SPINOR Engineering Run Observing Plan

The objective is to demonstrate SPINOR capability from 430nm to 1083nm, which includes polarization calibrations, telescope calibrations, and science observations.

We will require

ASP
AO system
HSG with 308.57l/mm grating, 1219mm fl lens, 1000mm fl lens, filters for 430.5nm, 500nm, 630.2nm, 850nm, and 1083nm.
Slit jaw Calcium K imager
Network connection for 2 laptops and the SPINOR camera control computer to the SAN

Install SPINOR camera control computer

Check fiber optic cable length. If sufficient for Science_2 configuration, then mount computer in rack, monitor, keyboard, and mouse on table, otherwise closer to HSG.

Serial cable to ASP synchronizer serial output panel
Parallel cable to ASP synchronizer sync and timing panel
Fiber optic cables to Pluto camera
Strobe cable to Pluto camera
Debug control of Pluto camera from ASP

Install new SPINOR optics:

Mount calibration linear polarizer in calibration modulation unit. Put polarizer stage on a bench with a reference polarizer crossed to current linear polarizer. Mount new polarizer so that it is crossed with respect to reference. Return linear polarizer stage to calibration modulation unit.

Mount polarizing beam splitter behind entrance slit of HSG. Remove the retarder.
Mount window polarizer array into window polarizer ring (not needed at first)

Set up the HSG

Use new protected silver fold mirrors to feed HSG
Set up HSG slit jaw pick off at 393nm
50 μm slit width
308.57 line/mm 52º blaze grating set for ~54º angle of incidence

1219mm fl lens feeding ASP cameras at 854.2 nm with pick off mirror for 849.8nm. See first diagram

Fold mirror and new 1000mm fl lens feeding Pluto camera at 1083nm (use 504nm at 1st)
Set up 1083 pick off mirror as close to input beam as possible to set grating angle.

Adjust grating for horizontal spectrum. Put 0th order return beam on camera and adjust grating tilt. Rotating grating to an observing order and adjust grating β angle.

Adjust polarizing beam splitter for minimum beam separation as seen on Pluto camera.
Change Pluto to 1083nm and check flux level. What will be our modulation rate?

Adjust polarizing beam splitter height for minimum beam separation as seen on Pluto camera.

Adjust phasing of ASP and Pluto

Use calibration linear polarizer 0º and retarder at 45º maximize 'V', then linear polarizer at 0º and adjust offset to zero 'U'.

Science 1st priority:

Perform several polarization calibrations. Watch polarization signals to make sure they make sense.
Observe the most active region, or plage, or quiet disk.

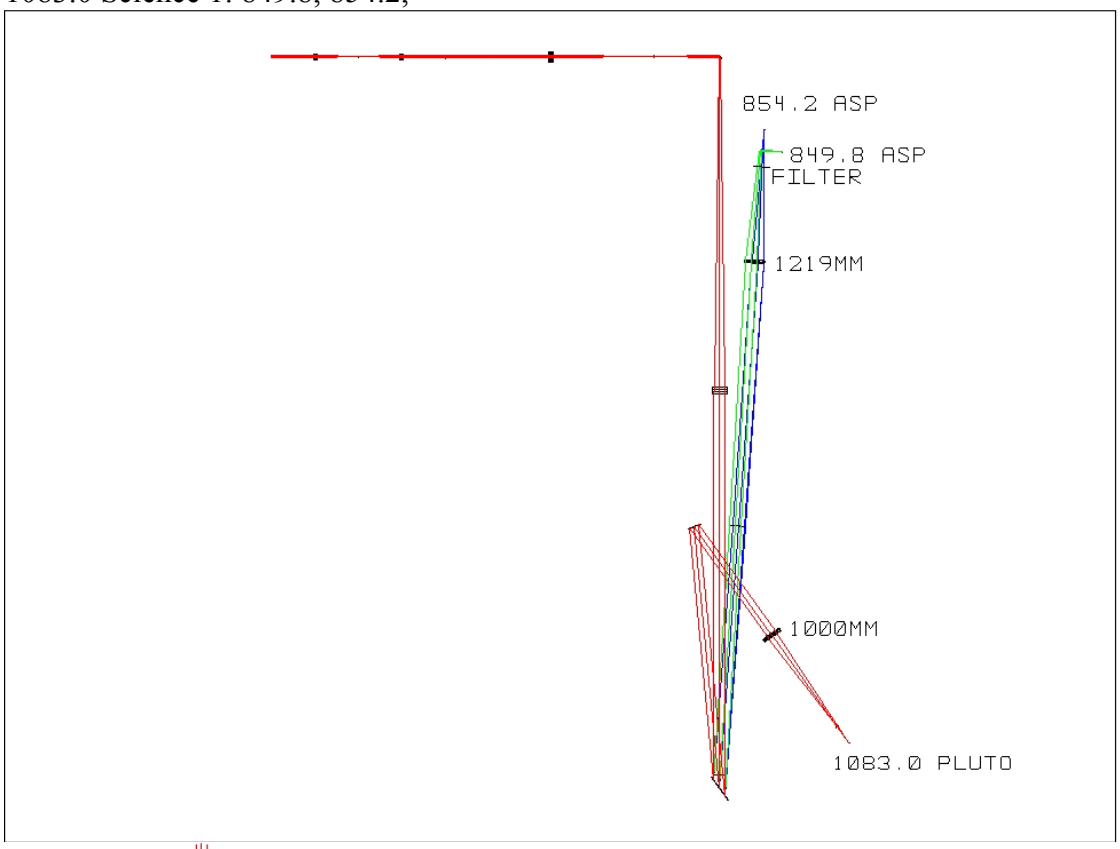
Science 2nd priority:

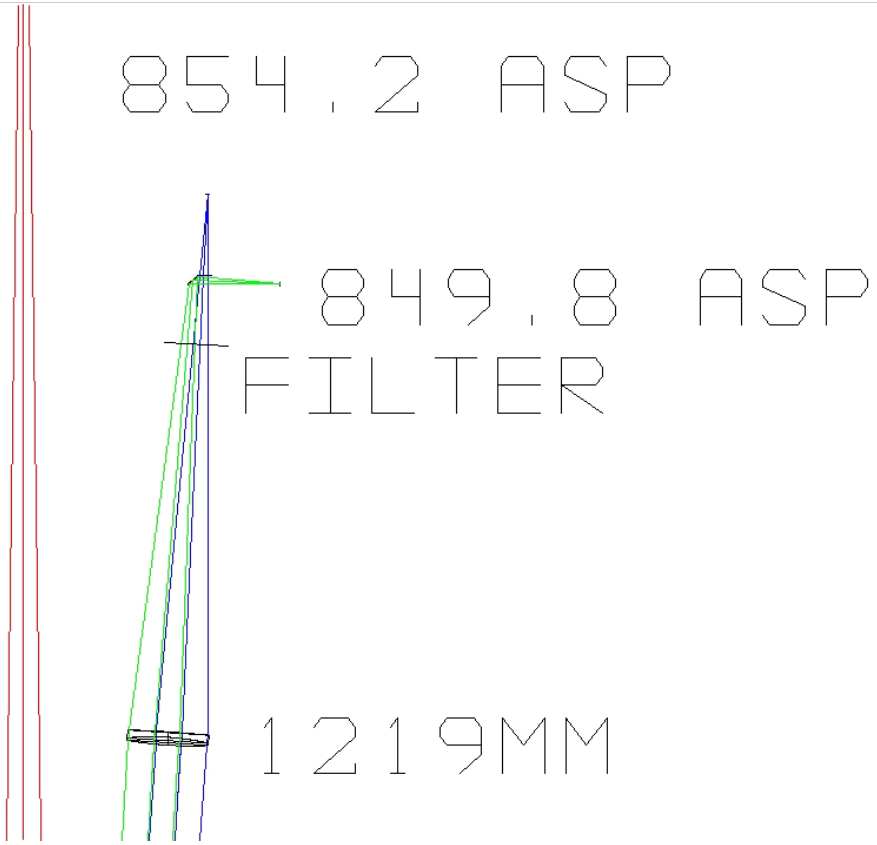
Set up HSG for 630.2nm on one ASP camera, and 430.5nm on Pluto camera.
Use 56º angle of incidence.
1219mm lens at 630.2nm with ASP camera
1000mm lens at 430.5nm with Pluto camera
Perform calibrations
Observe network.

