

First OB-stars in the iron-poor local group galaxy Sextans A

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Abstract

Massive stars are crucial to understand the chemical and dynamical evolution of the Universe. Our knowledge of their physics at sub-SMC metallicities, dominant in the early Universe, is still in its infancy, due to the lack of proper observations and analyses. We have started a programme to observe stars in nearby galaxies with metallicities below that of the SMC. For this purpose, we have developed photometric criteria which allowed us to set a list of blue massive candidates in Sextans A, a galaxy with a metallicity of $[Fe/H] = -1.85$. We have secured OSIRIS@GTC spectra of these candidates and have discovered six O-type and seven early-B stars, which constitutes the first atlas of blue massive stars in this galaxy. Using FASTWIND model atmospheres, we have obtained the main physical parameters of the O-type stars (effective temperature, gravity, wind strength and He content). This is the lowest metallicity for which an observational temperature scale of O-stars has been established. This work is part of the PhD of I. Camacho aimed at the identification, classification and analysis of massive OB stars in low metallicity galaxies.