

# Future planet activities @MPE

R.P. Saglia, MPE

J. Koppenhöfer, M. Montalto, R. Bender  
Soon: RoPACS-related PhD and PostDoc

- Future Transit surveys: PanPlanets, OmegaTranS
- Follow-ups: HET spectroscopy, GROND

Madrid, 28.1.2009, RoPACS Kickoff Meeting

# Pan- STARRS1



- Prototype 1.8m telescope for PanStarrs4
- Built on Haleakala (on Maui, Hawaii)
- Equipped with a 7 sq.deg. Camera
- grizy filters
- Data reduced „on the fly“ by the IPP pipeline
- Starting science operations March 2009

Telescope and Camera build by IfA

Consortium of institutes from the USA, Germany, UK, Taiwan to operate the telescope



# Pan-STARRS

## PS1 Science Consortium

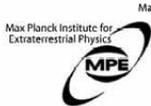
PS1 consortium members



University of Hawaii



UH Institute for Astronomy



Max Planck Institute for  
Extraterrestrial Physics



Max Planck Institute for Astronomy



JOHNS HOPKINS  
UNIVERSITY

Department of Physics and Astronomy



Harvard-Smithsonian Center for Astrophysics



Queen's University  
Belfast

Queen's University, Belfast



University of Edinburgh



Durham University  
Institute for Computational Cosmology



National Central University, Taiwan



Las Cumbres Observatory  
Global Telescope Network

# PanPlanets

P.I. Henning+Afonso, Heidelberg

- I band, 120 hours per year, 3.5 years long, in blocks of 1 hour per night, grouped in two campaigns, **starting soon!**
- **1st campaign:** 2 years, 7 fields (49 sq. deg.) in the MW plane, sampling every 5 minutes, with  $S/N > 200$  down to  $I=16.5$ , ~2000 epochs per field, ~170000 dwarf stars monitored, ~34000 M dwarfs down to  $I(AB)=18$ .
- Expected 24 Hot, 24 Very Hot Jupiters, 7 Very Hot Saturns, **9 Very Hot Neptunes**
- **2nd campaign:** open clusters

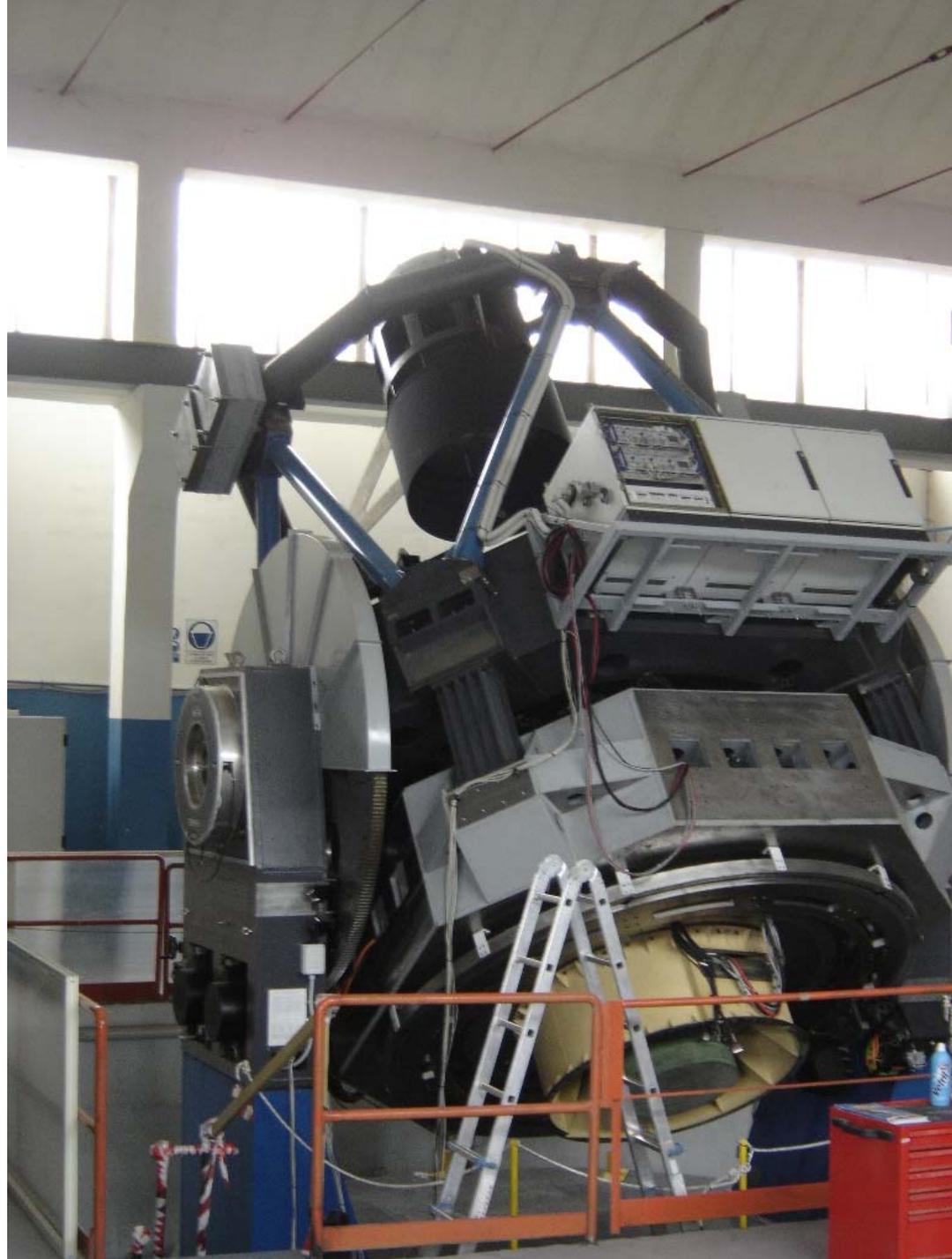
Koppenhöfer et al. astro-ph/0812.1559 A&A in press (2009)

