Features of PhoSim that you may not know

Wei Cui
Purdue University

Andrea Morandi, Glenn Sembroski, Jun Cheng

In collaboration with John Peterson and En-Hsin Peng

Some Applications of PhoSim

- Study of sensor effects
  - Fringing, "brick wall", "tree ring", "brighter-fatter", pixel boundary error, anisotropic charge diffusion
  - Flats generation
- Simulation of cluster lensing
  - PhoSim/CatSim FITS interface
  - Complication
- Optical design and test
  - An implementation of the LSST Calibration Telescope
  - UC Davis LSST Beam Simulator

Some obvious but others not

fringing

"brick wall"

Anisotropic charge diffusion

pixel boundary error
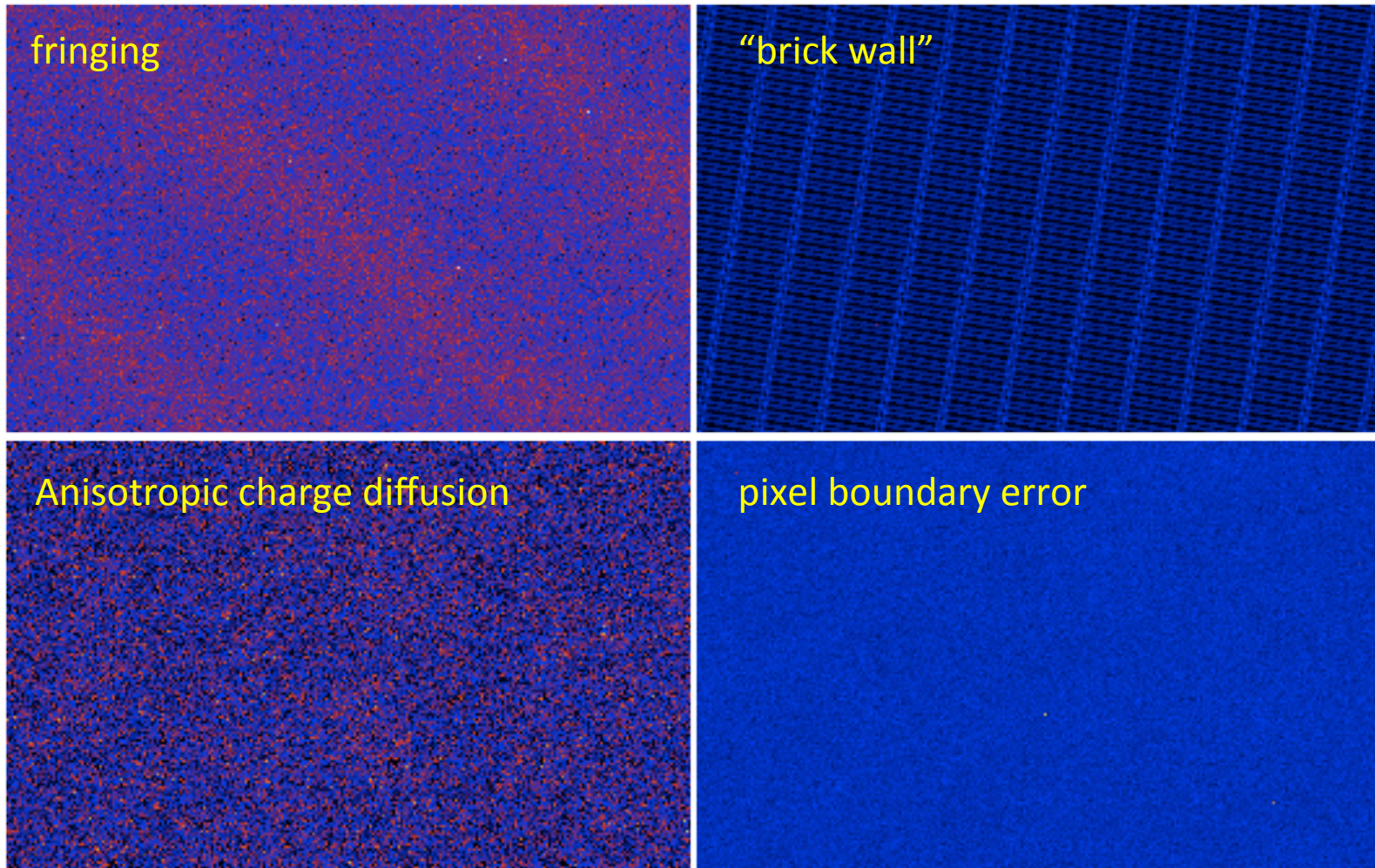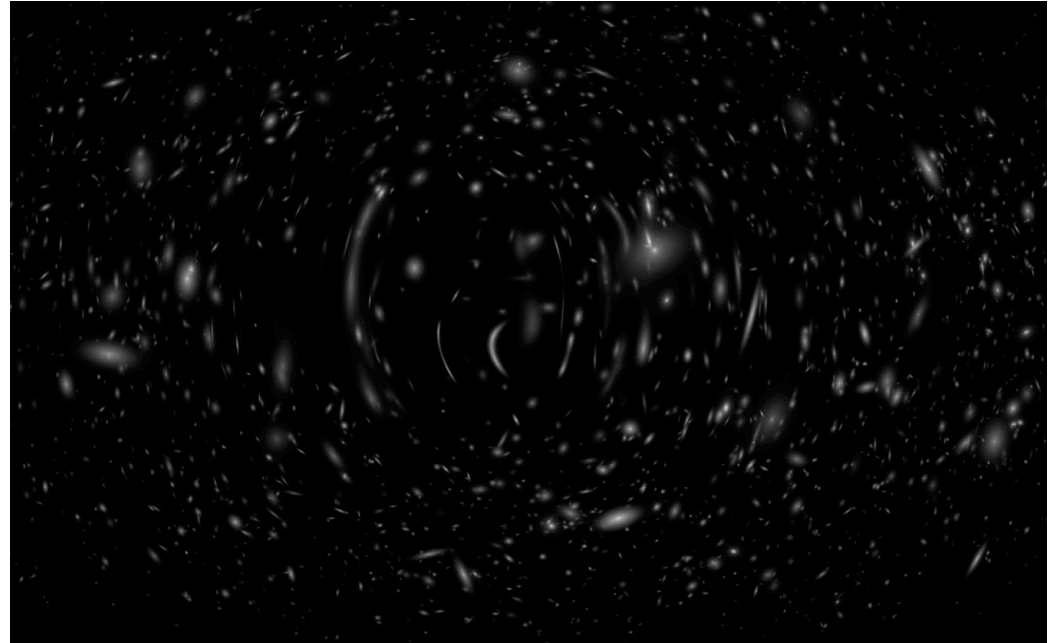
Other effects still "visible"?
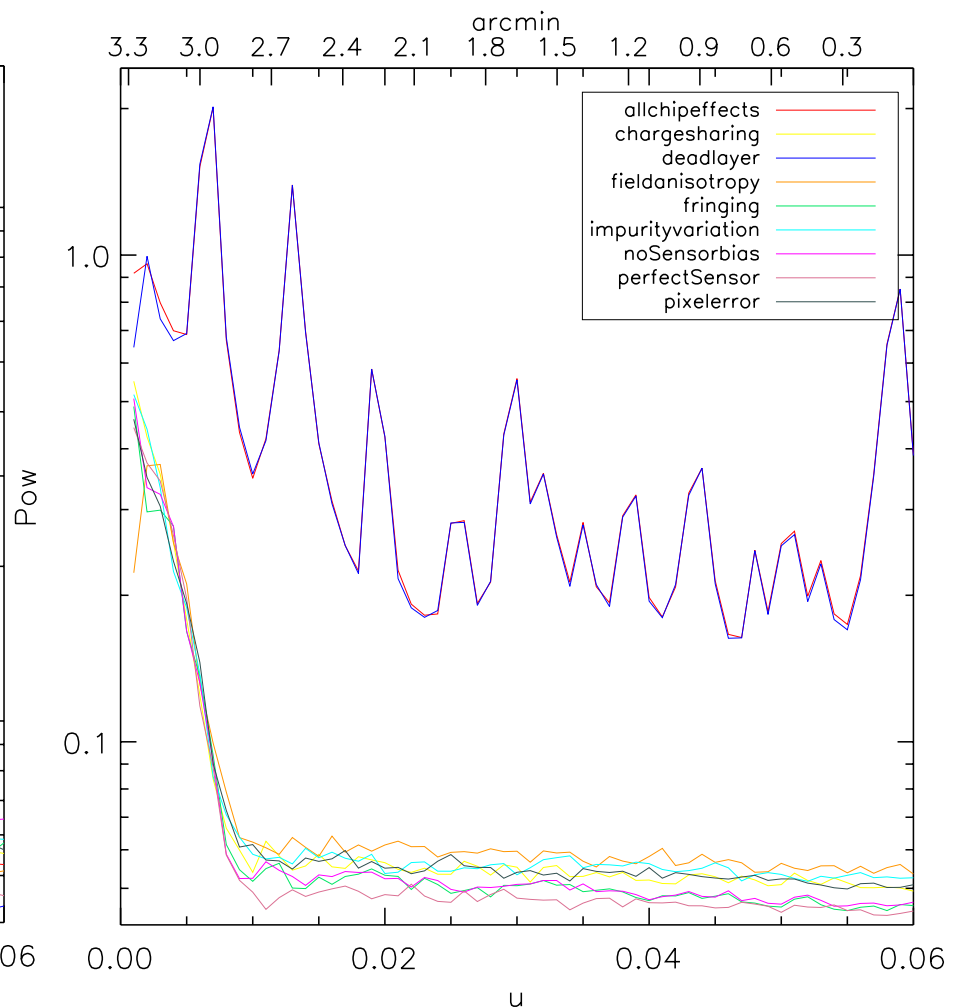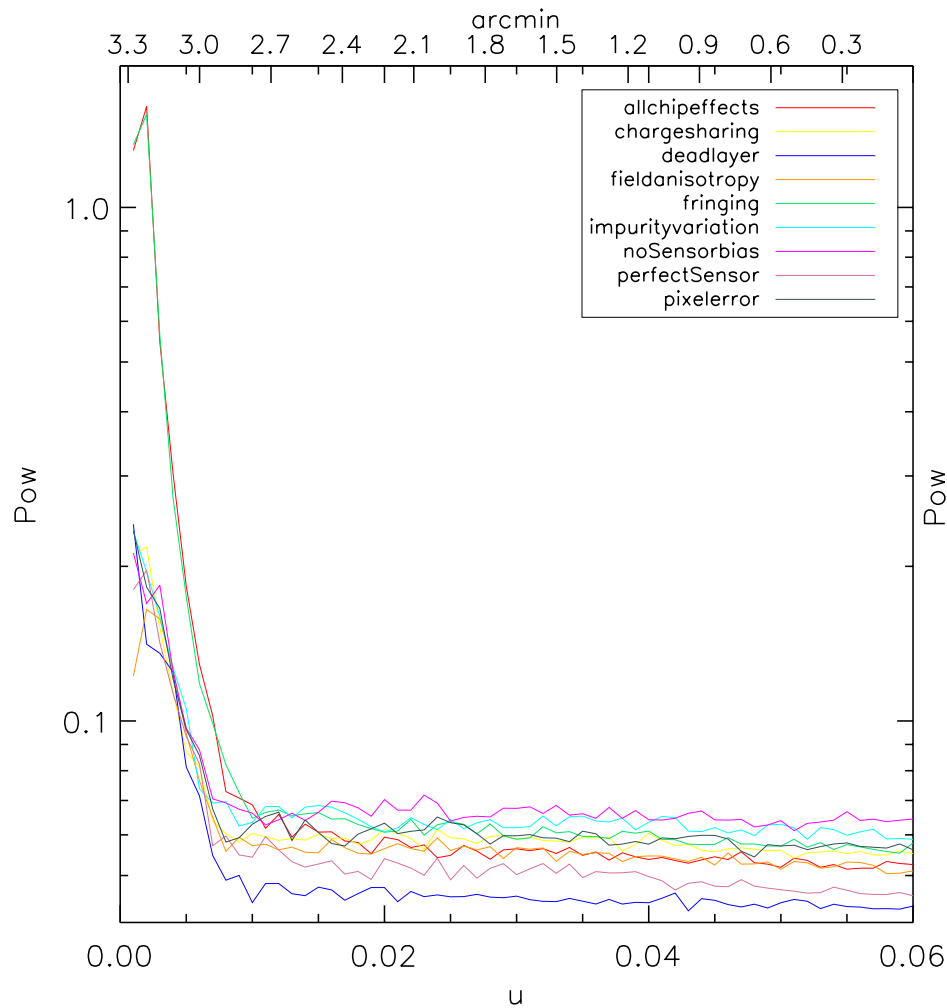
Stacking to go deeper?

