

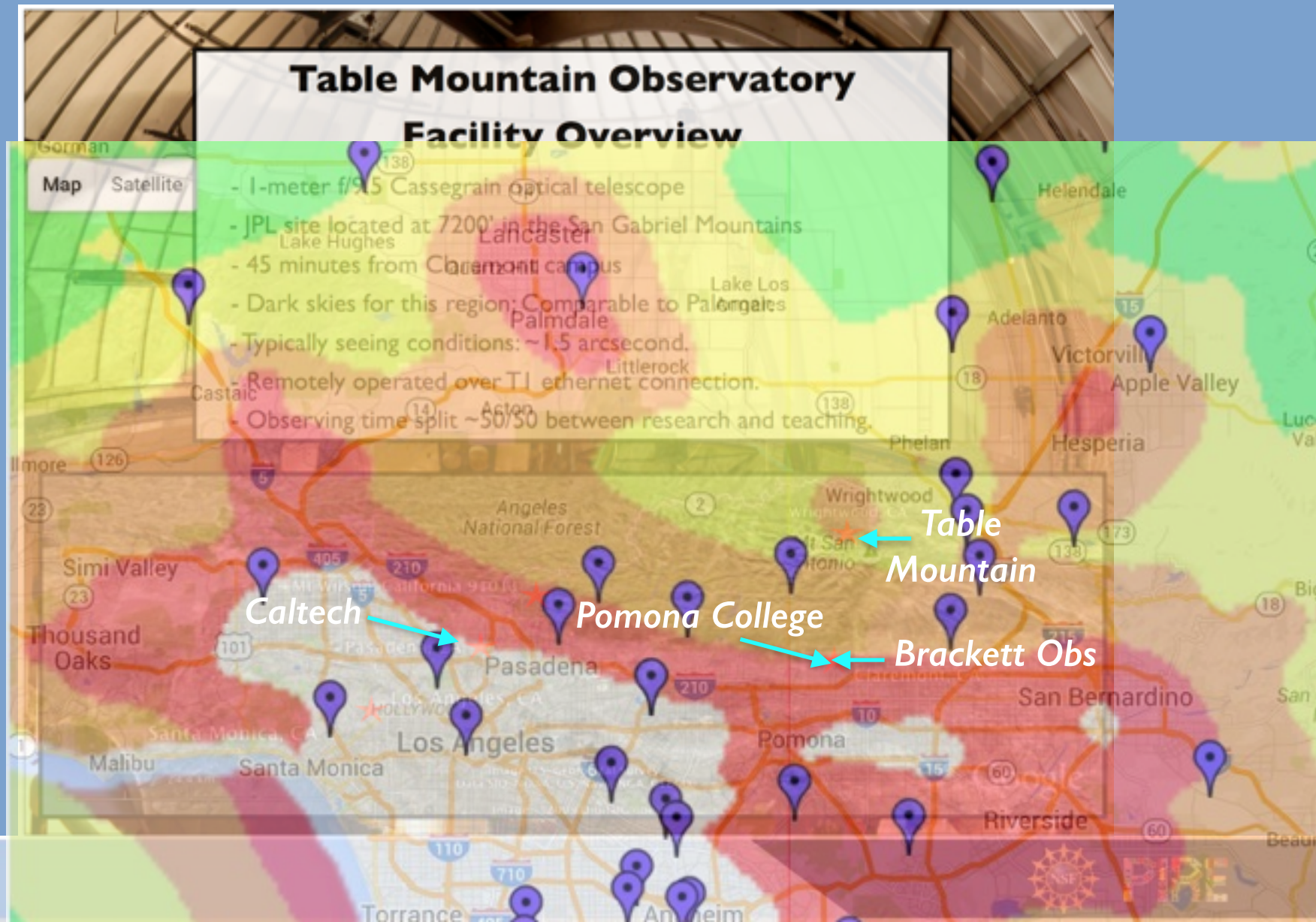
From Choi, et al, 2010, IFA AO workshop

Table Mountain Observatory Facility Overview

- 1-meter f/9.5 Cassegrain optical telescope
- JPL site located at 7200' in the San Gabriel Mountains
- 45 minutes from Claremont campus
- Dark skies for this region; Comparable to Palomar.
- Typically seeing conditions: ~ 1.5 arcsecond.
- Remotely operated over T1 ethernet connection.
- Observing time split $\sim 50/50$ between research and teaching.



