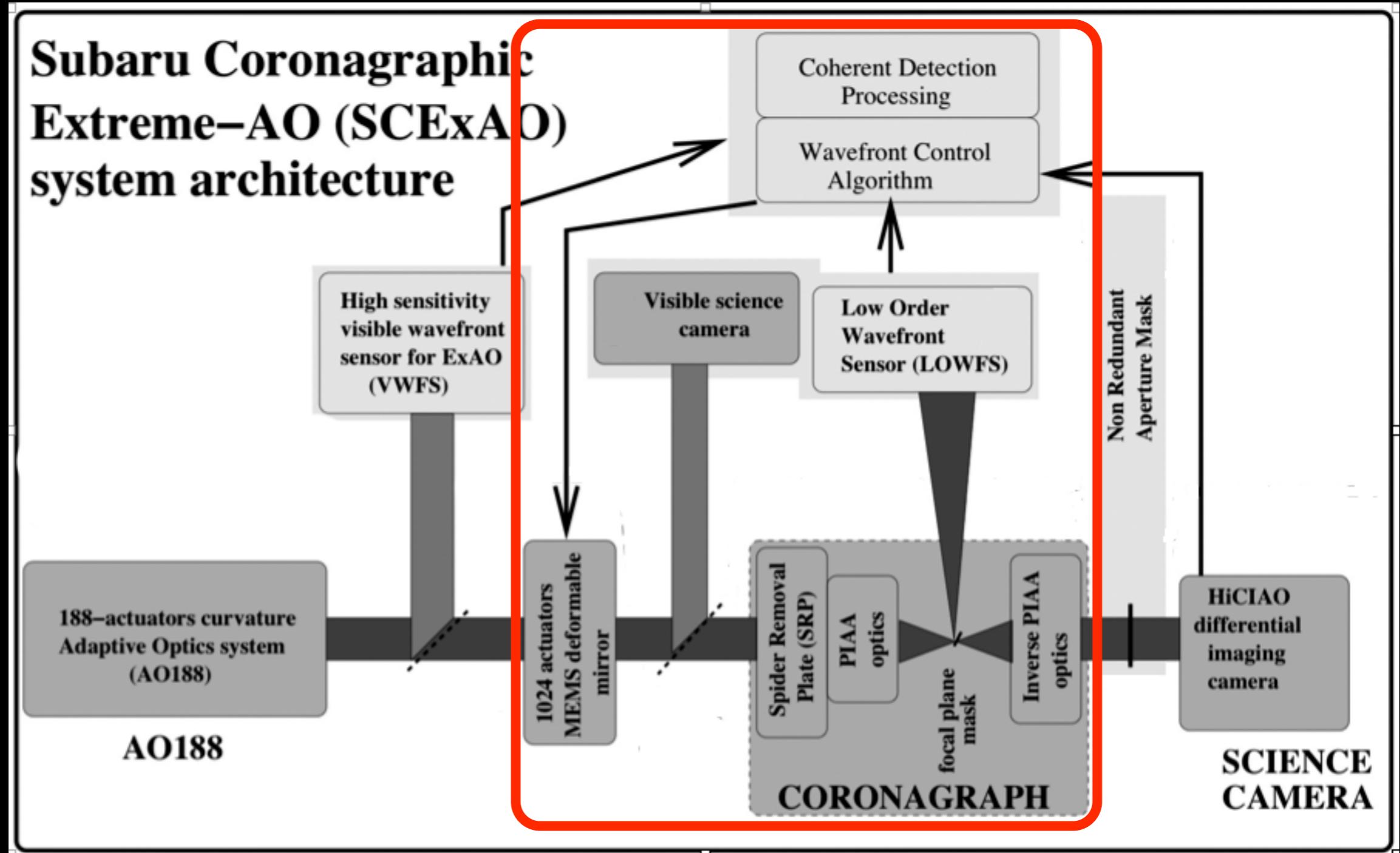


# The SCExAO project: current status

**Guyon, Martinache for the SCExAO group  
December 22, 2009**

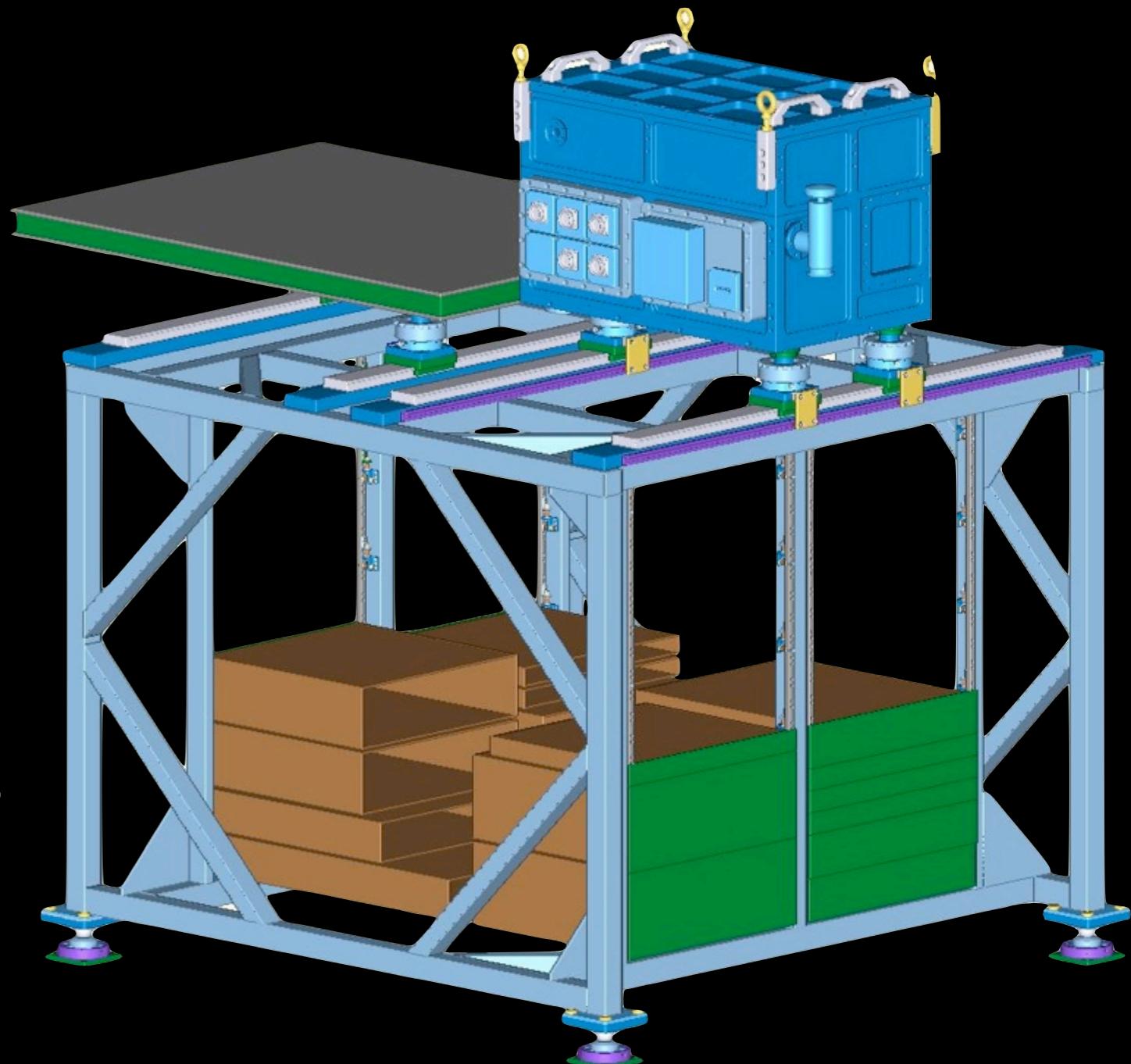
<http://www.naoj.org/Projects/SCEXAO/>  
<http://sceexo.blogspot.com>