# The VLT Survey Telescope

2.6m primary with Cassegrain  
FOV of 1.5 degrees with ADS

Designed and build by the  
Osservatorio di Capodimonte,  
Naples

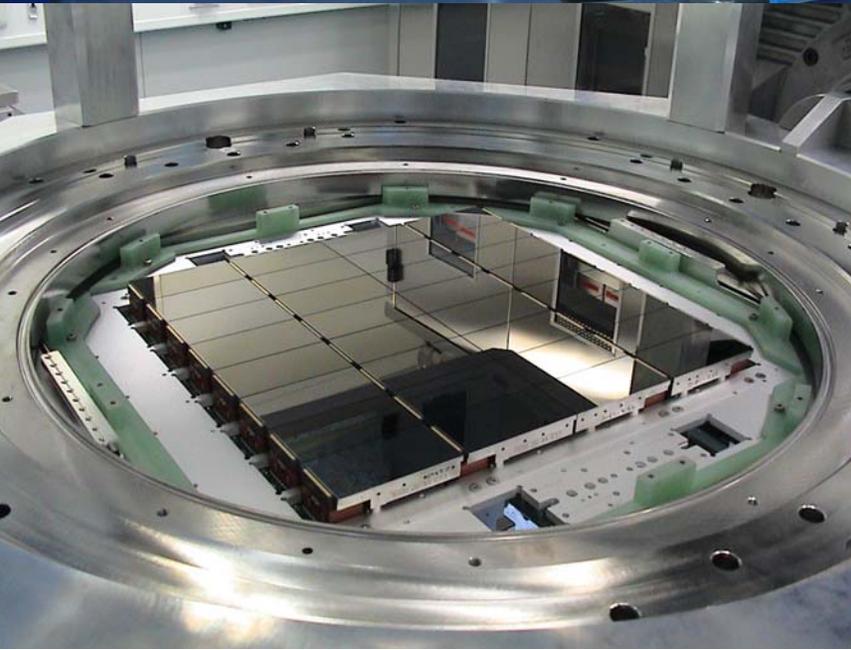
Telescope, primary and  
secondary being put together  
on Paranal, first light expected  
in Summer 2009





# The OmegaCam Camera

Mosaic of 32 2kx4k CCDs  
15 $\mu$ m/pixel, 0.21 arcsec  
1sq.deg.FOV, blue optimized  
Online monitoring & correction  
of field rotation, defocus and  
3<sup>rd</sup> order aberrations with 4  
auxiliary CCDs.



Filters:u'g'r'i'z' Sloan  
B,V Johnson,  
medium and narrow band  
Commissioned in Garching in 2005  
waiting the telescope since then  
Build with Groningen,  
Padova and ESO

# OmegaTranS

Leiden: I. Snellen; Munich: R. Saglia, J. Koppenhöfer;  
Naples: E. Covino, J. Alcalá

- Goal: find small planets around red stars.
- 3 weeks per year bright time, two superfields (i.e. each 9 sq. deg., spring/fall) monitored every 10 minutes in the I band, S/N=100 down to I=17, expecting ~60 Hot Jupiters around G stars, ~12 around K stars, and monitoring up to 3000 M-dwarf stars with 1000 epochs every year per field
- Superfields chosen to contain star clusters
- Start Fall 2009?

# Follow-ups

- Photometry: GROND, WFI @ ESO 2.2m  
(Snellen et al. astro-ph/0812.05999  
A&A in press 2009)  
OmegaCam GTO  
Wendelstein (2010: 2m Telescope with  
optical and NIR cameras)
- Spectroscopy: HET (7% GTO per year, LRS, HRS)  
VLT (GTO with KMOS from 2011)  
Wendelstein (HRS)

# RVs with the HRS@HET

During Aug-Nov 2008 96 visits of 5 stars were obtained with HRS@HET,  $R=60000$ .

Each visit consisted of one exposure with iodine absorption cell and one without.

10 visits on HD195019 (G3V,  $V=6.9$ mag,  $RV=266$ m/s),  
achieved  $S/N=300-400$ ,  
expected precision  $\sim 4$  m/s.

8 visits on a PanPlanets field star with  $V=14.5$  to test precision at faint magnitude end