From Choi, et al, 2010, IFA AO workshop



A map of Southern California showing the study area. The map includes major cities like Los Angeles, San Bernardino, and Pomona. Key locations marked with blue pins and labels include Caltech, Pomona College, Table Mountain, and Brackett Obs. The map also shows major highways (I-5, I-10, I-15, I-210, I-405, I-710, SR-101, SR-138, SR-173, SR-215) and geographical features like the Angeles National Forest. The map is color-coded by county: Los Angeles (pink), San Bernardino (orange), and Riverside (yellow). The map includes a 'Map' button and a 'Satellite' button in the top left corner.

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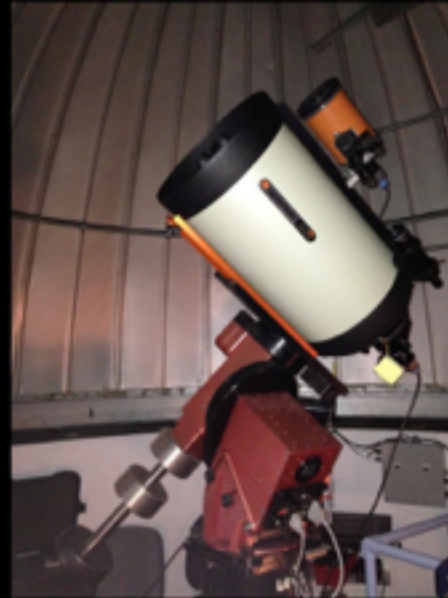
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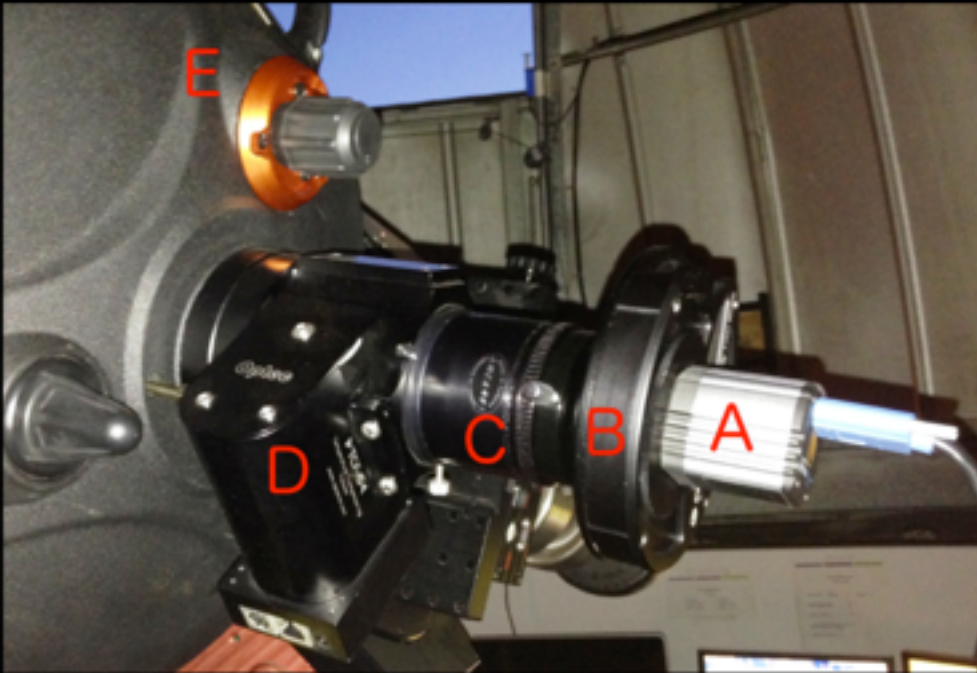


Located at Pomona College in Claremont, CA - 2x14" (0.3-meter) telescopes, with computer control

Brackett Observatory



niche: solar system (bright) objects; high resolution
imaging “Lucky” imaging system