Cluster Simulation
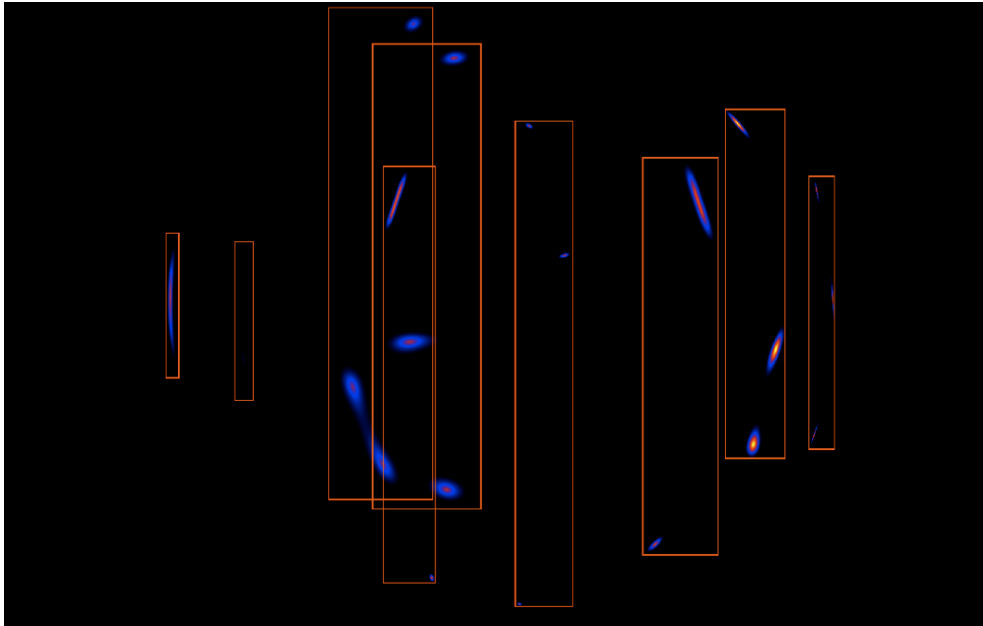
From last year:
Simulated image of a
cluster field.