# Subaru Coronagraphic Extreme-AO (SCExAO) system architecture



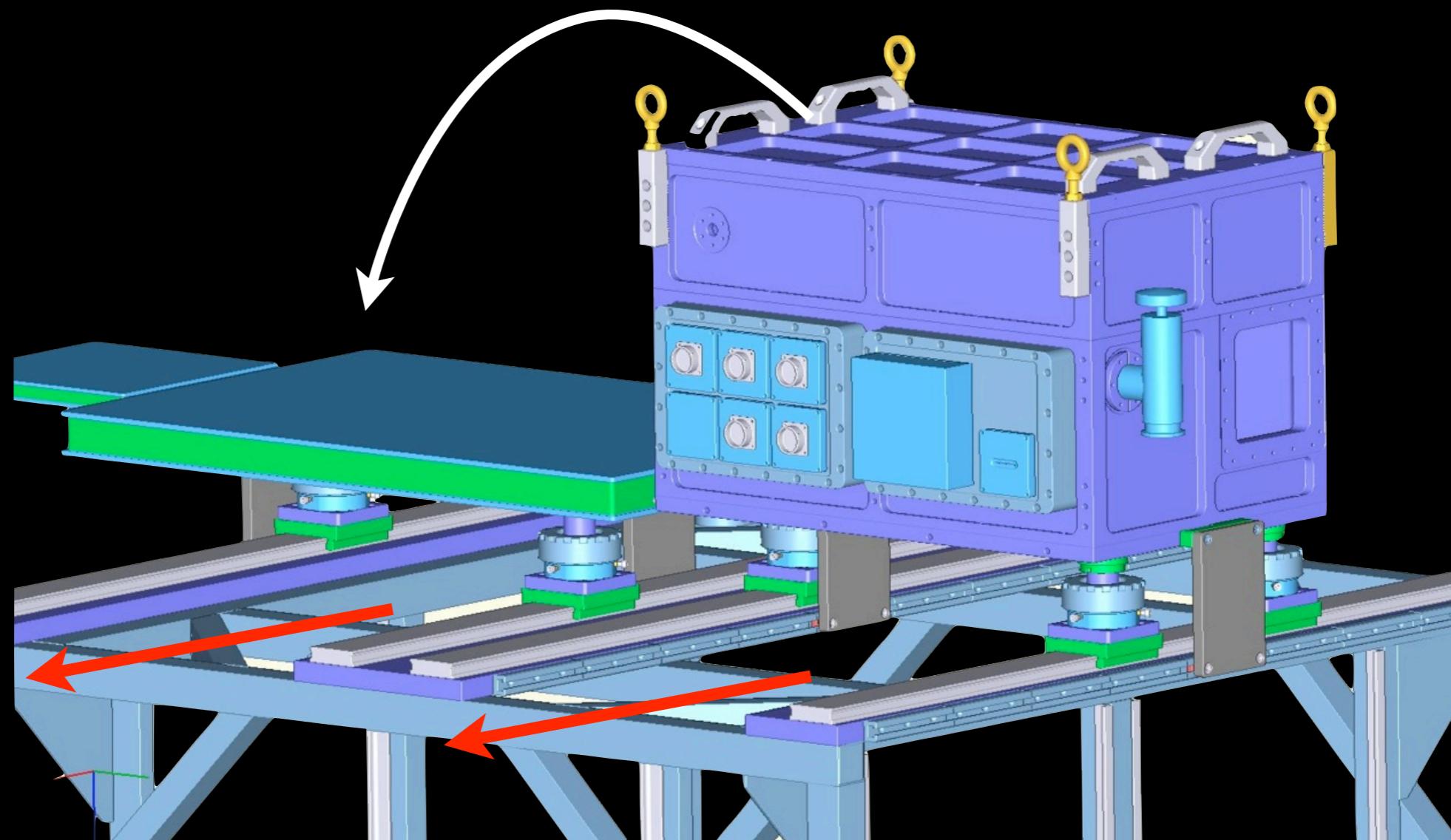
# Step I: Replace the current HiCIAO frame

- Design meetings involved:  
SCExAO, HiCIAO and  
instrumentation groups
- Features 3x as much rack  
space as current frame
- Dual railing system
- Can host guest instruments
- Construction fully funded
- PR passed today

