Directions on how to run FQPM and/or normal AO with FQPM installed

Note: In this document we refer to FQPM, but this is really applicable to anytime the off-axis re-imager optics are installed on the AO bench.

1. To run "normal" AO
    a. start AO system
        i. "cd /home/aousr/ao3/bin"
        ii. "./start_ao -tcs"
    b. Once the system is booted then
        i. move fq_stim to 500,000 (this makes sure the FQPM stimulus is out)
        ii. move fq_relay to 0 (this makes sure the FQPM relay is out)
    c. Use the AO system as normal
    d. DM Mask
       There should not be one installed. Note only AO team members are authorized to remove or install a DM mask.
    e. PHARO: run xpharo

2. To run "FQPM" AO
    a. start AO system
        i. "cd /home/aousr/fqpm/bin"
        ii. "./start_ao –tcs"
    b. Once the system is booted then
        i. move fq_stim to 500,000 (this makes sure the FQPM stimulus is out)
        ii. move fq_relay to 34,500 (this makes sure the FQPM relay is in)
    c. Load correct pixel gains file
       I think you want to use pixel_gains_no_obs, although you might also want to try pixel_gains_all.
       load wfp=ho, pixel_gains=aocp:/pixel_gains/pixel_gains_no_obs
    d. Faint light performance/optimization
       You can use play all the usual games as for the "normal" AO system, but if/when you try the optimal reconstructors use alphaxrxxxu.txt, the u is for no central obscuration for FQPM.
    e. DM Mask
       The circular non-obscured mask should be installed on the DM if using FQPM. Note only AO team members are authorized to remove or install a DM mask.
    f. PHARO: run xpharo_fqpm

       It might make sense to make a file called DEFAULT_FQPM so that once the AO system is booted this can easily be restored.

3. Switching between "normal" and "FQPM" builds without restarting the whole AO system
   NOT TESTED
    a. Exit TAO (the AO GUI)

b. cd to "/home/aousr/ao3/bin" or "/home/aousr/ao3/fqpm" as appropriate for the mode you are switching to
c. "./tao –ch aocp –th tcs" to restart tao
d. When TAO is exited PHARO will go into network simulation mode, once TAO is restarted the AO connection can be re-established by de-selecting simulate network from one of the XPHARO pulldown menus
e. restore the appropriate AO file DEFAULT or DEFAULT_FQPM\
f. **DM Mask: There should be no DM mask for normal AO and the ciricular non-obscured mask for "FQPM" AO**. Note only AO team members are authorized to remove or install a DM mask.
g. PHARO: exit PHARO GUI and re-start xpharo or xpharo_fqpm as appropriate.