

*"High-Contrast 3.8 Micron Imaging of the Brown Dwarf/Planet-Mass Companion to GJ 758"*

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(To appear in the *Astrophysical Journal Letters*)

Abstract -- We present L' band (3.8 Micron) MMT/Clio high-contrast imaging data for the nearby star GJ 758, which was recently reported by Thalmann et al. (2009) to have one -- possibly two-- faint comoving companions (GJ 758B and "C", respectively). GJ 758B is detected in two distinct datasets. Additionally, we report a \textit{possible} detection of the object identified by Thalmann et al as "GJ 758C" in our more sensitive dataset, though it is likely a residual speckle. However, if it is the same object as that reported by Thalmann et al. it cannot be a companion in a bound orbit. GJ 758B has a H-L' color redder than nearly all known L--T8 dwarfs. Based on comparisons with the COND evolutionary models, GJ 758B has  $T_e \sim 560$  K (+150 K, -90 K) and a mass ranging from  $\sim 10$ -- $20$  Mj if it is  $\sim 1$  Gyr old to  $\sim 25$ -- $40$  Mj if it is 8.7 Gyr old. GJ 758B is likely in a highly eccentric orbit,  $e \sim 0.73$  (+0.12,-0.21), with a semimajor axis of  $\sim 44$  AU (+32 AU, -14 AU). Though GJ 758B is sometimes discussed within the context of exoplanet direct imaging, its mass is likely greater than the deuterium-burning limit and its formation may resemble that of binary stars rather than that of jovian-mass planets.