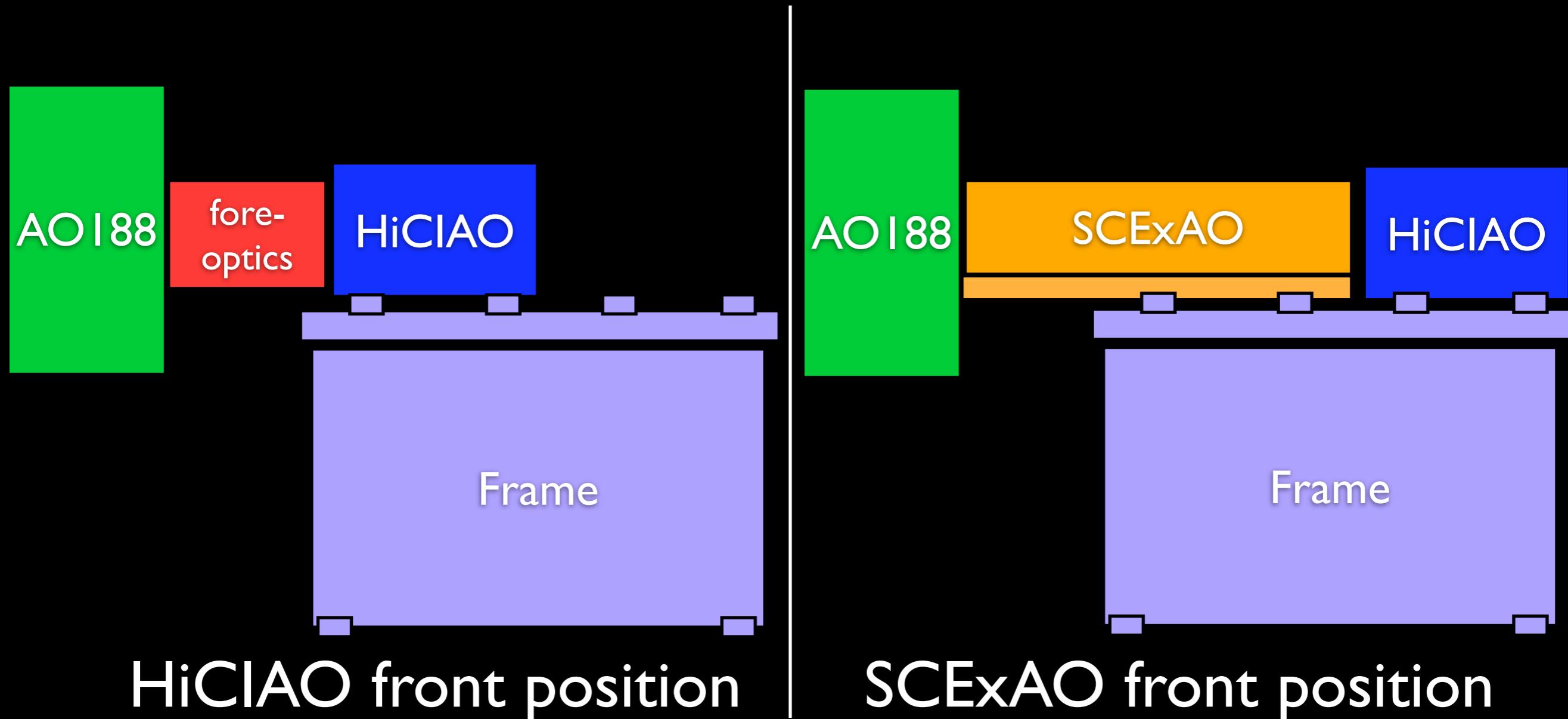


*CAD drawings by Yoshi Doi*

# Dual mode: std HiCIAO or SCExAO

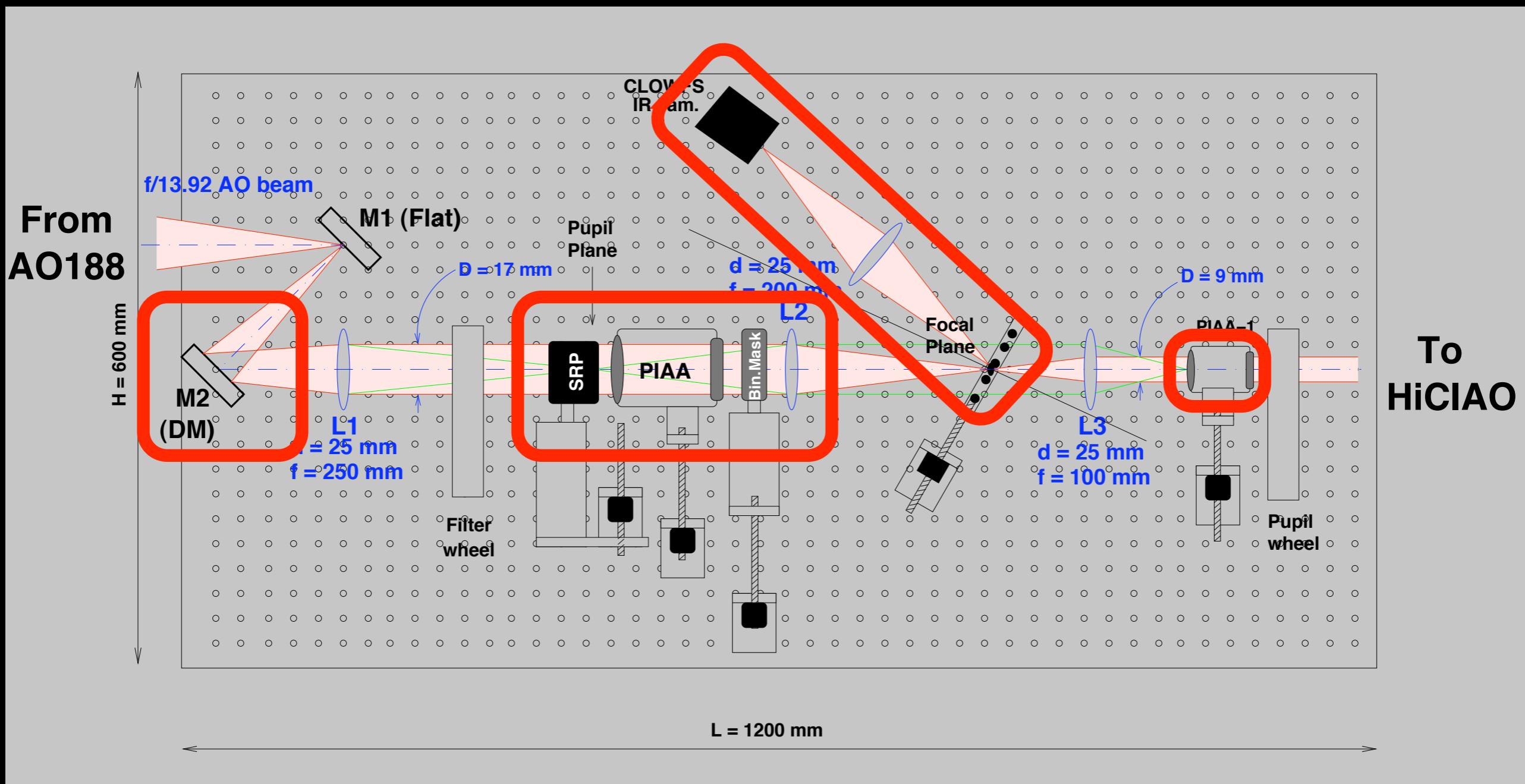


# Flexible frame for multiple modes

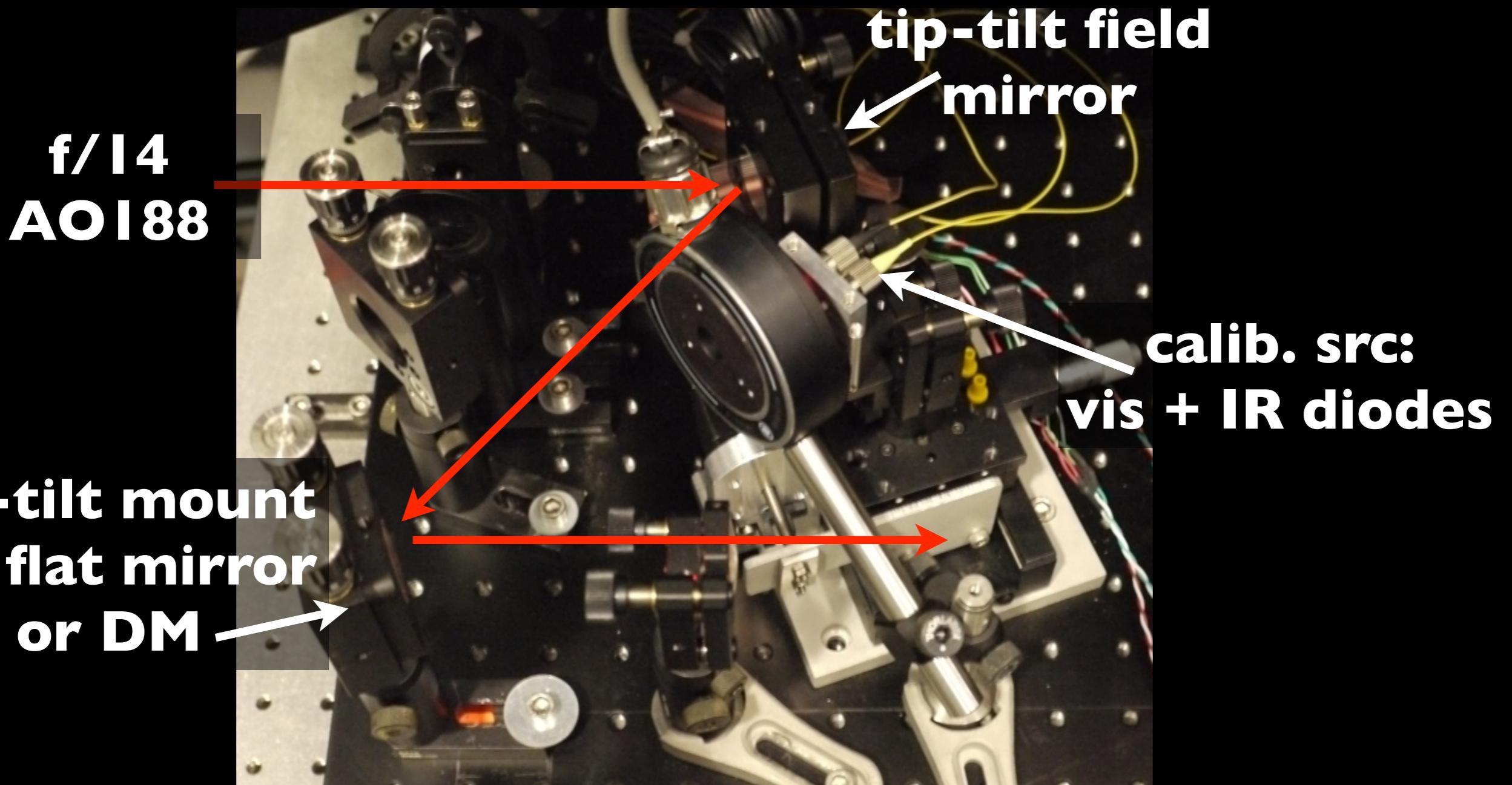


