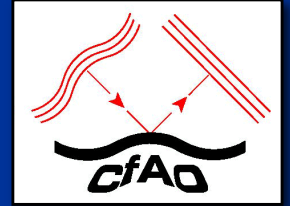# *Designing your own AO system*
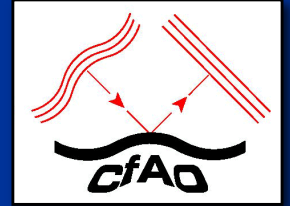
- Science case – investigable science question

- Goal driven design

- Error budget

- Choice of DMs, WFS, Controllers, Science Cameras

- Image quality or contrast required

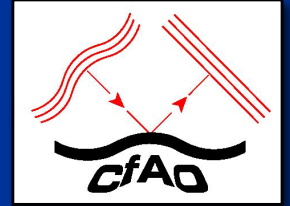- Constraints

- Risks

My goal for today

- **Coalesce the groups around investigable science questions (or technologies)**
  - **Discuss what this means, how to do it**

- **Begin discussion of how to write down science requirements**

- **Overview of how requirements lead to goal-driven design**

Projects: Areas of scientific interest (so far)
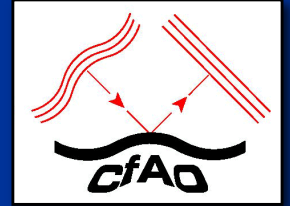
- **Exoplanets**
  - Rachel Bowens-Rubin (UCSC)
  - Noah Swimmer (UCSB)

- **Galaxies (fairly nearby) – imaging and spectra**
  - Sunil Simha (UCSC) Host galaxies of Fast Radio Bursts
  - Yuting Feng (UCSC) Structure of dwarf galaxies

- **Astrometric microlensing (or other topic with spectra?)**
  - Casey Lam (Berkeley)

- **Imaging Solar System objects (moons, comets, etc)**
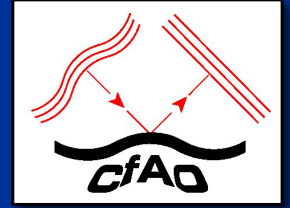 - Alex Hedglen (U. Arizona)

- **What about Dom, Matthew, Yifei, Evan, and Namrata?**

Topics in technology of AO

- **Rachel Bowens-Rubin (UCSC) – AO for telescopes in Antarctica**

- **Eden McEwen (Berkeley) – AI applications to AO, switching between Shack-Hartmann and Pyramid Wavefront Sensors, AO design for new sites**

- **Keck group (Kelleen Casey, Percy Gomez, Sherry Yeh) – Improve error budget spreadsheet**

- **Who have I missed?**