

## M1-67, nebula ejected from the $200 \text{ km s}^{-1}$ runaway WN8 star WR 124: constraints from HST imagery and complementary CFHT Fabry-Pérot interferometry

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### Discussion

First results concerning the *HST*- $H\alpha$  imaging of M1-67 are found in Grosdidier *et al.* (1998). With the *étalon* of the Université Laval (Québec), we have obtained complementary Fabry-Pérot  $H\alpha$  data using *CFHT-OSIS* (August 1996, seeing  $\simeq 0''.6$ , FSR  $\simeq 392 \text{ km s}^{-1}$ ,  $5.9 \text{ km s}^{-1}$  velocity sampling, see Figure 1). From these data, M1-67 appears more-or-less as a spherical *shell* seen almost exactly along its direction of rapid spatial motion in the ISM (Moffat *et al.* 1982). The radial velocity of the center of expansion is  $\sim 137 \text{ km s}^{-1}$  (Sirianni *et al.* 1998). Instead of appearing as a nice hollow-type shell projected on the sky, we probably see the cap of the bow-shock nearly straight on from behind. The far side is greatly intensity-enhanced compared to the near side, probably as a result of raming with the ISM. This was already claimed by Solf & Carsenty (1982). The bright bullets (see Grosdidier *et al.* 1998) are possibly, after all, Rayleigh-Taylor instabilities seen along the line of sight at or near the bow-shock head, as they slightly 'fall' back towards the star. More details will be found in Grosdidier *et al.* (1999 in preparation).

### References

- Grosdidier, Y., Moffat, A.F.J., Joncas, G., Acker, A. 1998, *ApJ* 506, L127  
Moffat, A.F.J., Lamontagne, R., Seggewiss, W. 1982, *A&A* 114, 135  
Sirianni, M., Nota, A., Pasquali, A., Clampin, M. 1998, *A&A* 335, 1029  
Solf, J., Carsenty, U. 1982, *A&A* 116, 54

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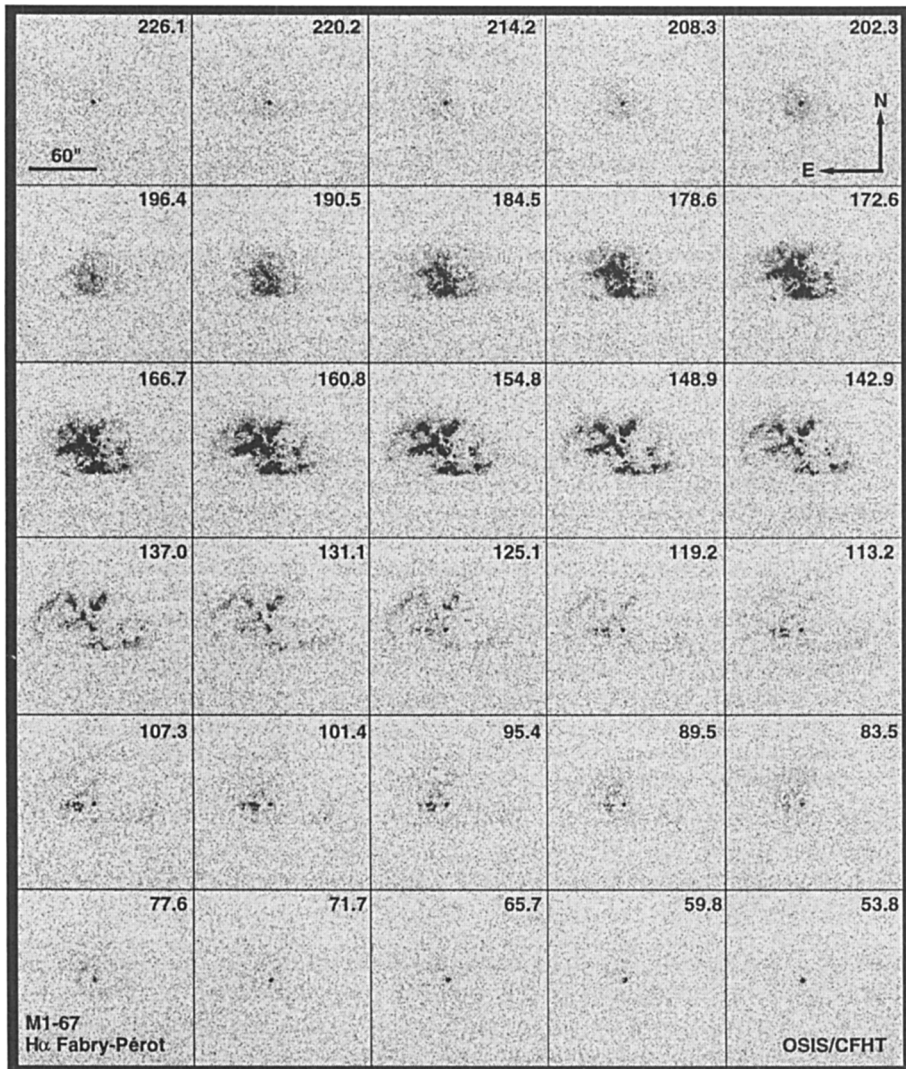


Figure 1. Maps of the *CFHT*-OSIS- $H\alpha$  intensity in M1-67 for the heliocentric radial velocities ( $RV$ , in  $\text{km s}^{-1}$ ) indicated in the upper righthand corners. Everywhere in the nebula except near the edges, a clear splitting of the  $H\alpha$  line into two components is detected; the high-velocity component is generally brighter (by a factor 8 or more) than the low-velocity component.