Commissioning of the Robo-AO IR Camera to Search for Brown Dwarf and Massive Exoplanet Companions

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**Goal:** Understand planetary and stellar formation and evolution

Differentiate between existing models, generate new models

Observe the diversity of substellar companions and system architectures

Therefore, we need:
- larger samples of substellar companions at wide separations
- to search for these substellar companions in the infrared

**Robo-AO**

Robotic AO instrument on the 2.1-m telescope on Kitt Peak, AZ

**Planned Survey**

Largest IR direct imaging survey: ~4000 targets in < 3 months observing time

**IR Camera**
- Near IR APD (SAPHIRA detector)
- FOV: 20 x 16 arcsec
- 0.064 arcsec/pix
- Filter: J-band
- Sensitivity limits:
  - Primary (t = 0.1 sec): m_J = 14
  - Companion (t = 5 min): m_J = 19
  - → 9 M_Jup if 10 Myr at 100 pc