Why Astrometry?

- Makes dynamical mass measurements and measures inclination
- Has increased sensitivity for larger orbits—for exoplanets this favors detection of “cold Jupiters.”
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The System

- Palomar 200"
- Cass focus
- Extract target & reference stars from ~60-s images
- Analyze motion of target relative to reference stars

- 4K x 4K CCD
- 550-750 nm window
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Targets & Results (from 2001 AAS)
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Summary of Companions Discovered

- From ~30 targets all but 1 presumed to be single M dwarfs
  - 3 or 4 M dwarf companions
    - GJ 1210B
    - G 78-28B
    - GJ 231.1C
    - GJ 164B (late M or BD)
  - 1 or 2 Brown Dwarfs
    - GJ 802B
  - 1 Extrasolar Giant Planet (EGP)
    - VB 10b
• Periodogram shows $3 \times 10^{-5}$ FAP for 0.7-y period
• $6 \ M_J$ planetary mass, 0.36 AU semi-major axis
• RV constrained by past observations to < 1.5 km s$^{-1}$
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VB 10 in Space