Letter	Component
A	Skyris Camera
B	Skyris Filter Wheel
C	Antares 1.6x Barlow Lens
D	Optec TCF-S Focuser
E	Celestron C14

all images taken by Franklin Marsh (PO '18) at Brackett Observatory

The Solar System from Brackett Observatory

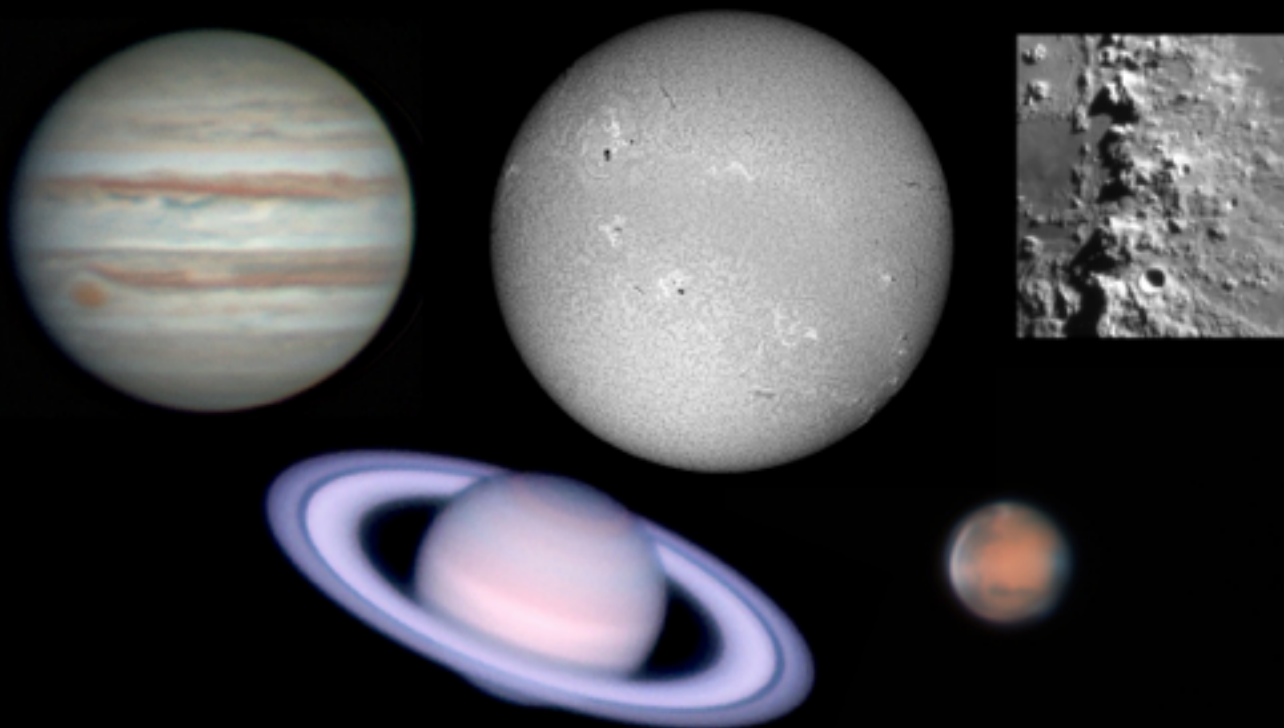
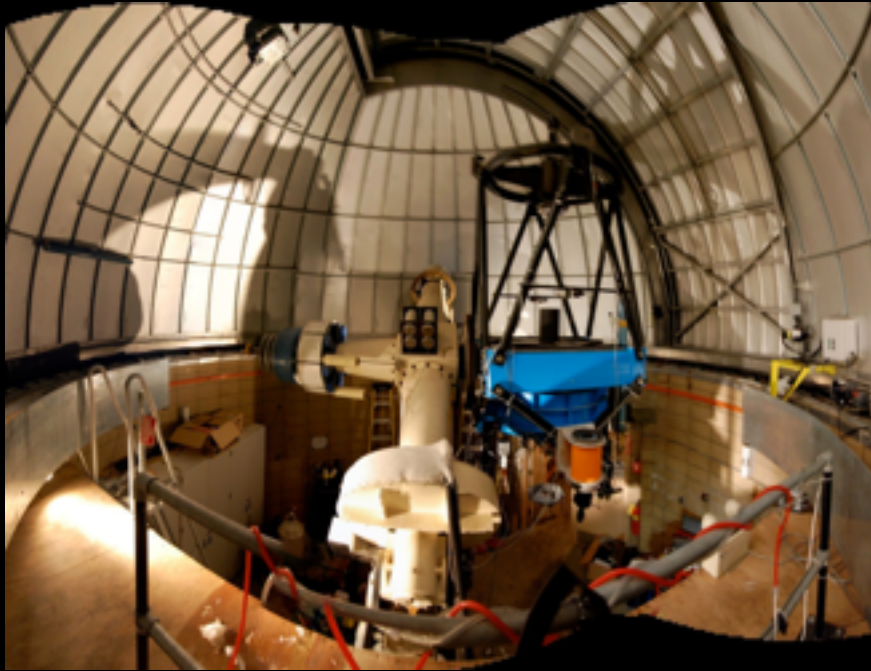


