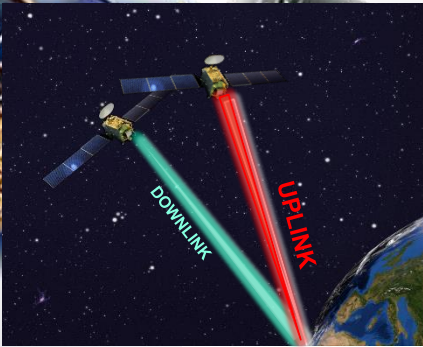


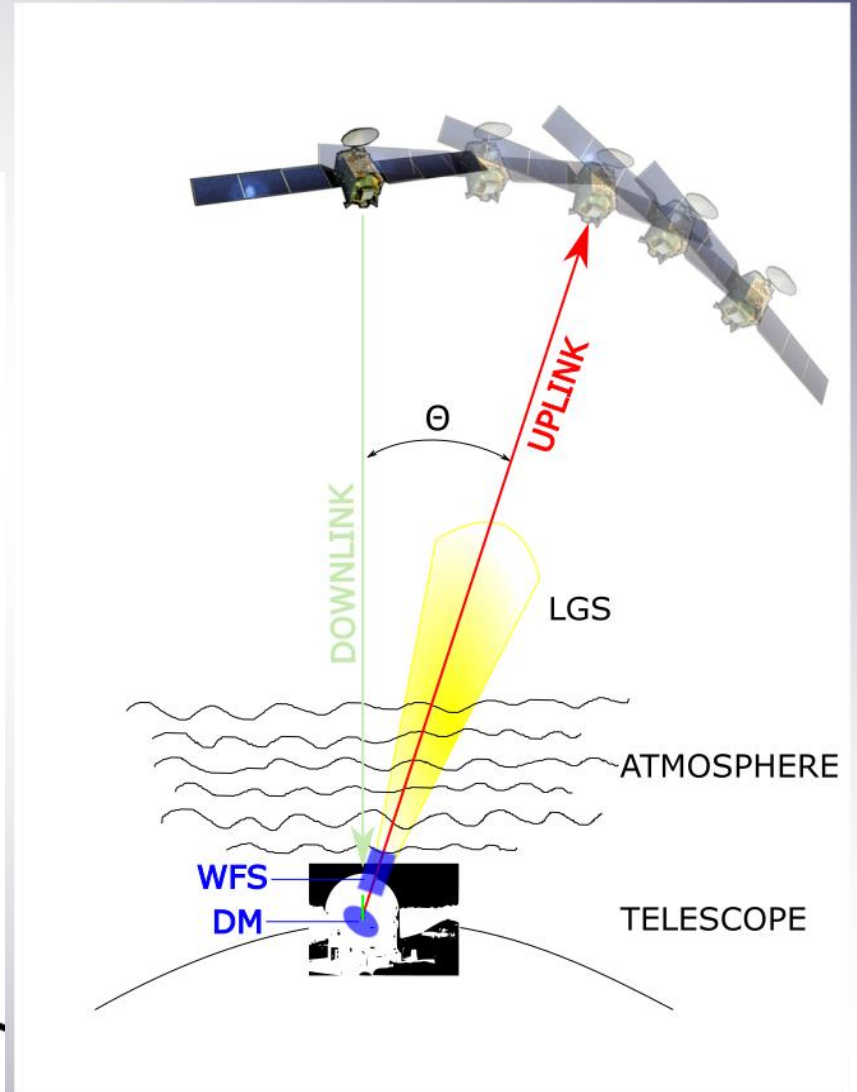
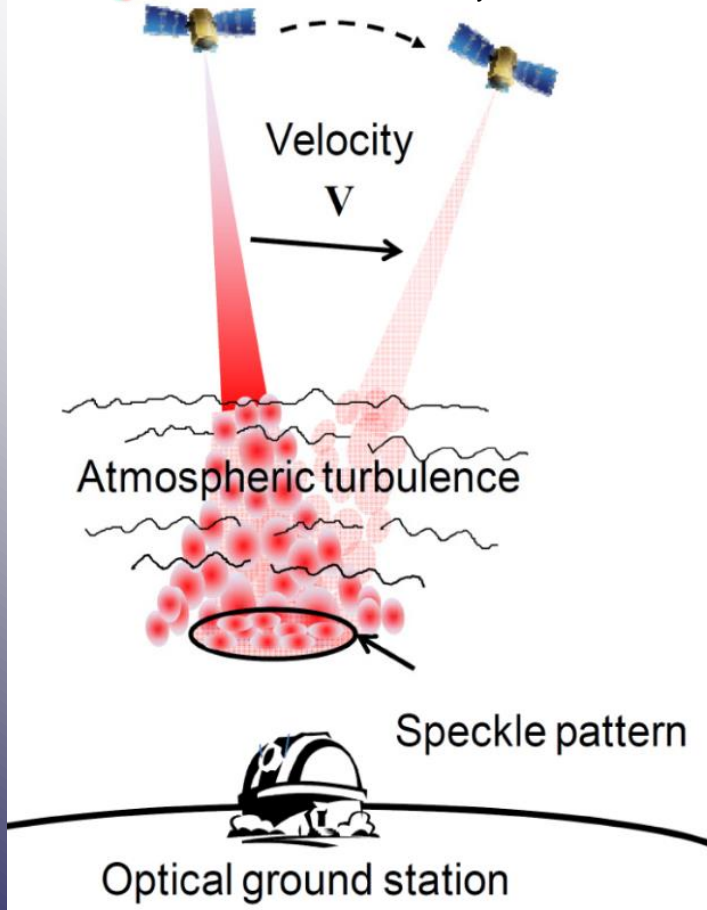