Minimize impact on telescope and instrument interface  
No mechanical interface between AOI88 and SCExAO  
Optical design accommodates errors of alignment

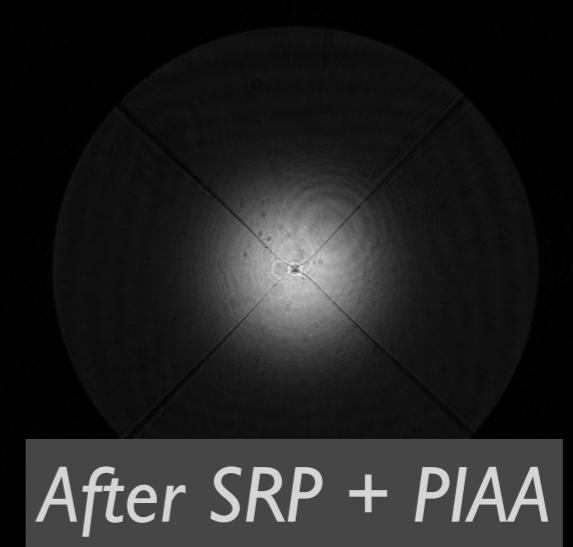
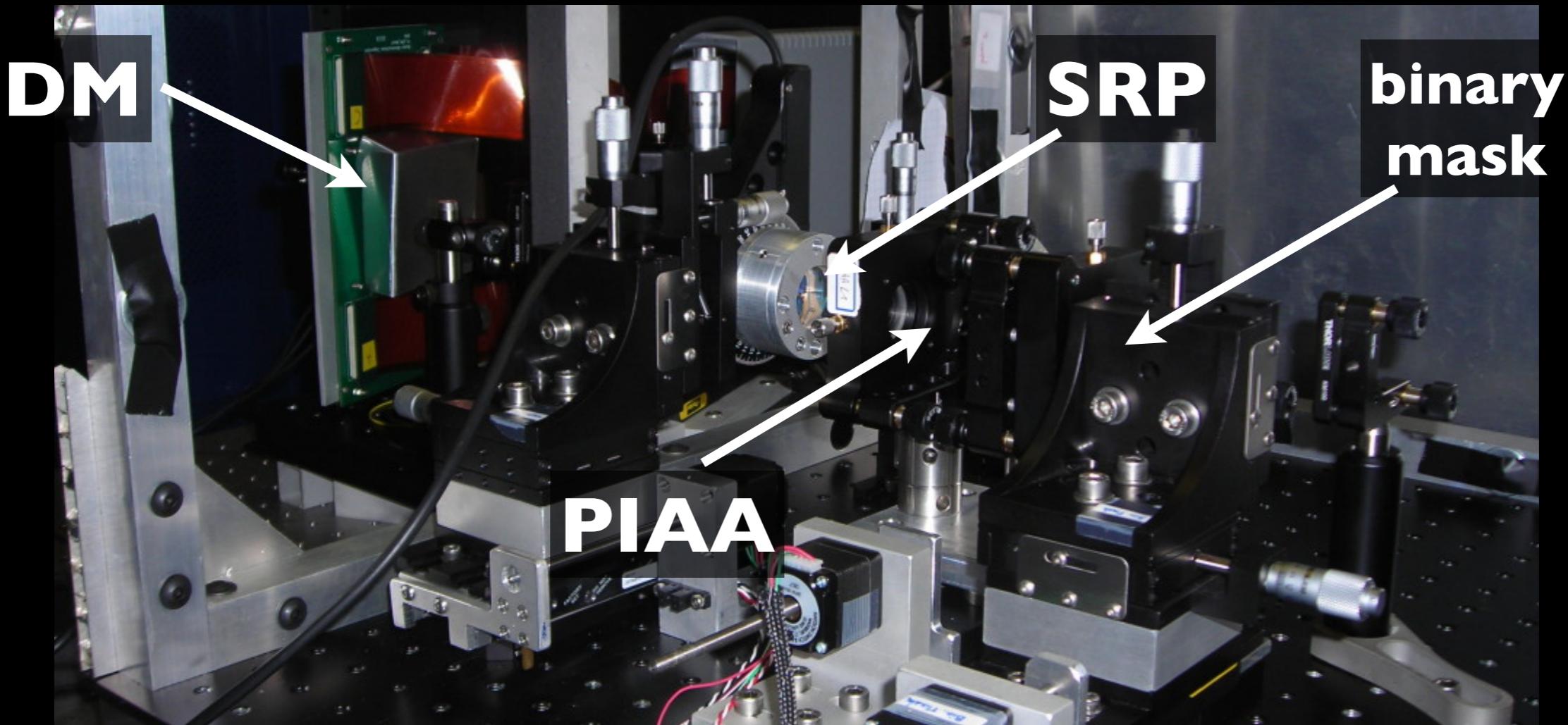
# Phase I optical design