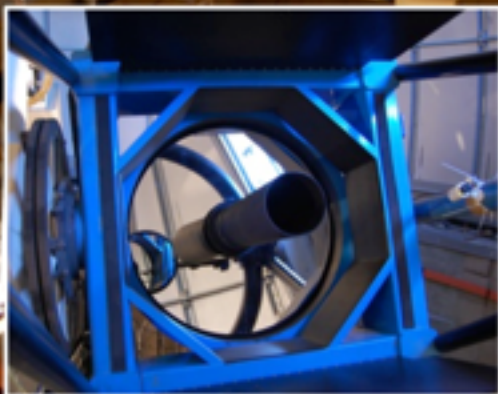
Table Mountain Observatory



From Choi, et al, 2010, IFA AO workshop

Table Mountain Observatory Facility Overview

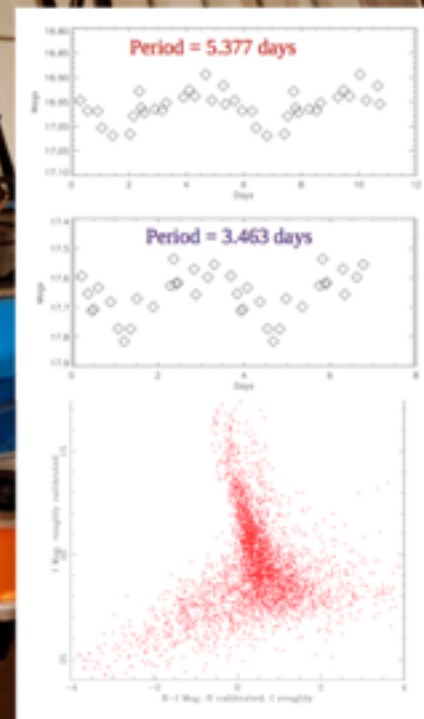
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Ongoing TMO Research Programs

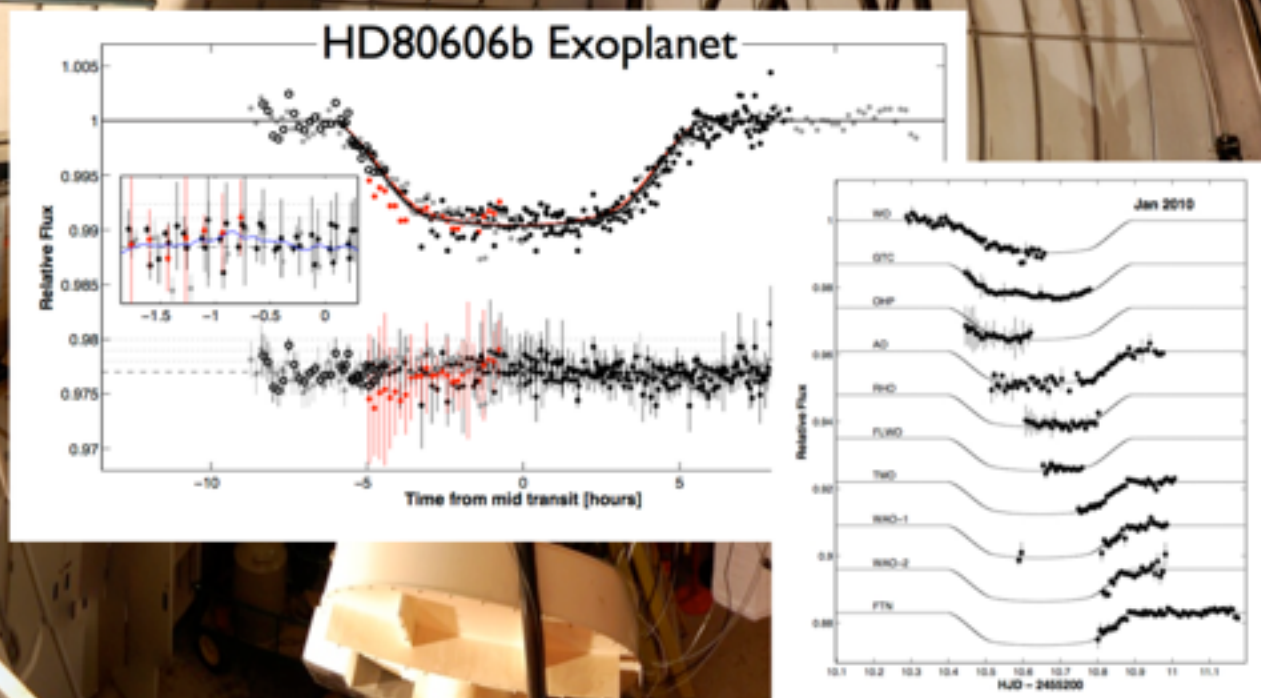
Blazar Optical Polarimeter
Asteroid & NEO characterization
Young Star Cluster Monitoring (T Tauri & Wolf-Rayet)
Transit Timing Variability (TTV) Exoplanet Searches



