

14<sup>th</sup> Heidelberg Astronomy Summer School, September 9 - 13, 2019

# Instrumentation for Ground-based Optical & Infrared Astronomy

## Invited Lecturers:

**Rebecca Bernstein** (Carnegie Observatories, Pasadena)  
**Elizabeth George** (European Southern Observatory)  
**Andreas Glindemann** (European Southern Observatory)  
**Christoph Keller** (Leiden University)  
**Francois Rigaut** (Australian National Observatory, Canberra)

## Science Talk Speakers:

Chiara Battistini, Thomas Bertram, Markus Feldt, Rob Harris, Tom Herbst, Knud Jahnke, Roberto Ragazzoni, Hans-Walter Rix, Gabriele Rodeghiero

**SOC: Tom Herbst** (MPIA)

## School program (as of Sep 4):

Monday 9 September

Time	Lecturer	Topic
08:30 - 14:00	-	Registration
09:30 - 10:00	Herbst, Fendt	Welcome, organizational remarks
10:00 - 10:45	François Rigaut	Fourier Optics
10:45 - 11:30	Andreas Glindemann	Atmospheric Turbulence
11:30 - 12:15	Tom Herbst	Infrared Astronomy
12:15 - 14:00	-	Lunch, Registration
14:00 - 15:30	François Rigaut	Exercises
15:30 - 16:00	-	Coffee
16:00 - 17:30	Andreas Glindemann	Exercises

Tuesday 10 September

Time	Lecturer	Topic
09:00 - 09:45	Andreas Glindemann	Interferometry 1 - Principles
09:45 - 10:30	Rebecca Bernstein	Introduction to Large O/IR Telescopes & Instruments
10:30 - 11:00	-	Coffee
11:00 - 11:45	François Rigaut	Adaptive Optics 1
11:45 - 12:30	Tom Herbst	Infrared Limits, Telescopes & Instrumentation

12:30 – 14:00	-	Lunch
14:00 – 14:30	Chiara Battistini	4MOST Project
14:30 – 15:15	Roberto Ragazzoni	(Un)Conventional Approaches to Wavefront Sensing
15:15 – 15:45	-	Coffee
15:45 – 17:15	Rebecca Bernstein	Exercises
18:00 – 21:30	-	Social dinner @ MPIA / tour @ facilities (bus dept 17:30)

### Wednesday 11 September

Time	Lecturer	Topic
09:00 – 09:45	Andreas Glindemann	Interferometry 2
09:45 – 10:30	François Rigaut	Adaptive Optics 2
10:30 – 11:00	-	Coffee
11:00 – 11:45	Rebecca Bernstein	Design of Large Telescopes (continued)
11:45 – 12:30	Christoph Keller	Project Management for Scientists
12:30 – 14:00	-	Lunch
14:00 – 18:00	-	Excursion (boat departs 14:00)

### Thursday 12 September

Time	Lecturer	Topic
09:00 – 09:45	Christoph Keller	Basic Optical Design
09:45 – 10:30	Elizabeth George	Optical and Infrared Detectors
10:30 – 11:00	-	Coffee
11:00 – 11:45	Christoph Keller	High Contrast Imaging and Spectroscopy
11:45 – 12:30	Rebecca Bernstein	Design of Spectrographs for Large Telescopes
12:30 – 14:00	-	Lunch
14:00 – 14:45	Elizabeth George	How to Become an Instrumentation Person
14:45 – 15:05	Markus Feldt	METIS Project
15:10 – 15:30	Gabriele Rodeghiero	MICADO Project
15:30 – 16:00	-	Coffee
16:00 – 17:30	Christoph Keller	Exercises
19:00 – 22:00	-	Pub evening

### Friday 13 September

Time	Lecturer	Topic
09:00 – 09:45	H.-W. Rix, Tom Herbst	Giving Effective Presentations
09:45 – 10:30	Elizabeth George	Detector Effects and How to Deal with Them
10:30 – 11:00	-	Coffee
11:00 – 11:45	Rob Harris	Photonics
11:45 – 12:30	Elizabeth George	Exercises
12:30 – 14:00	-	Lunch
14:00 – 14:45	Elizabeth George	Exercises (continued)
14:45 – 15:30	Knud Jahnke	Proposal Writing
15:30 – 16:15	Thomas Bertram	System Engineering for Large Instrumentation Projects
16:15 – 16:30	Herbst, Fendt	Farewell, departure