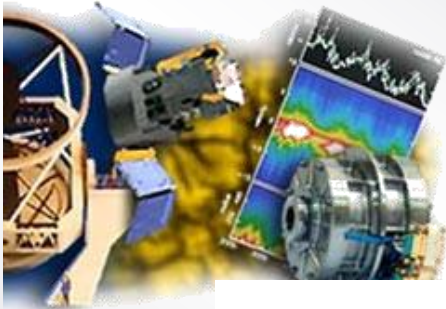
INSTITUTO DE ASTROFÍSICA DE CANARIAS
Adaptive Optics for
LGS uplink correction:
On-sky Validation

FSOC UPLINK CORRECTION



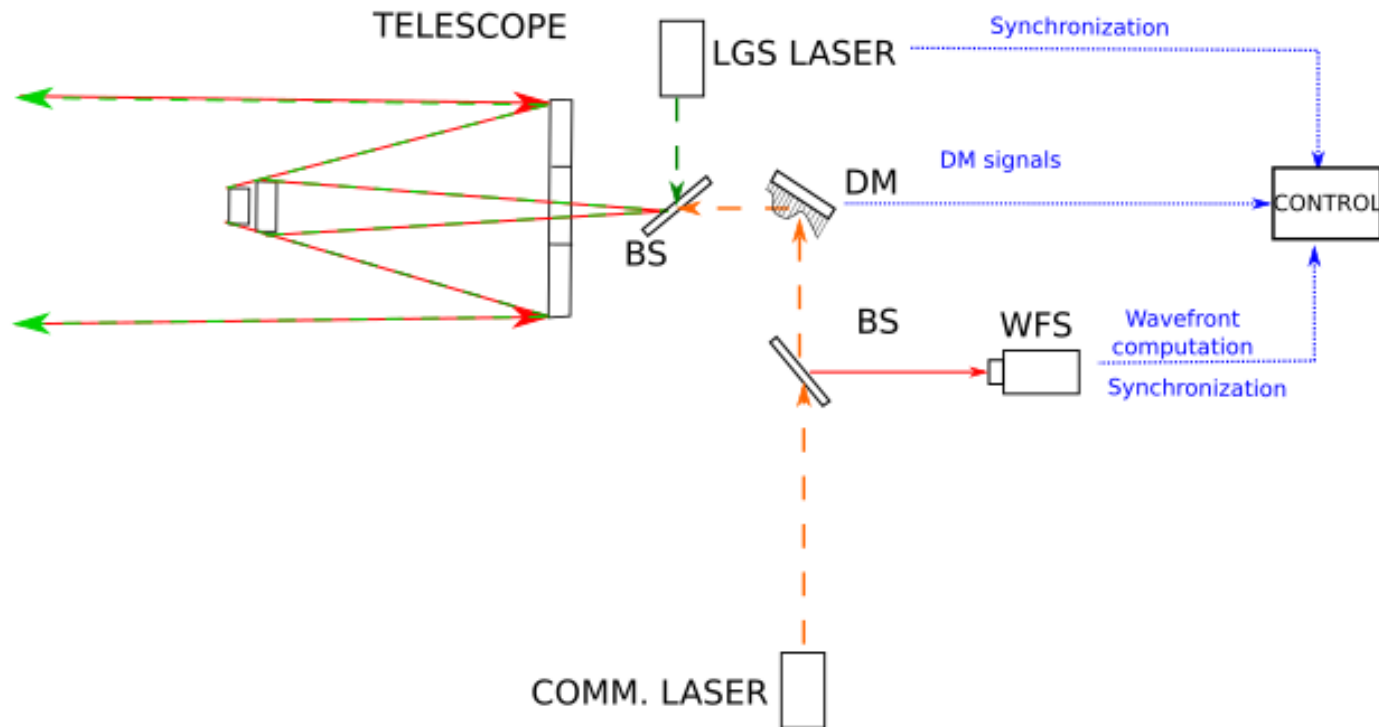
Toyoshima et al, 2011

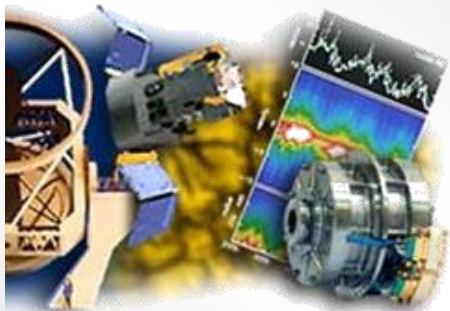