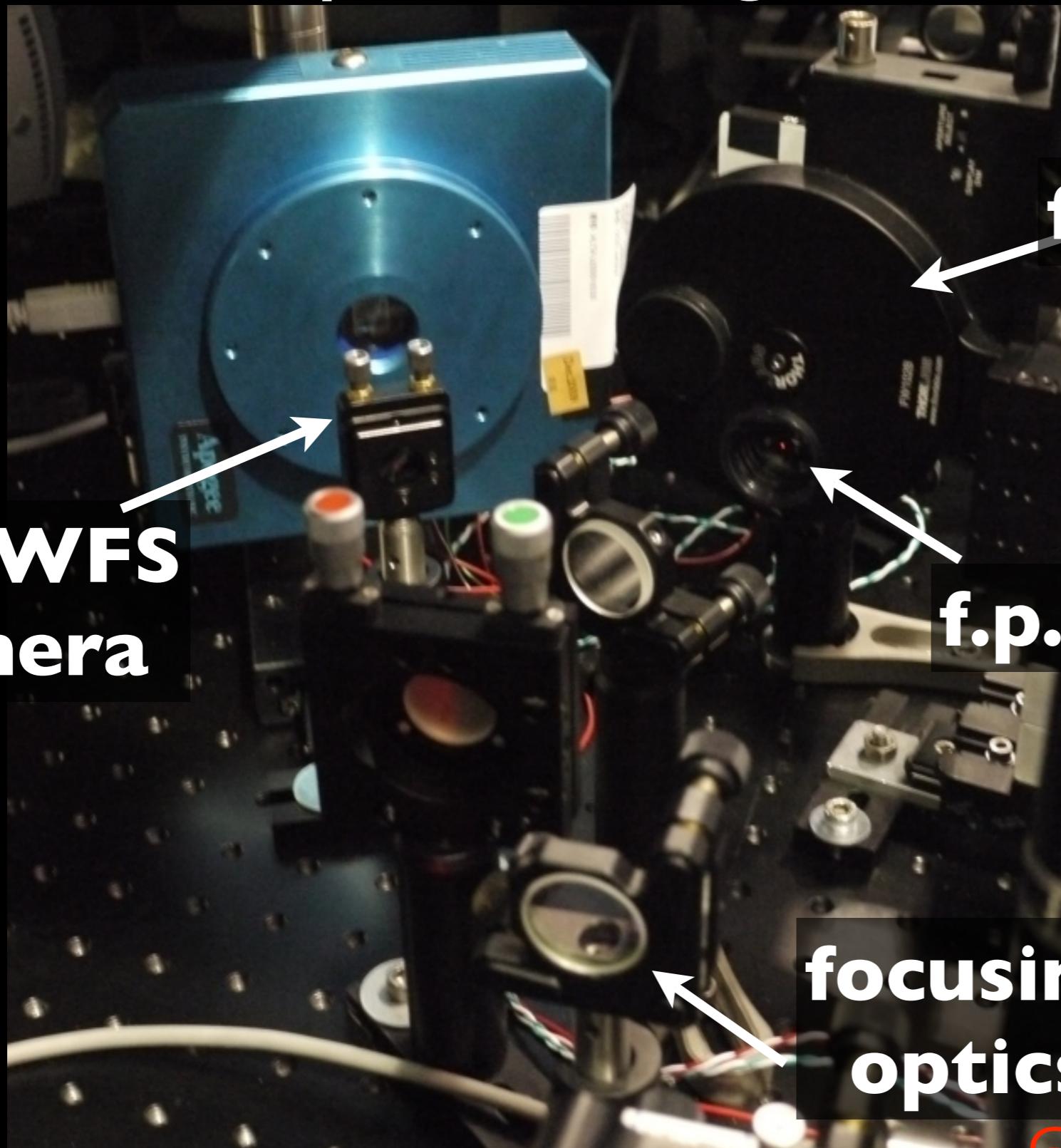
# Optical design in action



# Optical design in action



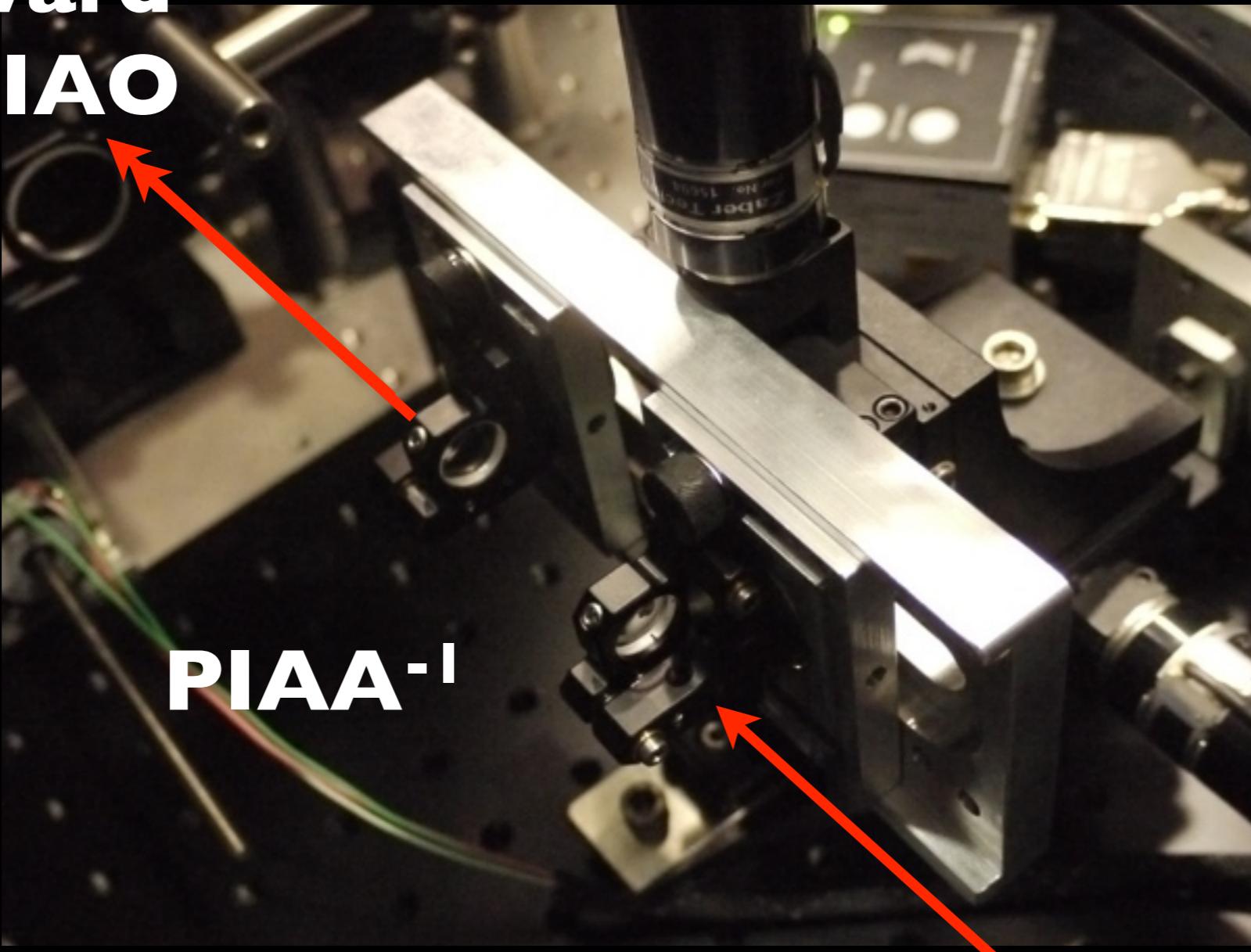
# Optical design in action



Guyon et al, 2009, *ApJ*, 693, 75  