Telescope Calibration:

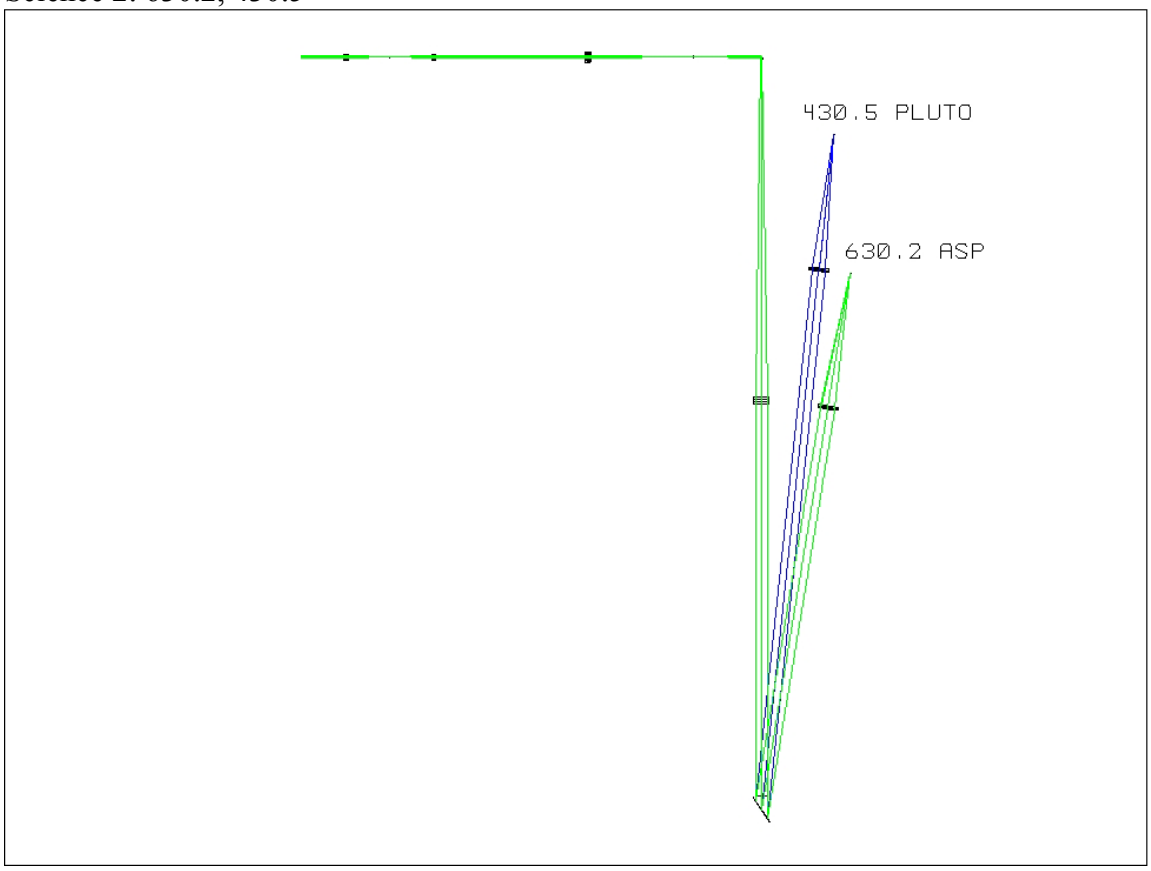
After 19 June set up HSG with cross dispersed lens on the front of the Pluto camera.
Mount entrance window polarizer onto turret.
Run a sequence of telescope calibrations with the entrance window polarizer for at least ½ day.
Run a sequence of polarization calibrations to go with the T matrix calibrations.
If still time: go back to Science 1.

