Improved orbital solutions for wide directly imaged companions

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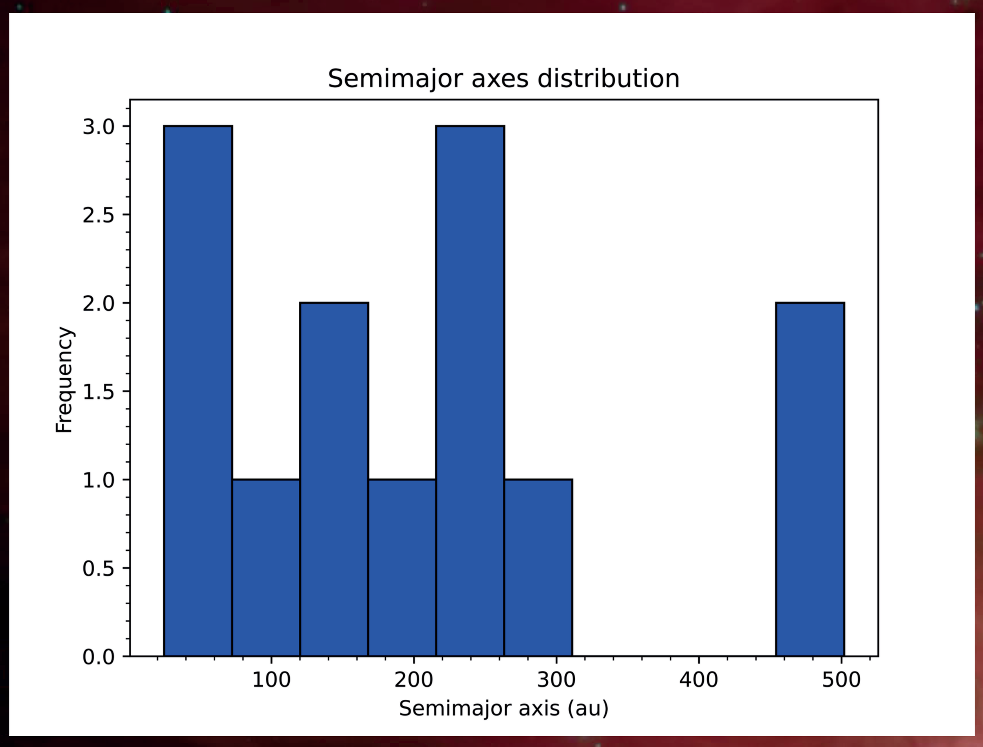
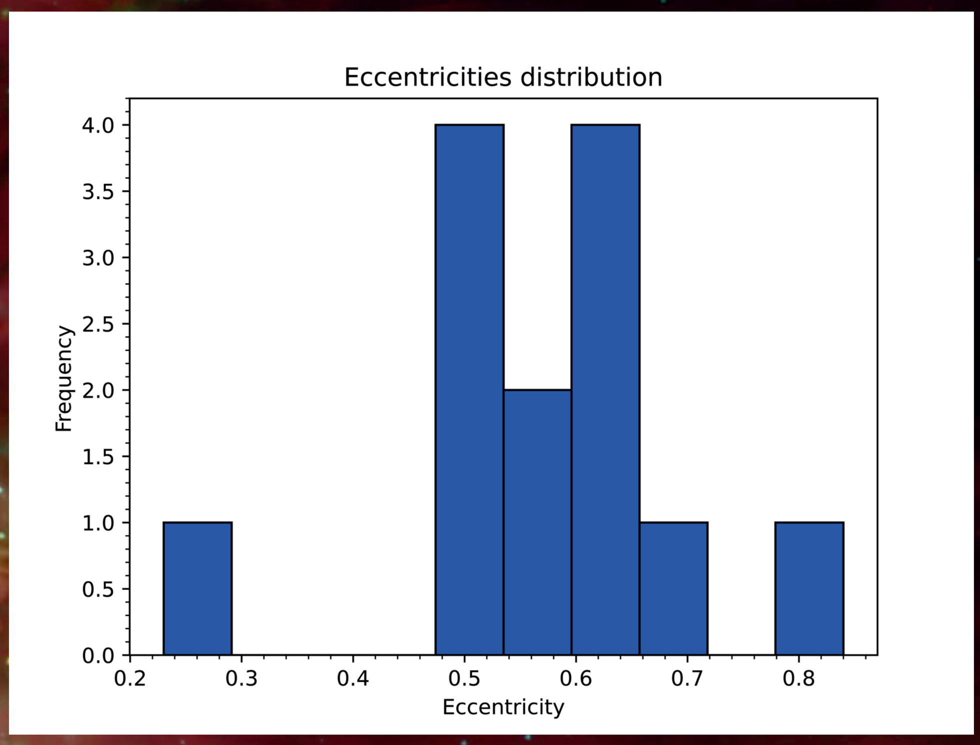