UPLINK WAVEFRONT CORRECTION SYSTEM

UWCS

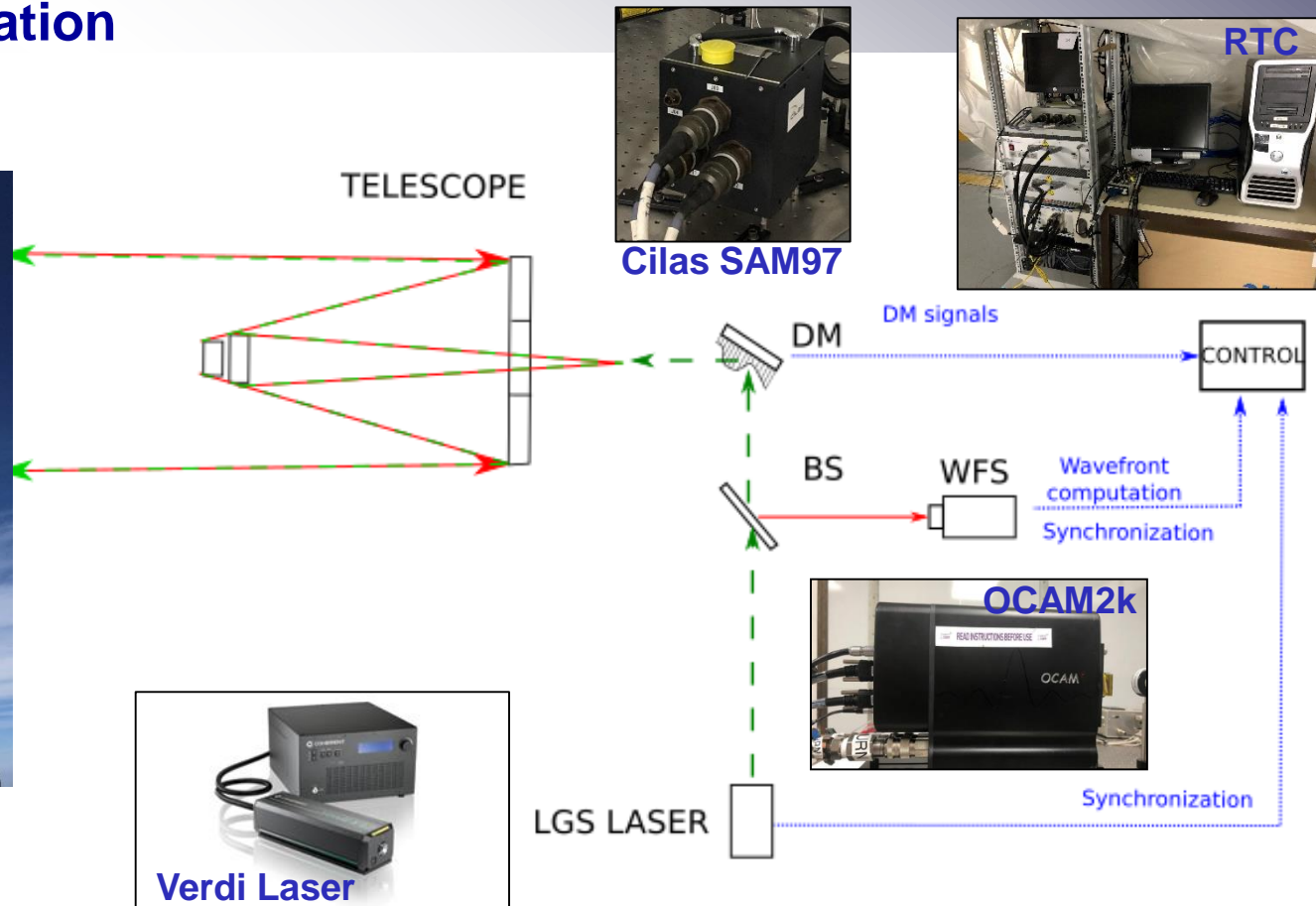


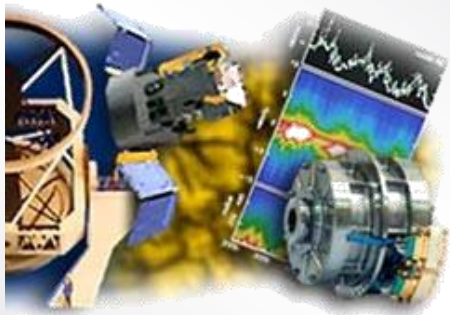


UPLINK WAVEFRONT CORRECTOR SYSTEM

