

# CFHT/SITELLE Observations of the Ejected WR Nebula M1-67

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**Abstract.** We present preliminary results of *Sitelle* observations of the M1-67 nebula surrounding the Wolf-Rayet stars WR 124.

**Keywords.** stars: Wolf-Rayet, stars: winds, outflows, ISM: individual (M1-67), ISM: bubbles

## 1. The M1-67 Nebula

M1-67, which surrounds the WN8h star WR 124, consist of N-enhanced and O-deficient gas (Esteban *et al.* 1991) with mixed-in dust (Vamvatira-Nakou *et al.* 2016). Sirianni *et al.* (1998) found that it consist of an expanding shell (46 km/s) and a bipolar outflow (88 km/s). The nebula was interpreted by Van der Sluys & Lamers (2003) as an LBV outburst interacting with the bow shock caused by the high velocity of this runaway star.

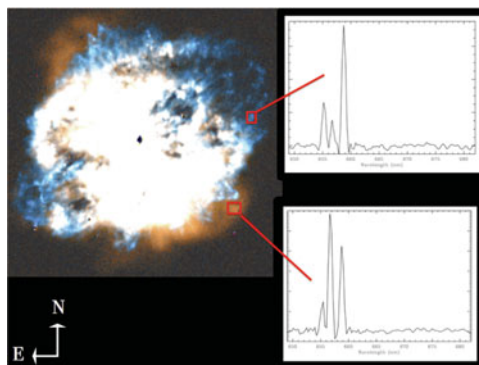
## 2. Sitelle Observations

In May 2016, we obtained a data cube of M1-67 using the optical imaging Fourier transform spectrograph *Sitelle*. This instrument, installed on the CFHT, covers a wavelength range from 350 to 900 nm with a field of view is  $11'' \times 11''$  (with  $0.32''$  pixels). In Figure 1, the  $H\alpha$  flux is shown in red and the  $[NII]\lambda 6548, 6584$  flux in blue. Two different structures can clearly be seen: a NE-SW oval shape region where hydrogen is dominant (bottom) and a NW-SE filamentary ring in which nitrogen dominates (top).

This data will provide density, temperature and abundances for the entire nebula and allow us to kinematically separate the different components of the expanding gas. This will allow us to shed new light on the past evolutionary phases undergone by the star.

## References

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**Figure 1.** Sitelle line-map images of M1-67. Red is  $H\alpha$ , Blue is  $[NII]$ .