

# A rare early-type star revealed in the Wing of the Small Magellanic Cloud

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Sk 183 is the visually-brightest star in the N90 nebula, a young star-forming region in the Wing of the Small Magellanic Cloud (SMC). We present new optical spectroscopy from the Very Large Telescope which reveals Sk 183 to be one of the most massive O-type stars in the SMC. Classified as an O3-type dwarf on the basis of its nitrogen spectrum, the star also displays broadened He I absorption which suggests a later type. We propose that Sk 183 has a composite spectrum and that it is similar to another star in the SMC, MPG 324. This brings the number of rare O2- and O3-type stars known in the whole of the SMC to a mere three. We estimate physical parameters for Sk 183 from analysis of its spectrum. For a single-star model, we estimate an effective temperature of  $46\pm 2$  kK, a low mass-loss rate of  $\sim 10^{-7}$   $M_{\odot} \text{ yr}^{-1}$ , and a spectroscopic mass of  $46^{+9}_{-8}$   $M_{\odot}$  (for an adopted distance modulus of 18.7 mag to the young population in the SMC Wing). An illustrative binary model requires a slightly hotter temperature ( $\sim 47.5$  kK) for the primary component. In either scenario, Sk 183 is the earliest-type star known in N90 and will therefore be the dominant source of hydrogen-ionising photons. This suggests Sk 183 is the primary influence on the star formation along the inner edge of the nebula.

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