1083.0 Science 1: 849.8, 854.2,

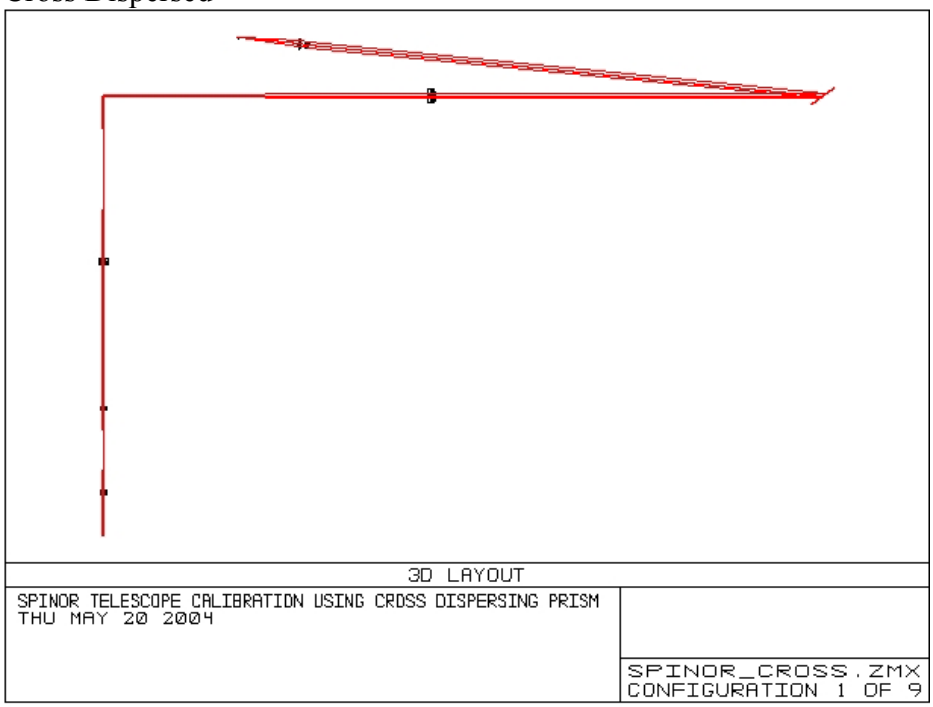


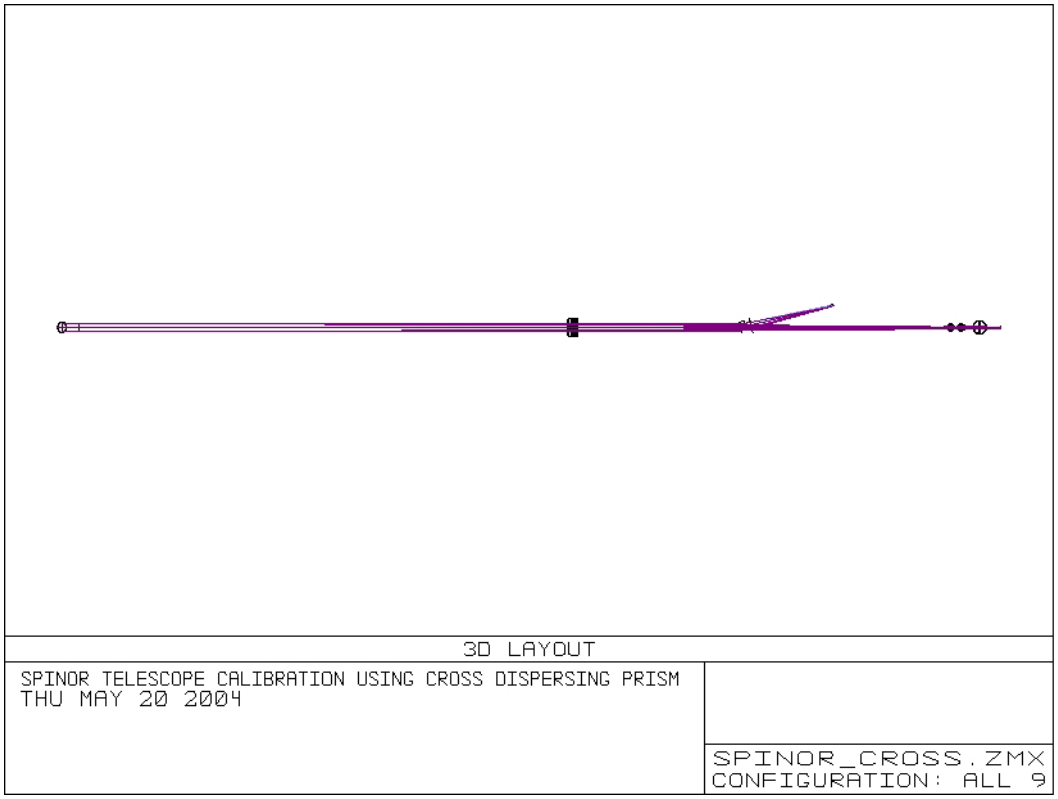


Science 2: 630.2, 430.5

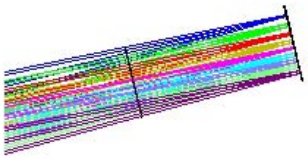


Cross Dispersed





387.8



1008.3