



Two O2 If*/WN6 stars possibly ejected from the massive young Galactic cluster Westerlund 2

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(Submitted on 25 Jul 2011)

In this paper we report the identification of two new Galactic O2 If*/WN6 stars (WR20aa and WR20c), in the outskirts of the massive young stellar cluster Westerlund 2. The morphological similarity between the near-infrared spectra of the new stars with that of WR20a and WR21a (two of the most massive binaries known to date) is remarkable, indicating that probably they are also very massive stars. New optical spectroscopic observations of WR20aa suggest an intermediate O2 If*/WN6 spectral type. Based on a mosaic made from the 3.6 microns Spitzer IRAC images of the region including part of the RCW49 complex, we studied the spatial location of the new emission line stars, finding that WR20aa and WR20c are well displaced from the centre of Westerlund 2, being placed at ~ 36 pc (15.7 arcmin) and ~ 58 pc (25.0 arcmin) respectively, for an assumed heliocentric distance of 8 kpc. Also very remarkably, a radius vector connecting both stars would intercept the Westerlund 2 cluster exactly at the place where its stellar density reaches a maximum. We consequently postulate a scenario in which WR20aa and WR20c had a common origin somewhere in the cluster core, being ejected from their birthplace by dynamical interaction with some other very massive objects, perhaps during some earlier stage of the cluster evolution.

Comments: Published by MNRAS 25 JUL 2011

Subjects: **Galaxy Astrophysics (astro-ph.GA)**

DOI: [10.1111/j.1365-2966.2011.19062.x](https://doi.org/10.1111/j.1365-2966.2011.19062.x)

Cite as: [arXiv:1107.5001v1](https://arxiv.org/abs/1107.5001v1) [astro-ph.GA]

Submission history

From: Alexandre Roman-Lopes [[view email](#)]

[v1] Mon, 25 Jul 2011 17:10:53 GMT (2654kb)

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