kaler 1971; Moreno et al. 1988). The kinematics of the shell appear complex, with evidence for velocities of up to ±50 km s^{-1} (Gesicki, Acker, & Zijlstra 2003), and this, together with the VLA mapping of Zijlstra et al. (1989), has been used to suggest that it may be a poorly resolved bipolar outflow. Perusal of the VLA mapping suggests that it is more likely to have an elliptical structure, however, with higher levels of surface brightness at the minor axis limits of the shell. The size of the envelope at radio wavelengths appears to be $\cong 11.3 \times 6.5$ arcsec^2. Estimates of the ratios [He/H, N/O] have varied between [0.15, 0.93] (Chiappini et al. 2009), [0.145, 0.68–0.7] (Wang & Liu 2007), and [0.14, 0.32] (Perinotto 1991). It would seem clear, from the more recent estimates, that the nebula should be classified as a Type I source. The only previous analysis of the object in the infrared appears to have been undertaken by Cassasus et al. (2001), who find that the spectrum is flat between 7 and 14 μm, and shows no evidence for dust emission continua.

It appears clear, from our contour mapping (Figure 16), that there is a marked increase in dimensions between 3.6 and 8.0 μm, with the overall dimensions at the latter wavelength being of order