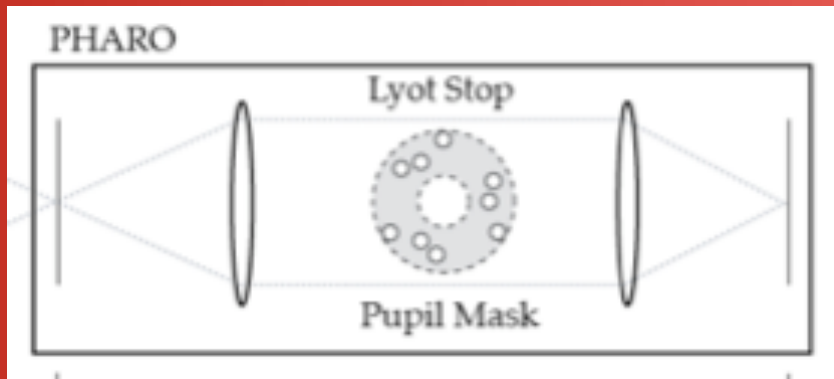




Brown Dwarf Binaries using Aperture Masking Interferometry with Laser Guide Stars



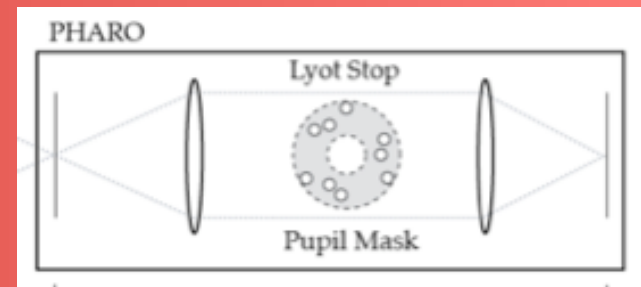
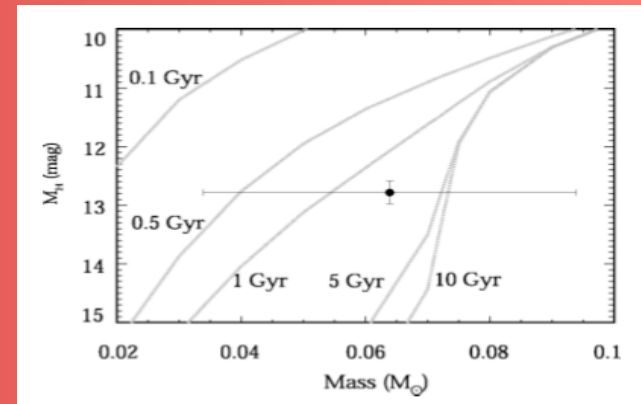
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Brown Dwarf Binaries = Masses

- Only *model-independent* measurement of mass.
 - ↳ Calibrate/Test models being applied to BDs and *planets*.
 - ↳ Breaks age-mass degeneracy
- Need LGS AO for lowest mass BDs
 - ↳ Rarely find a bright, nearby NGS
- Aperture Masking
 - ↳ Telescope → Interferometer
 - ↳ “Super-Resolution” – $0.6 \lambda/D$
 - ↳ Nix Turbulence – High Contrast



- Aperture Masking with LGS
 - ↳ Close Binaries → Periods of \leq few years → Masses ($\pm 3-7\%$) & Co-Eval



Contrasts: 10-200:1 L-M dwarfs

- Palomar LGS Survey
 - ↳ 20 L Dwarfs, $\Delta K \sim 2.0$
- M Dwarf Primaries
 - ↳ 200+:1 Contrasts
 - ↳ $\sigma \sim 3-7\%$ mass w/ RV
 - ↳ GJ 802; GJ 623, etc.
- Next: Spatial Filtering
 - ↳ Contrast up by 2x