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KaPAO-Cam: A Pomona Adaptive Optics Camera

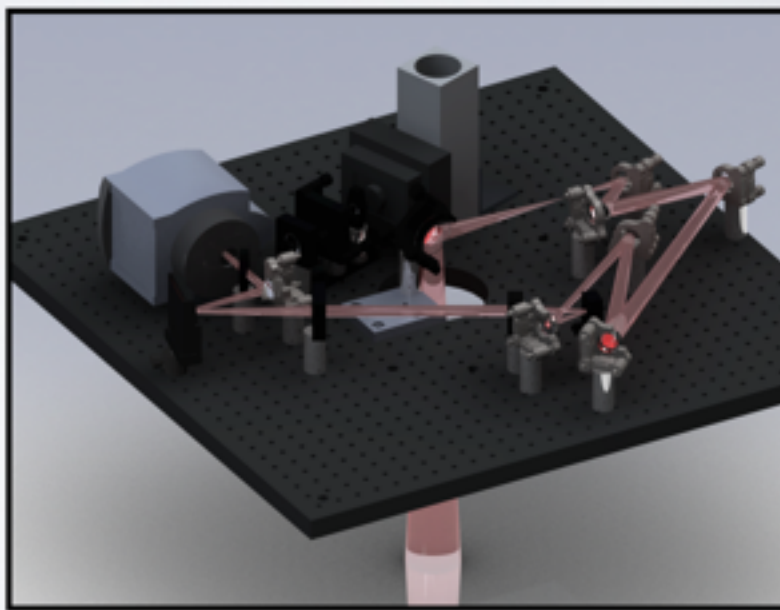
The development of KaPAO-Cam is supported by a 4-year NSF MRI-R2 grant 0960343

Senior Design Team

Philip Choi (Pomona)
Scott Severson (Sonoma)
Christoph Baranec (Caltech)
Erik Spjut (HMC)

Senior Science Team

Bryan Penprase (Pomona)
Anne Metevier (Sonoma)
Mark Ammons (Arizona)
Ann Esin (HMC)