Vogt et al, 2010, *in prep*

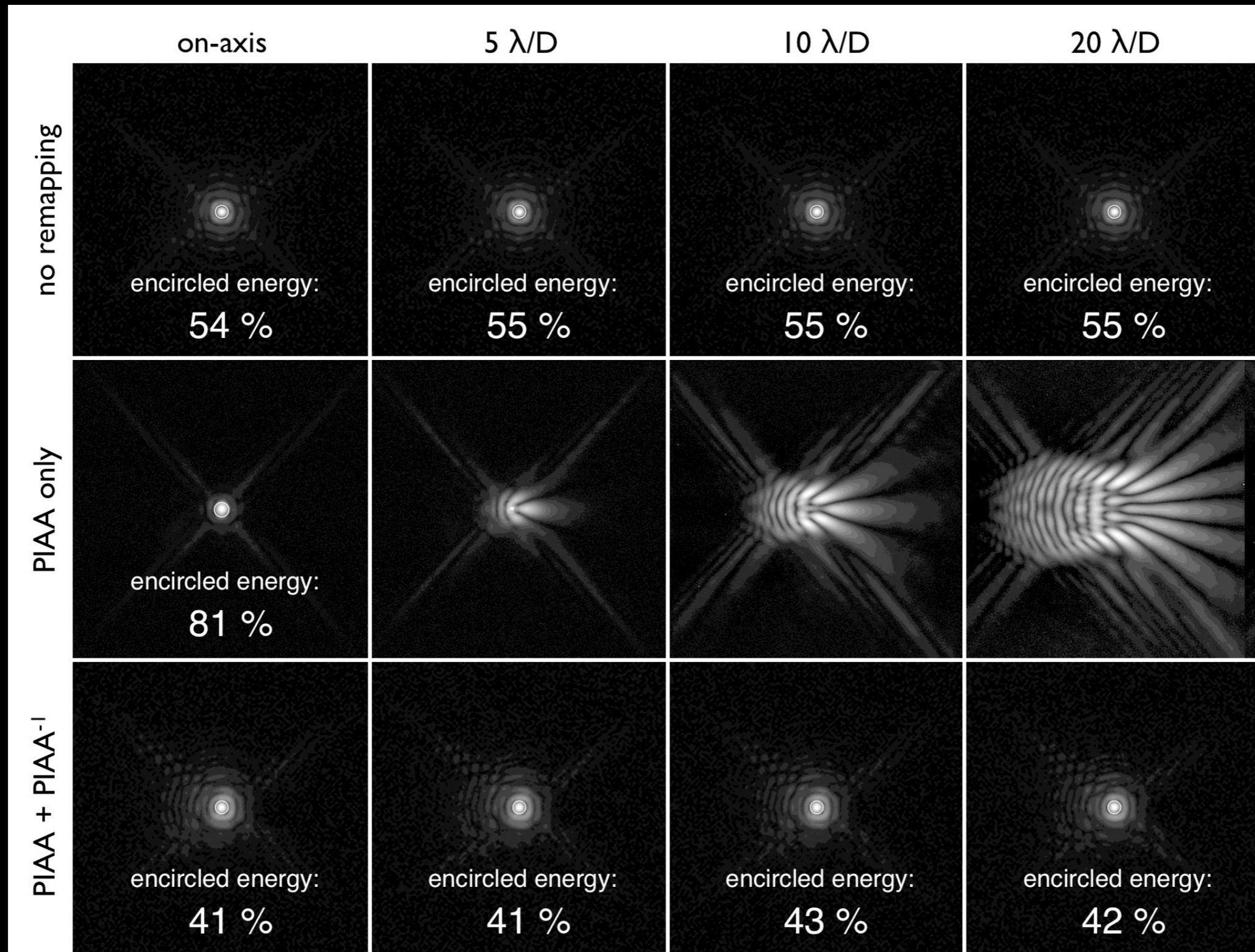
# Optical design in action

Toward  
HiCIAO

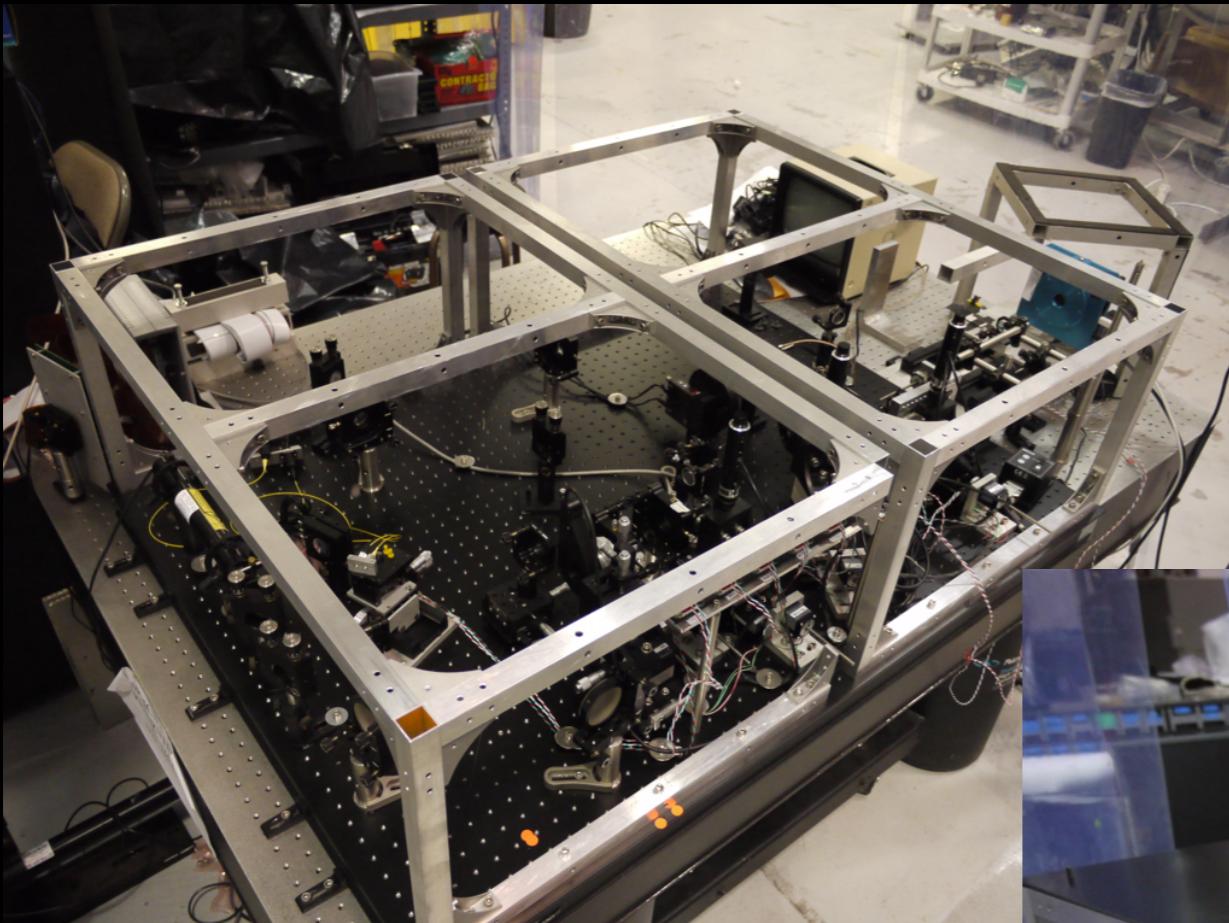


PIAA-I

# Off-axis images

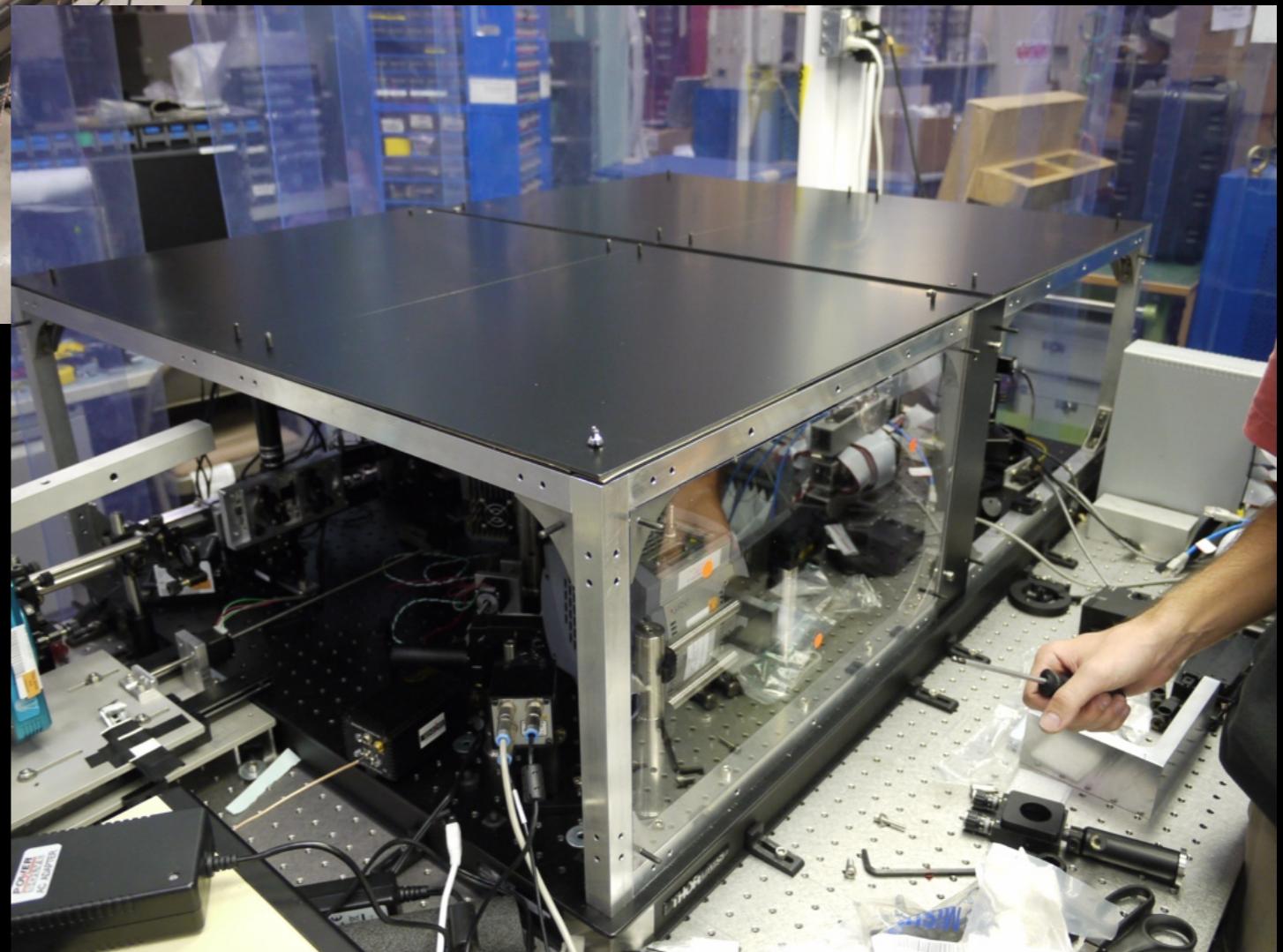


