**Experiment Plan for the Filtre Spatialle (FILS)**

**– draft (all-inclusive – some steps can be dropped if time is short)**

1) **If possible, first test FILS on the AO white light source**

(perhaps right after dinner to give us time to look at the data, or in afternoon, except we won’t be there)

Carry out sequence A

2) **Test FILS on a bright star**

Insert clear pupil for DM; insert OAR pickoff mirror; rotate Cass ring to 220

Find OAR beam on PHARO and WFS

Point ~ ½ hour ahead of star for MGS

Carry out sequence A (maybe also right after dinner to give us time to look at data?)

3) **Observe HR8799**

Decide on best observation strategy (with or without FILS; if without FILS, remove filter), redo MGS ~ ½ hour ahead of HR8799 in RA, observe with the vortex coronagraph, alternating between star and calibrator (need to finish up by about 2-3 am = 3-4 hrs past transit)

**Sequence A:**

Move PALAO WLS in

Install the bandpass filter in the wavefront sensor (WFS) (may be about 750 or 800 nm)

Open the spatial filter fully

Do a round of MGS improvements (including optimal focus onto vortex coronagraph)

Measure the coronagraphic PSF thru the K-band vortex and Ks filter with PHARO

Get wavefront residuals from AO system

Close down FILS to 16 x 16 λ/D (about 200 µm), where λ is the WFS filter wavelength

Measure the coronagraphic PSF thru the K-band vortex and Ks filter with PHARO

Get wavefront residuals from AO system

(Redo MGS with FILS stopped down and remeasure?)

Compare the PSFs – if no difference noted, there is likely no reason to try FILS on the sky

**Stars**



Oct 8: RA = 1 hr transits ~ at real midnight 🡺 1 hr transits ~ at 1 am (daylight savings time)

* These three stars transit at ~ 8 PM, 9 PM, 11 PM.