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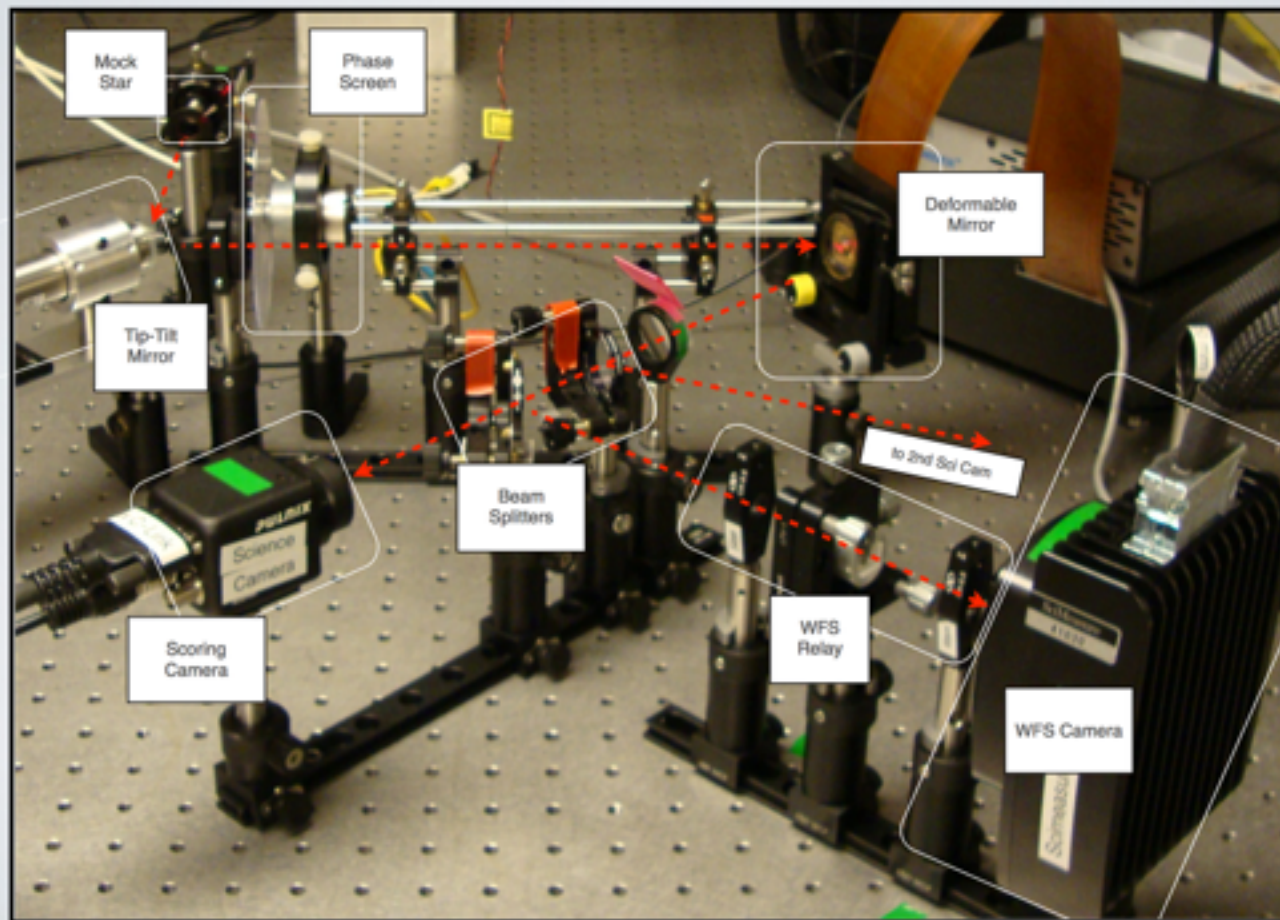
Robo-AO is an excellent platform for student research



- **Caltech graduate students**
 - S. Tendulkar (dissertation) – hardware development + science
 - M. Kasliwal and T. Morton – on science planning team
- **IUCAA undergraduates**
 - Designing, building, testing electronics
- **Summer undergraduates at Caltech (7 so far)**
 - Developing software (motion control, web status monitoring, queue, scheduling, communications, data reduction pipeline, ...)