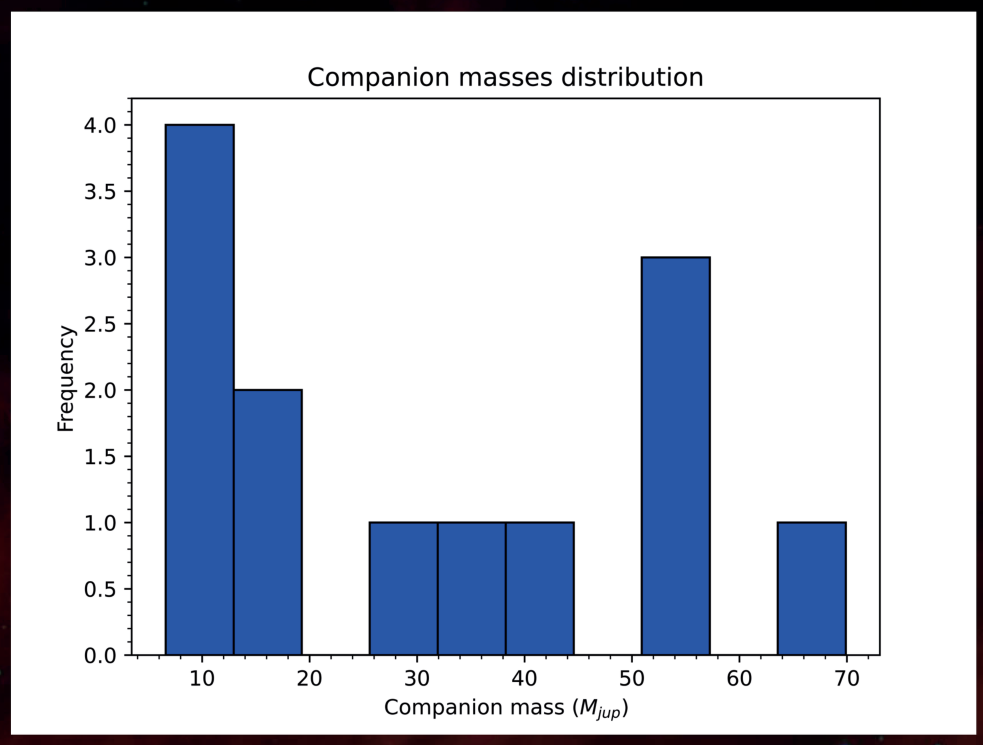
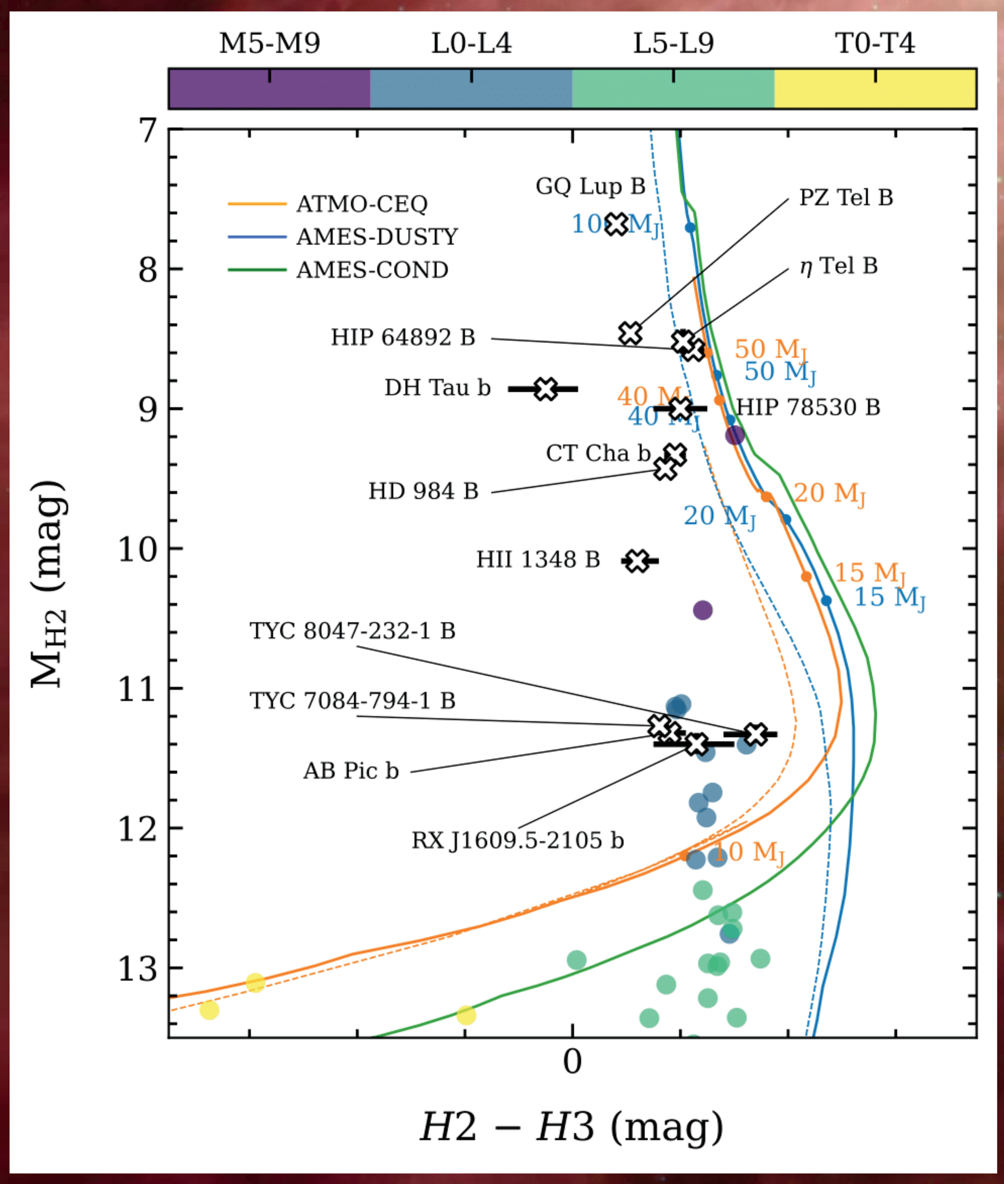


