

# The sub-arcsecond dusty environment of Eta Carinae

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The core of the nebula surrounding Eta Carinae has been observed with the VLT Adaptive Optics system NACO and with the interferometer VLT/MIDI to constrain spatially and spectrally the warm dusty environment and the central object. In particular, narrow-band images at 3.74 and 4.05 micron reveal the butterfly shaped dusty environment close to the central star with unprecedented spatial resolution. A void whose radius corresponds to the expected sublimation radius has been discovered around the central source. Fringes have been obtained in the Mid-IR which reveal a correlated flux of about 100-Jy situated 0.3" south-east of the photocenter of the nebula at 8.7 micron, which corresponds with the location of the star as seen in other wavelengths. This correlated flux is partly attributed to the central object, and these observations provide an upper limit for the SED of the central source from 2.2 to 13.5 micron. Moreover, we have been able to spectrally disperse the signal from the nebula itself at PA=318 degree, i.e. in the direction of the bipolar nebula (310 degree) within the MIDI field of view of 3 arcsec. A large amount of corundum (Al<sub>2</sub>O<sub>3</sub>) is discovered, peaking at 0.6-1.2 arcsec south-east from the star, whereas the dust content of the Weigelt blobs is dominated by silicates. We discuss the mechanisms of dust formation which are closely related to the geometry of this Butterfly nebulae.

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