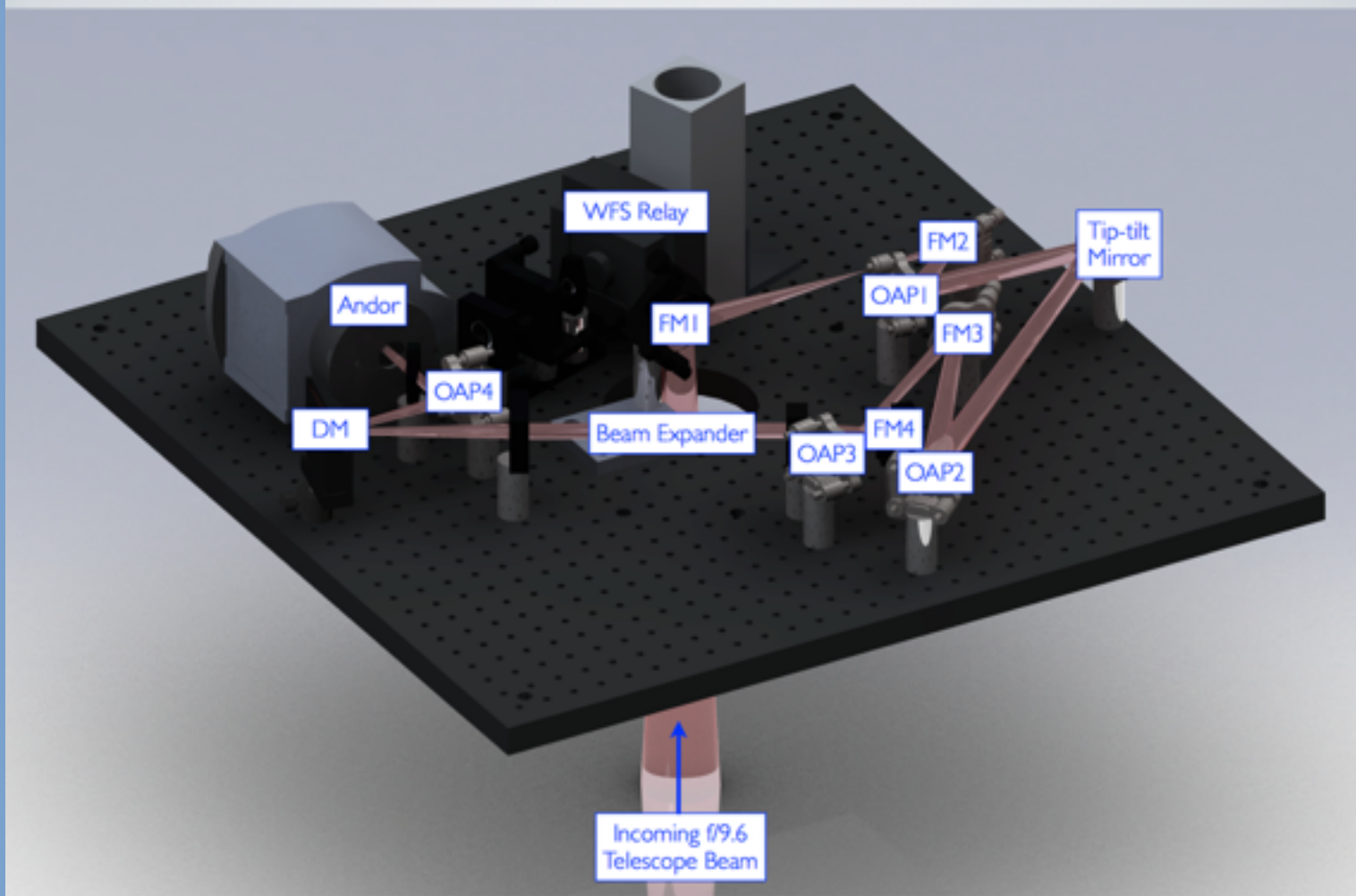
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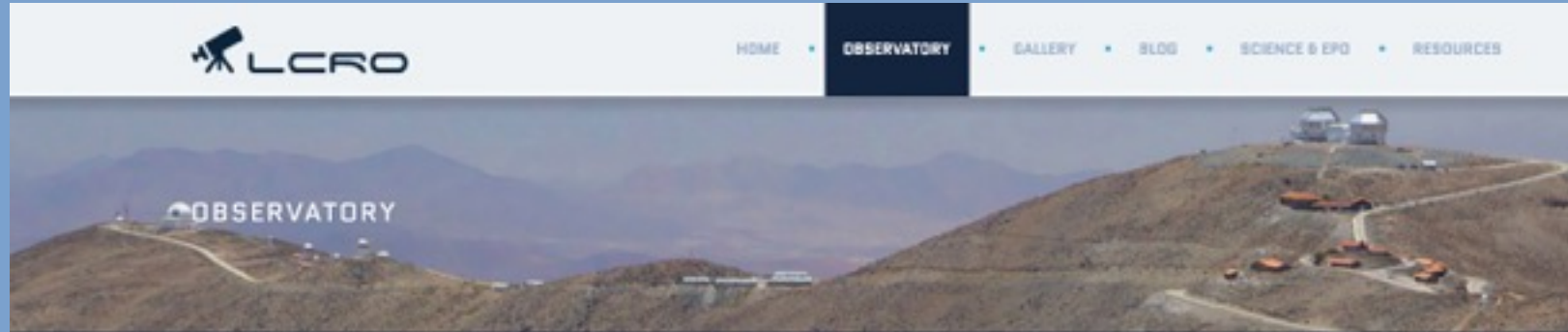
Lab Testbed: Robo-AO w/o the Laser