# Current status



protection cage  
assembled in October

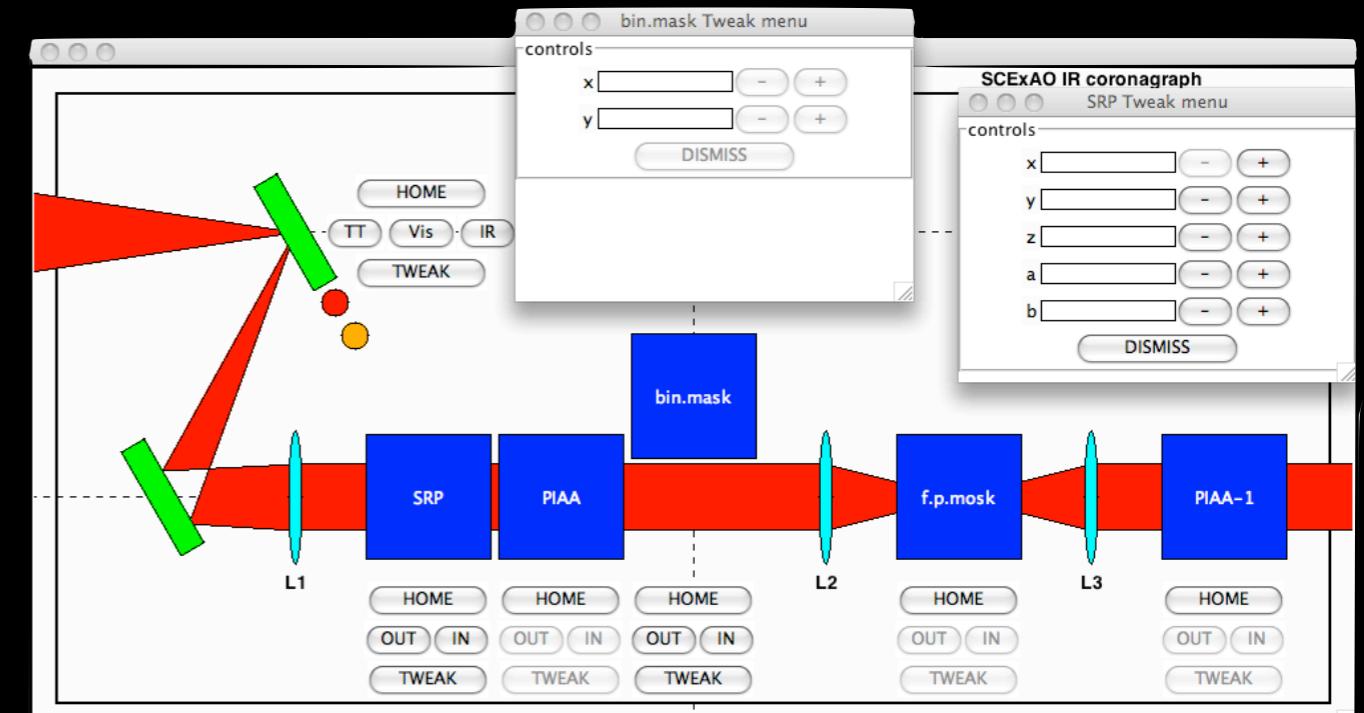
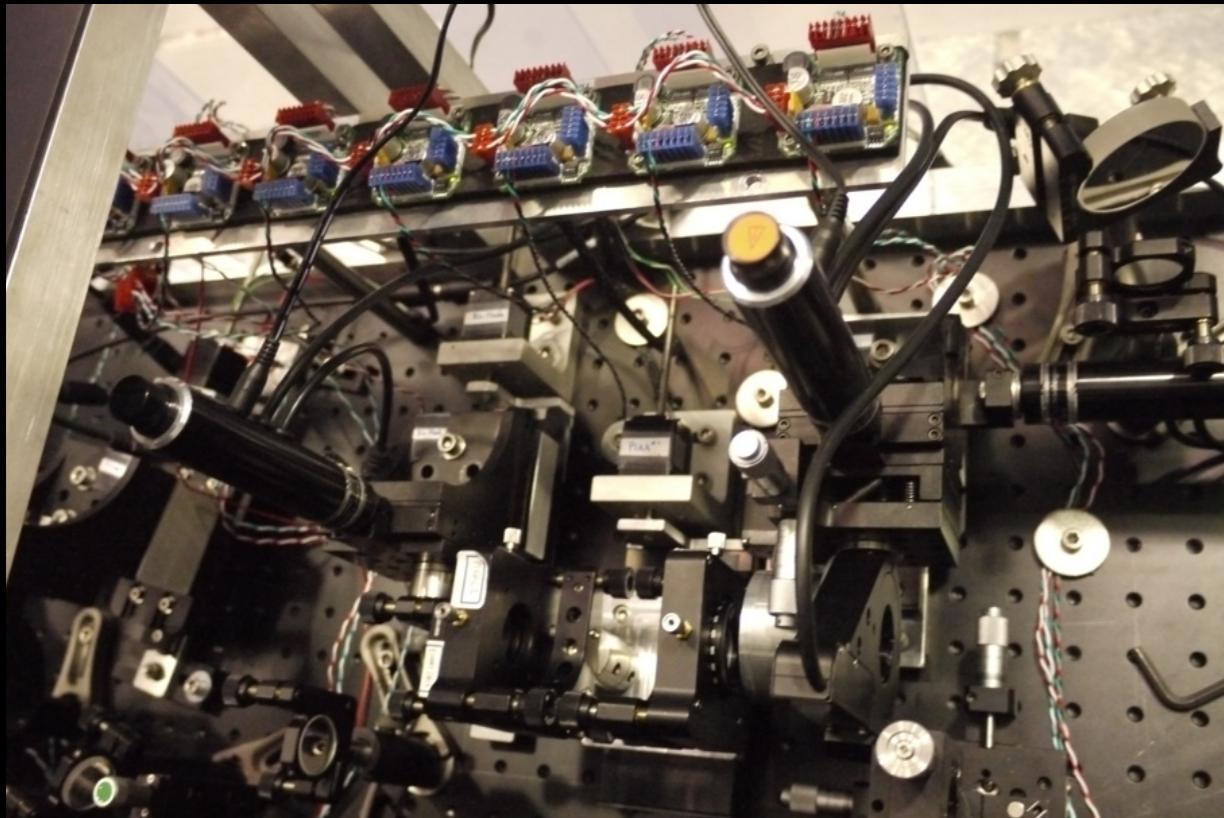
cover panels delivered  
in December