In an effort to make this type of simulations routine, we found an
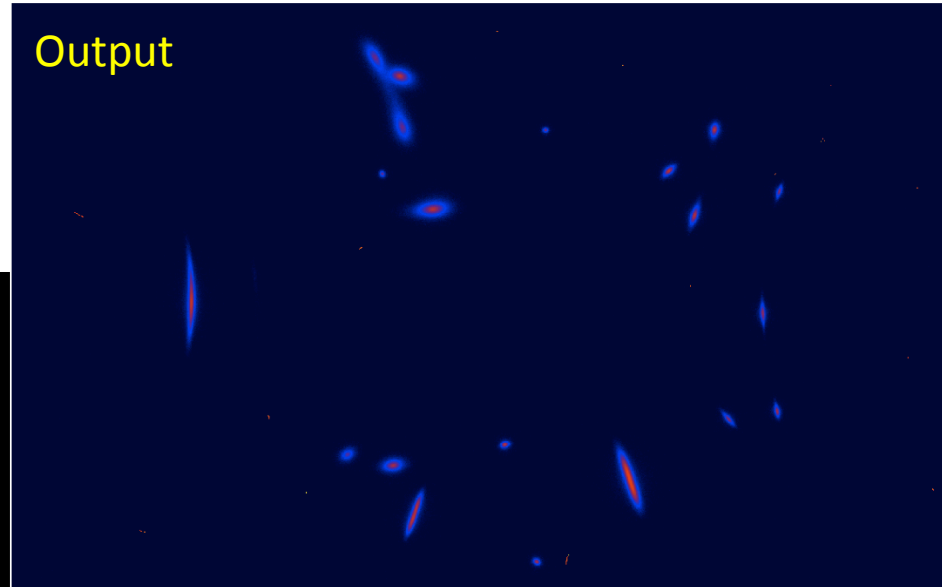issue with the PhoSim/CatSim FITS interface:
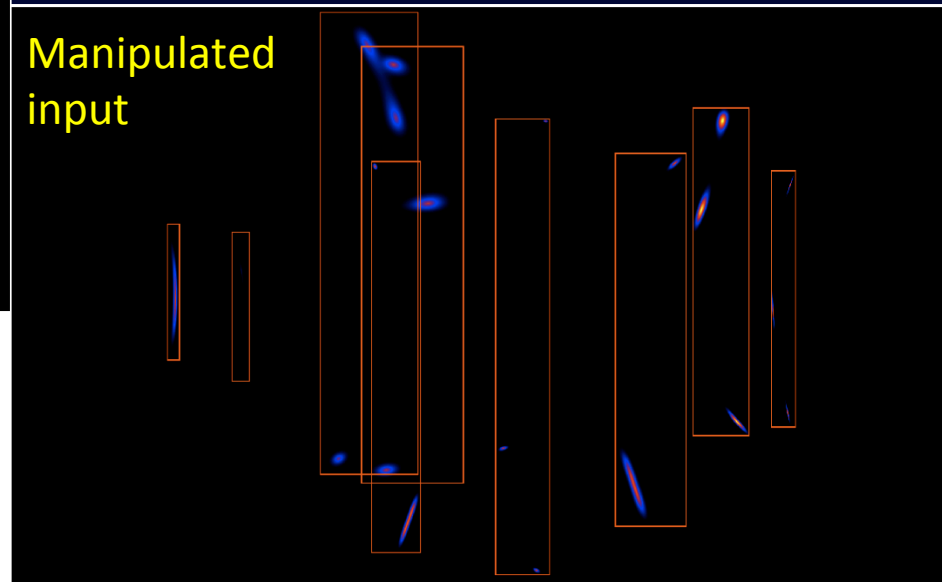➤ Coordinate systems
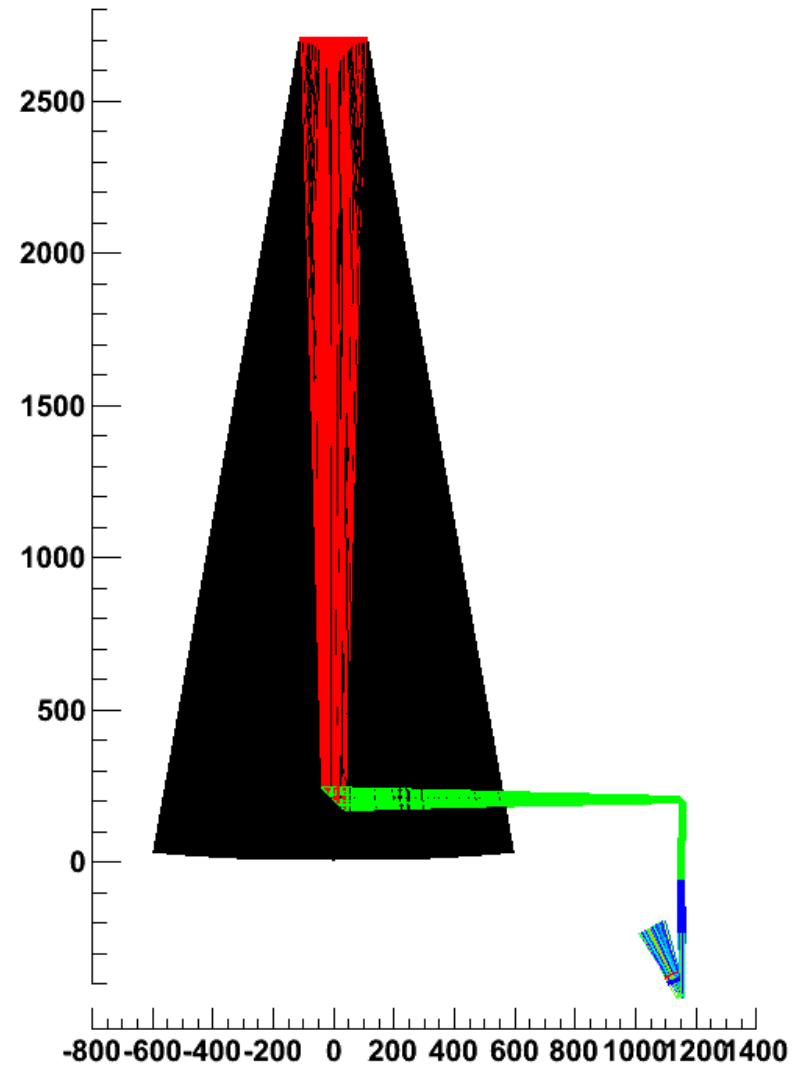
What is wrong?