From Choi, et al, 2010, IFA AO workshop

KaPAO Alpha: An Off-the-Shelf OAP Optical Design





A ROBOTIC AND REMOTELY OPERATED TELESCOPE



55 arcmin FOV, 0.7" pixels, typical seeing - 0.5-0.7 arcseconds!

LCRO is a completely robotic telescope that can be operated remotely from any location with internet access using a web browser. The optical system includes the following.



Instruments

Telescope: 305 mm Makutsov Cassegrain F/8 from [Astro Physics](#).

Mount: Astro Physics model 1600 GTO.

Main Camera: CCD from Finger Lakes Instruments ([FLI](#)) PL 16803.

Filters: FLI model CFW-3-10 filter wheel containing [Astrodon](#) L, R, G, B, H-alpha, O-III, S-II and Sloan g', r', i'.

Focuser: Finger Lakes Instrument Atlas model.





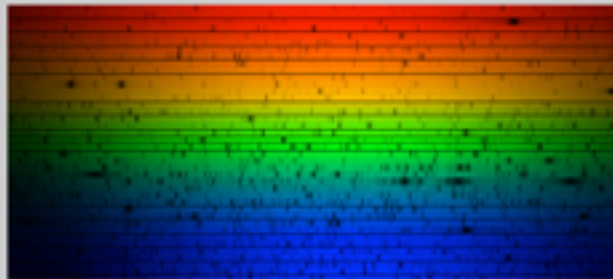
Cerro Tololo Inter-American Observatory

a division of the National Optical Astronomy Observatory

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[CTIO Home](#) » [Astronomers](#) » [Instruments](#) » [Optical Spectrographs](#) » [CHIRON](#)

CHIRON



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[Observing](#)
[Software Documentation](#)
[Technical Documents & Memos](#)
[Electronics](#)
[Papers on CHIRON](#)

CHIRON is a highly stable cross-dispersed echelle spectrometer at the SMARTS 1.5m telescope. It is fed by fiber and intended primarily for *precise radial velocities*.

- Spectral resolution $R \sim 80000$ (with image slicer: normal or iodine mode) or $R \sim 25000$ (fiber mode) or $R \sim 140000$ (narrow-slit, bright stars), 3-pixel sampling
- Spectral range 410-870 nm, fixed
- Total efficiency $\sim 6\%$

CHIRON is operational since 2011B. After recent upgrade, it is back in service since March 2012. CHIRON replaces the previous spectrometer at 1.5m, [FIBER ECHELLE](#)

Yale-NUS
Telescope
Resources:

- 0.12-meter
Celestron
Telescope
- Celestron
Imager
- Binoculars
- Yale-NUS
Time on
SMARTs
CTIO
telescopes!



SMARTS 1.3m telescope

About the 1.3m telescope

The 1.3-m telescope was previously the 2MASS southern telescope before SMARTS took over its operation. A permanently-mounted, dual-channel, optical-IR imager called ANDICAM takes simultaneous optical and infrared data on the SMARTS 1.3-m telescope. The 1.3-m is operated entirely in service / queue mode.

ANDICAM has been in regular operations at the 1.3-m since February 2003 by the SMARTS Consortium. Previously, it had been operated in queue mode on the 1.0-m (YALO Consortium) with the optical detector since the 1998B semester. The IR array was installed in July 1999. ANDICAM was constructed by the Ohio State astronomical instrumentation group led by Darren DePoy and its construction was funded in part by the National Science Foundation.

ANDICAM takes simultaneous optical and infrared data by using a dichroic with a CCD and a HgCdTe array. A moveable mirror allows dithering in the IR while an optical exposure is going on. ANDICAM is operated by the Prospero control software. It also has a twin--DANDICAM (Dutch ANDICAM)--that is used on a 1m telescope in South Africa. With ANDICAM one can obtain UBVRJHK photometry within a 6 arcmin (optical) or 1 arcmin (near-IR) field.

ANDICAM Resources