

Early-type stars in the young open cluster IC1805 (II): The probably single stars HD15570 and HD15629, and the massive binary/triple system HD15558

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Aims: We address the issue of the multiplicity of the three brightest early-type stars of the young open cluster IC1805, namely HD15570, HD15629 and HD15558.

Methods: For the three stars, we measured the radial velocity by fitting Gaussian curves to line profiles in the optical domain. In the case of the massive binary HD15558, we also used a spectral disentangling method to separate the spectra of the primary and of the secondary in order to derive the radial velocities of the two components. These measurements were used to compute orbital solutions for HD15558.

Results: For HD15570 and HD15629, the radial velocities do not present any significant trend attributable to a binary motion on time scales of a few days, nor from one year to the next. In the case of HD15558 we obtained an improved SB1 orbital solution with a period of about 442 days, and we report for the first time on the detection of the spectral signature of its secondary star. We derive spectral types O5.5III(f) and O7V for the primary and the secondary of HD15558. We tentatively compute a first SB2 orbital solution although the radial velocities from the secondary star should be considered with caution. The mass ratio is rather high, i.e. about 3, and leads to very extreme minimum masses, in particular for the primary object. Minimum masses of the order of $150 \text{ } \mu\text{m}$ 50 and $50 \text{ } \mu\text{m}$ 15 M_{\odot} are found respectively for the primary and the secondary.

Conclusions: We propose that HD15558 could be a triple system. This scenario could help to reconcile the very large minimum mass derived for the primary object with its spectral type. In addition, considering new and previously published results, we find that the binary frequency among O-stars in IC1805 has a lower limit of 20%, and that previously published values (80%) are probably overestimated.

Reference: A&A, in press

Status: Manuscript has been accepted

Weblink: <http://arxiv.org/abs/astro-ph/0606379>

Comments: 12 pages, including 6 figures (+ 4 pages of online material)

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