WaSP
(Wafer Scale Imager for Prime)
and
CHIMERA

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Michael Werner, JPL

mww@ipac.Caltech.edu

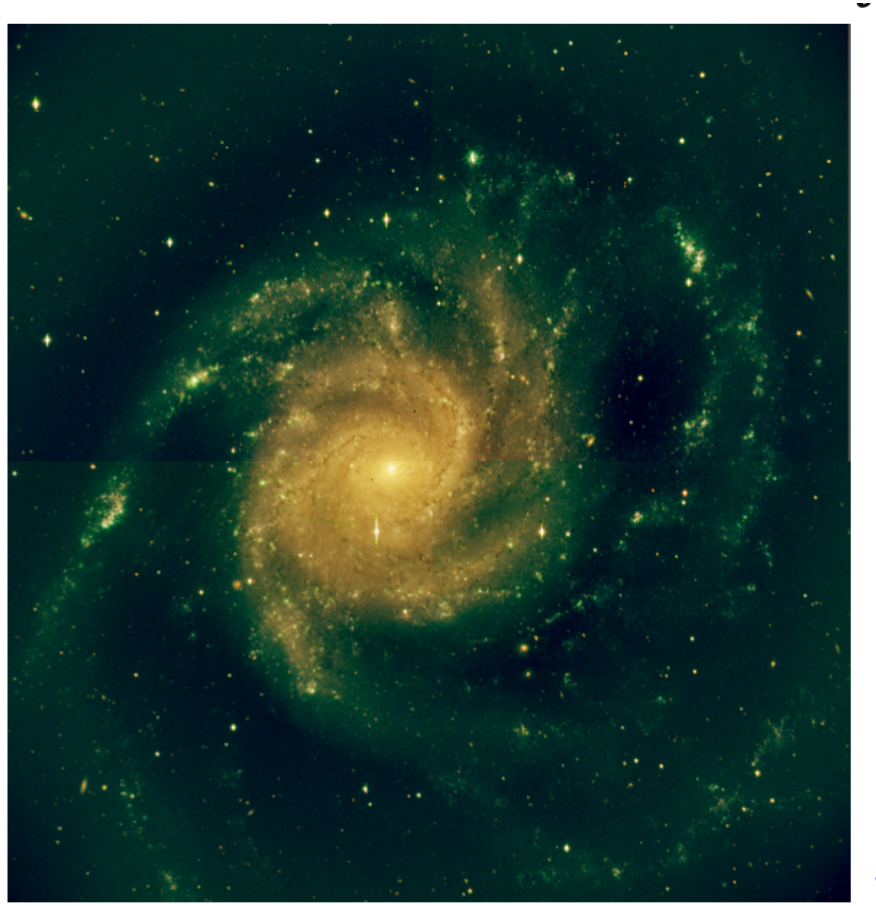
What is WaSP?

- WaSP is a wide field imaging camera operated at the prime focus of the 200-inch
- It has a ~6Kx6K CCD with an 18.4x18.5 arc min field of view
- A variety of filters are available, although only 4 can be accommodated in the camera at one time
  - Broad and narrow filters, covering wavelengths from 3500-to-9000 A
- It replaces the LFC – Large Field Camera – which is now obsolete

WaSP – Key Characteristics

- Detector – 6Kx6K E2V CCD
- Pixel Size - 15 um square
- Field of View - 18.4x18.5 arcmin
- Read noise – 5e-
- Full Well 350K electrons
- Readout time - 12 s

One of the Multi-color WaSP First Light Images



WaSP – Things you might need to know about observing and data reduction

- Good documentation available at Palomar instrumentation site:

http://www.astro.caltech.edu/palomar/observer/P200observers.html#instruments

- Filters to be used can be specified after proposal selected. Custom filters can be accommodated
- Data can be reduced using standard IDL and IRAF routines
- Instrument includes separate guide and focus cameras

What is CHIMERA?

CHIMERA is a high-speed, two-color, wide-field photometer, developed in collaboration by groups at Caltech and NASA JPL for deployment at the prime focus of the Palomar 200-inch telescope. The instrument is optimized for monitoring of targets varying on timescales from milliseconds to hours. Primary science includes the detection and characterization of sub-km Kuiper Belt Objects (KBOs) via occultation, detection of faint near-Earth asteroids (NEAs) and monitoring of short duration transient and periodic sources. Examples of the latter include eclipsing binaries, flaring stars, pulsing white dwarfs, aurorae on brown dwarfs and transiting planets. CHIMERA may also play a role as a follow-up instrument for the Palomar Transient Factory (PTF) and eventually its successor, the Zwicky Transient Facility (ZTF).

CHIMERA – VITAL STATISTICS

Parameters	Blue Camera	Red Camera
Pixel Scale	0.28"/pix	0.28"/pix
Field of View (FOV)	5' x 5'	5' x 5'
Filters	Sloan g' and u'	Sloan r', i' and z'
Detector Noise	~6e- using the conventional amplifier (at 1 MHz readout rate) < 1e- effective read noise using the EM amplifier with EM gain applied	~6e- using the conventional amplifier (at 1 MHz readout rate) < 1e- effective read noise using the EM amplifier with EM gain applied
Frame Rate	8.7 frames/sec 1kx1k 17.4 frames/sec binned 2x2 up to 1000 frames/sec windowed	8.7 frames/sec 1kx1k 17.4 frames/sec binned 2x2 up to 1000 frames/sec windowed

CHIMERA Data

Early CHIMERA two color image of the Crab Nebula. 300s exposure. A series of much shorter exposures was used to extract the pulse profile for the 33 Hz pulsar which powers the Crab

CHIMERA QUESTIONNAIRE

COO is considering converting CHIMERA to facility status. If you are interested, please answer the following questions in an email to me, Mike Werner

(a) Does your project require >2 nights per semester for > 2 semesters?

(b) Are you interested in using CHIMERA occasionally if it is easy to use?

(c) Please describe briefly the types of sources you want to observe with CHIMERA