UWCS - Demonstrator Phase

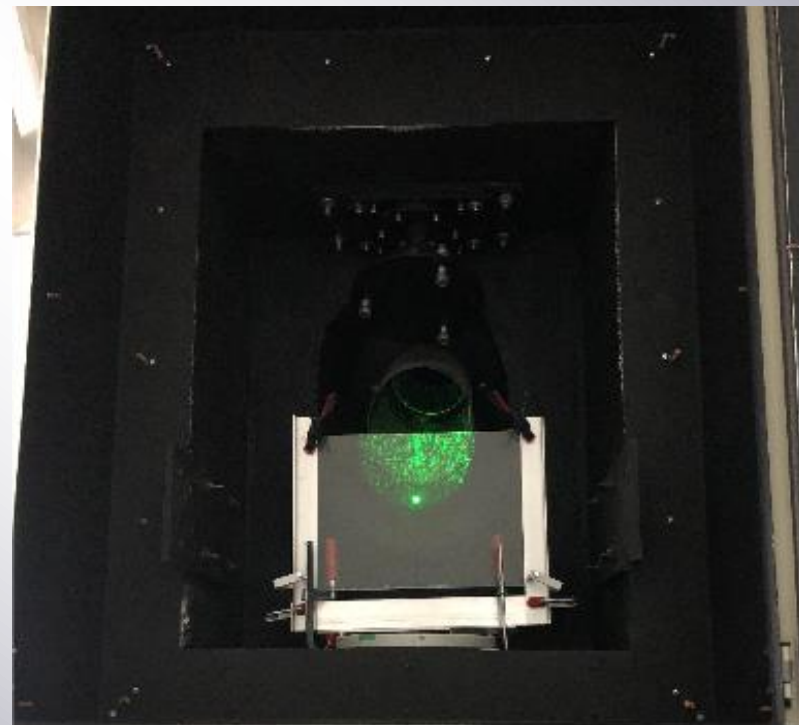
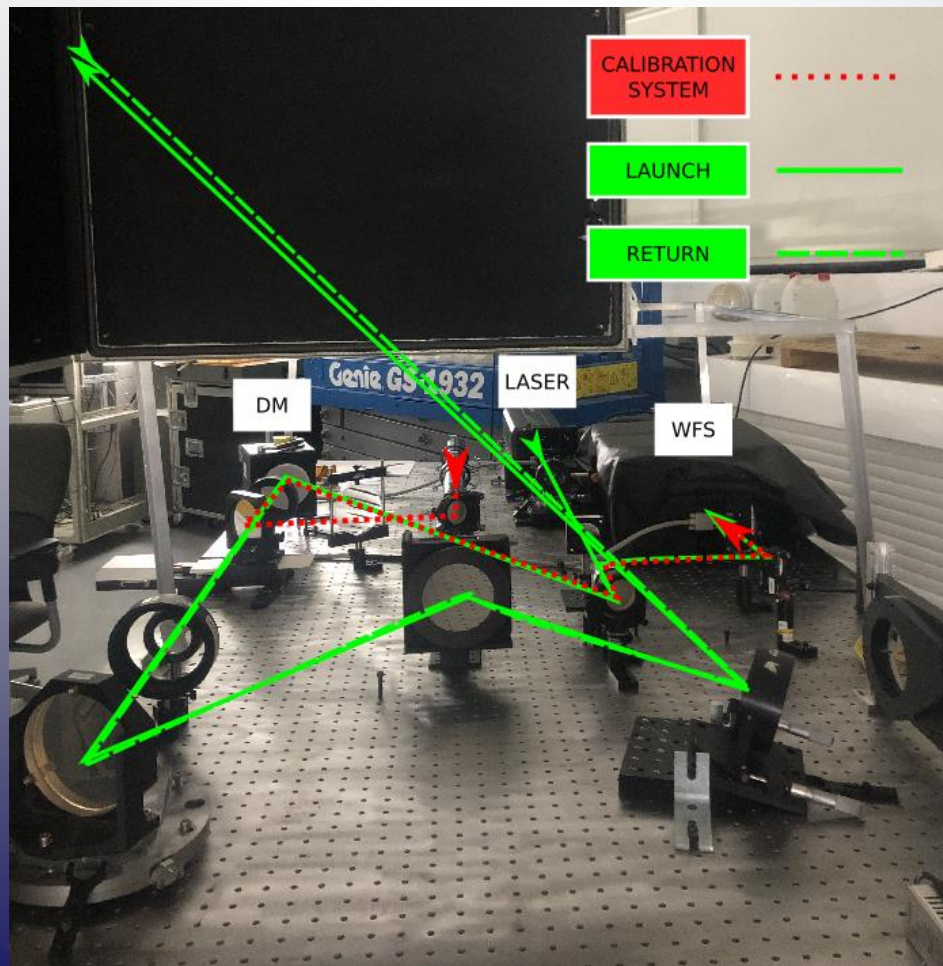
Optical Ground Station
(OGS)