# Remaining tasks

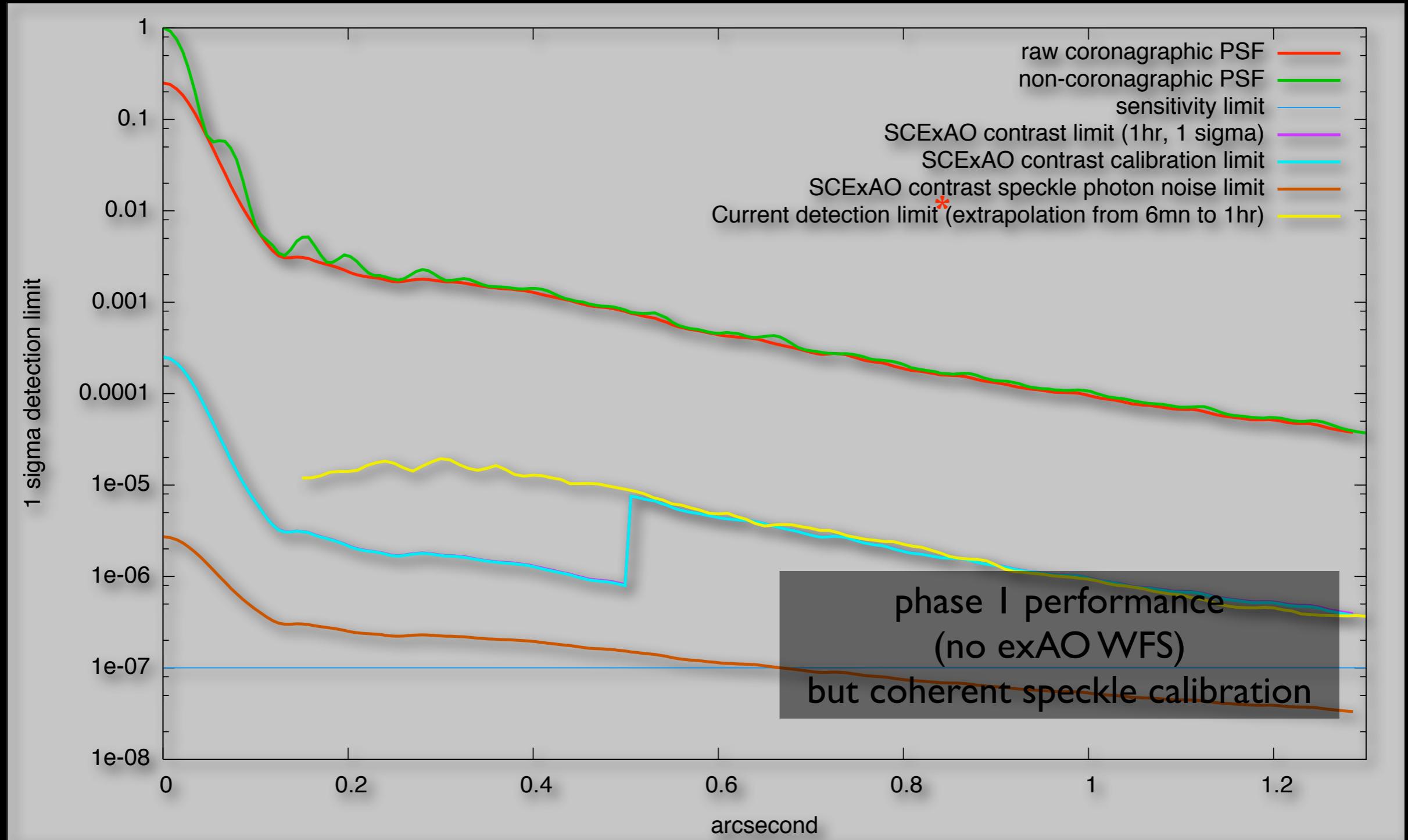
- Re-work of the electronic connections (Colley, Ramos)
  - Add lift points on the SCExAO bench (Doi)
  - Completion of enclosure for optical shielding (Elms)
  - Switch from visible to IR (integrate 2 Xenics cameras)
  - Install extra actuator for flat fielding
  - Re-work driver for tip-tilt mount
  - Re-insert DM
  - Software integration
- 
- Interface with HiCIAO?

# Computer control



- One single Linux-based computer
- Powerful Cfits programming environment
- cmd line &/o Python GUI to drive the optics (80 %)
- cmd line &/o Python GUI to control cameras (60 %)

# System performance



\*SEEDS team, private comm.

# System communication