INPUT: tiled (9) FITS stamps

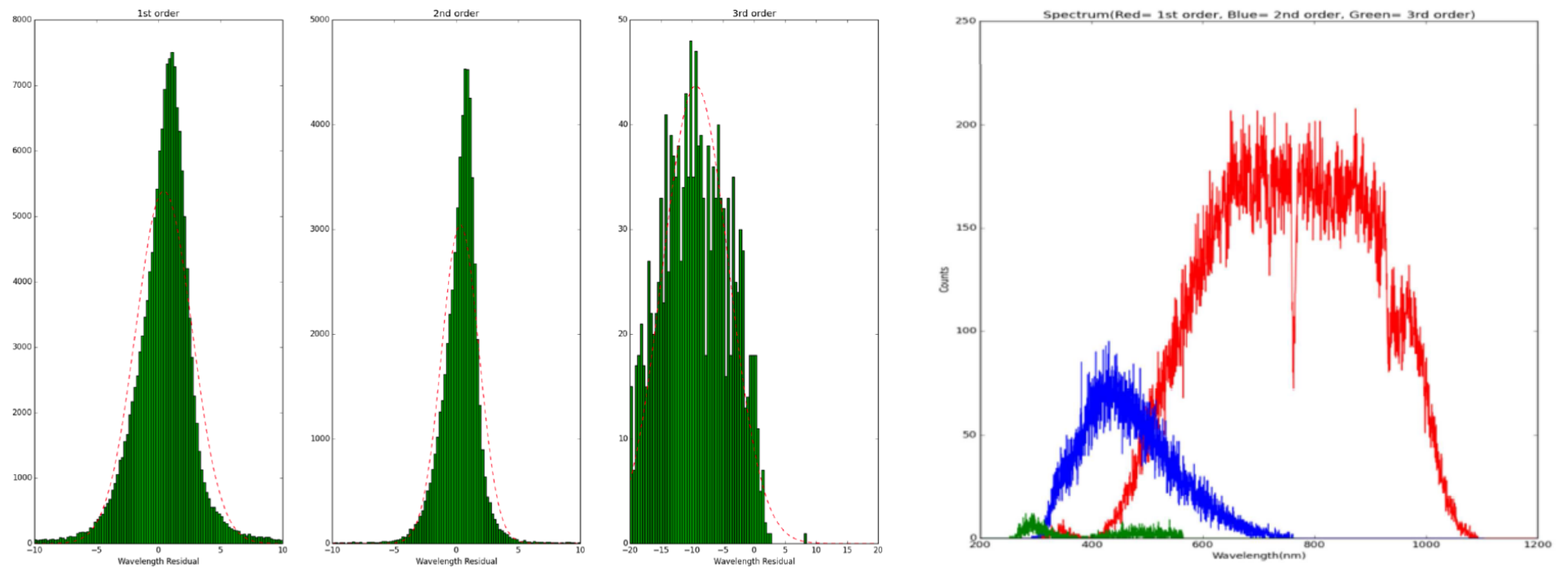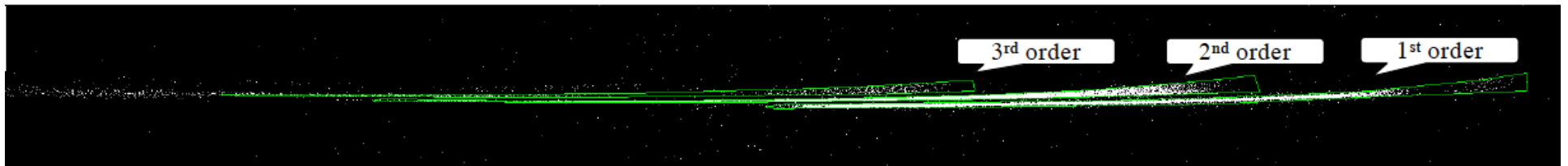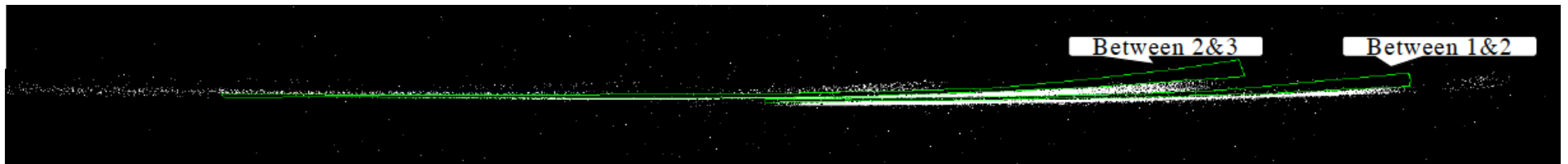Output

Manipulated input

Calibration Telescope

Calypso Telescope

Preliminary Runs

UC Davis LSST Beam Simulator