

## **Revisiting the protoplanet candidate embedded in the HD100546 circumstellar disk - Multi-epoch and multi-filter observations with VLT/NACO**

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### **Abstract**

Early this year, we reported the direct detection of a protoplanet candidate appearing to be embedded in the optically thick dust and gas disk surrounding the well-studied Herbig Ae/Be star HD100546 (Quanz et al. 2013, ApJ 776L, 1Q). The de-projected separation from the central star was estimated to be 68 AU and the derived luminosity, which was comparatively high, together with the fact the no large-scale disk structure was seen at the object's orbital separation led to the conclusion that we might be witnessing the birth of a gas giant planet currently undergoing gas run-away accretion. Here we report on the results of follow-up observations of this source. In April 2013 we re-observed HD100546 with VLT/NACO and obtained second epoch datasets in L' using exactly the same observational setup as for the discovery paper. In addition, we obtained datasets in Ks and M' to constrain the temperature of the protoplanet candidate and to search for potential morphological changes in the detected emission.