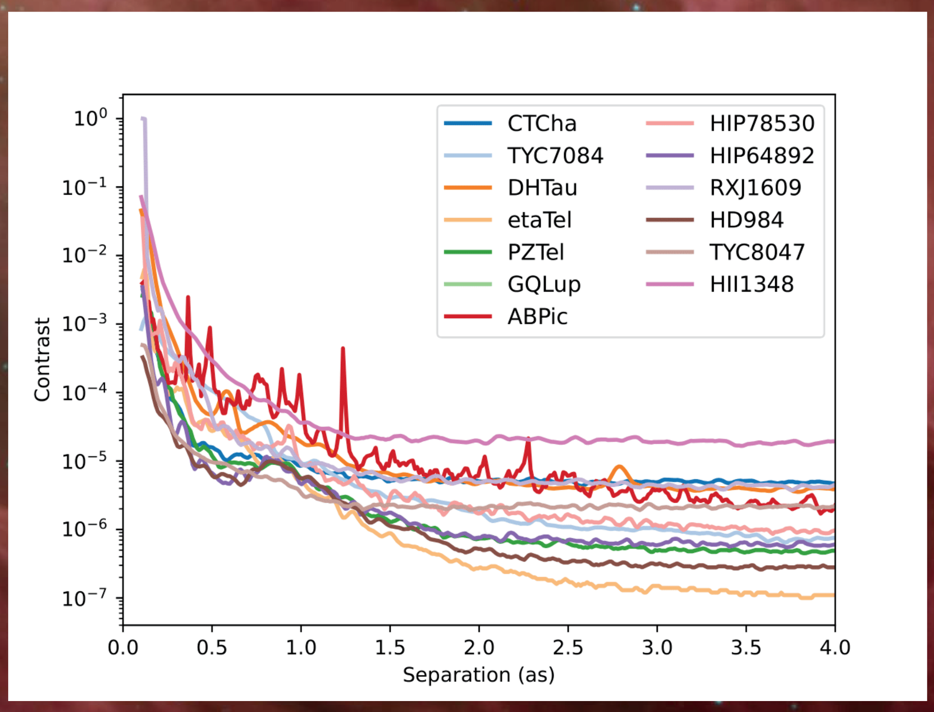


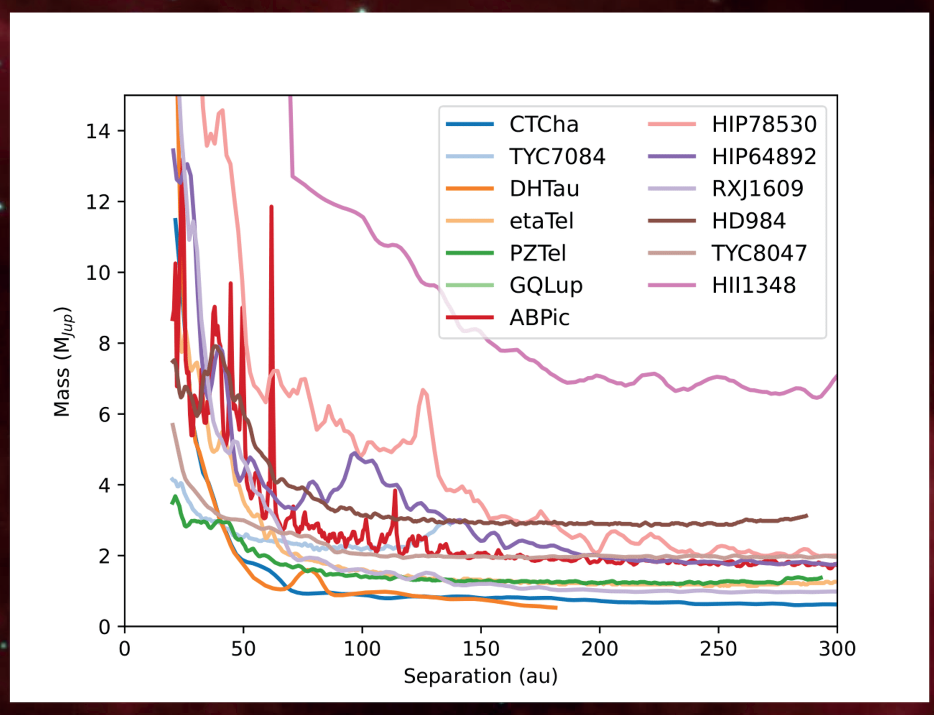


This study presents orbital solutions for 13 substellar companions, including four for which this represents the first determination. All companions show non-circular orbits, consistent with formation scenarios such as molecular cloud fragmentation or disk-driven gravitational instability. Our work is among the few to exploit SPHERE's high-precision astrometry over long time baselines to constrain the orbital parameters of long-period companions.



We acquired new photometric measurements in the 1.0–1.7 μm range with IRDIS. The observed objects are consistent with spectral types from mid-M to mid-L.





The 5σ contrast curves allow us to rule out the presence of additional planets at separations up to ~ 300 au, within a mass range of approximately 1–15 Jupiter masses.

Full paper soon!
Bernardi, et al. (2026), submitted

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