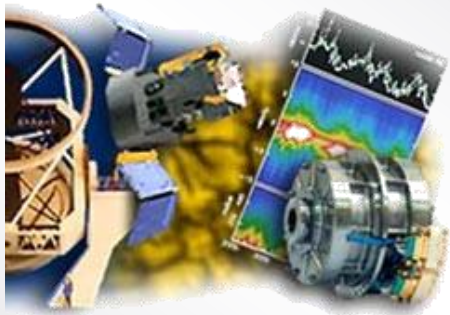




OGS UWCS INTEGRATION

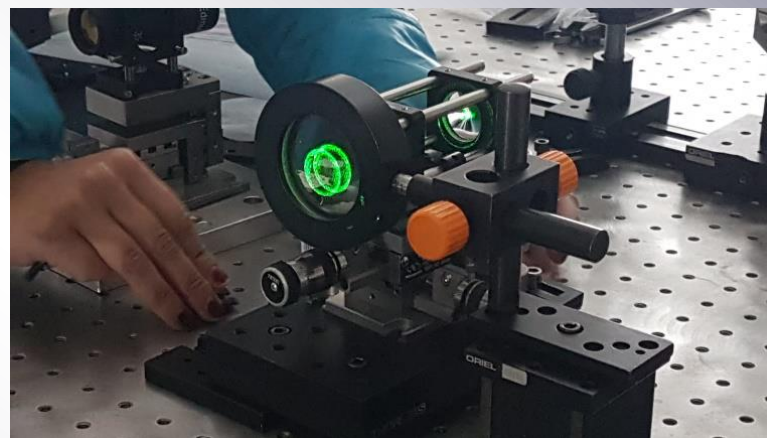
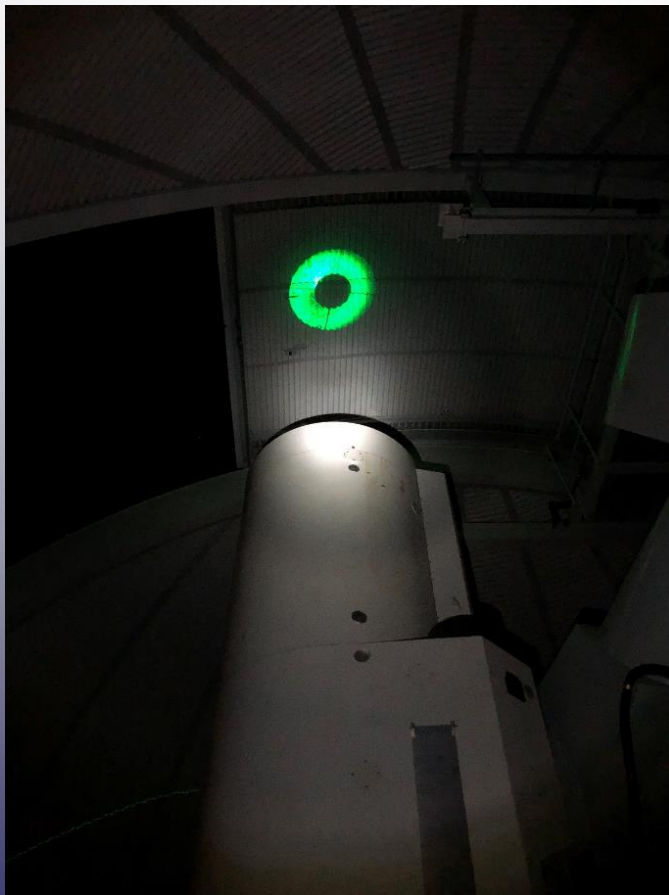
Laser Verdi 18W 532nm CW
WFS OCAM2k 12x12 subapertures
DM Cilas SAM97 97 actuators
Calibration Laser He-Ne 632.8nm

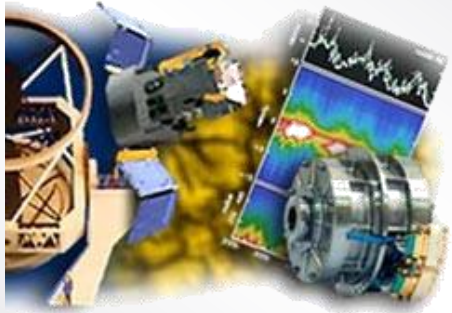




OGS UWCS INTEGRATION

LAUNCH SYSTEM: AXICON

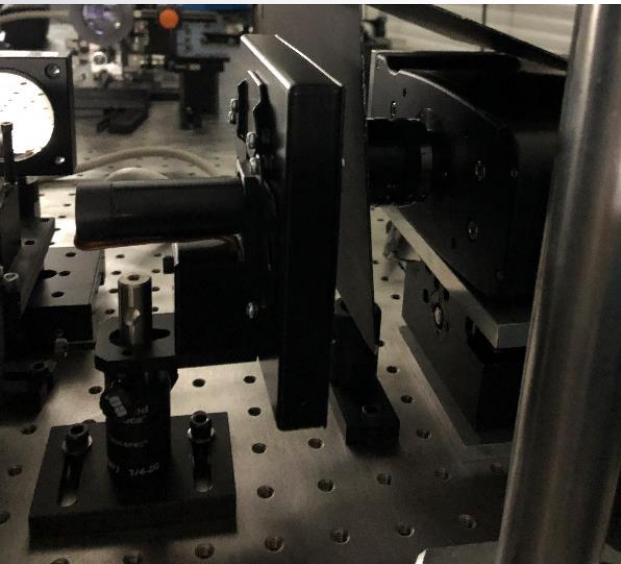




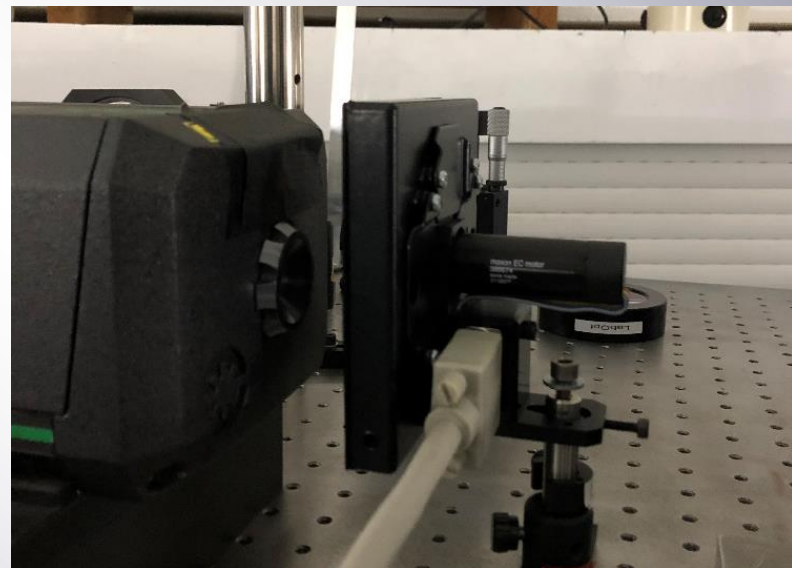
OGS UWCS INTEGRATION

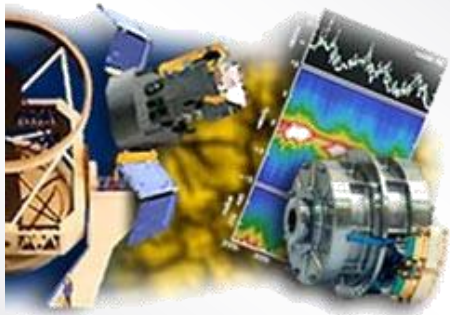
OPTICAL CHOPPERS

WFS



LASER



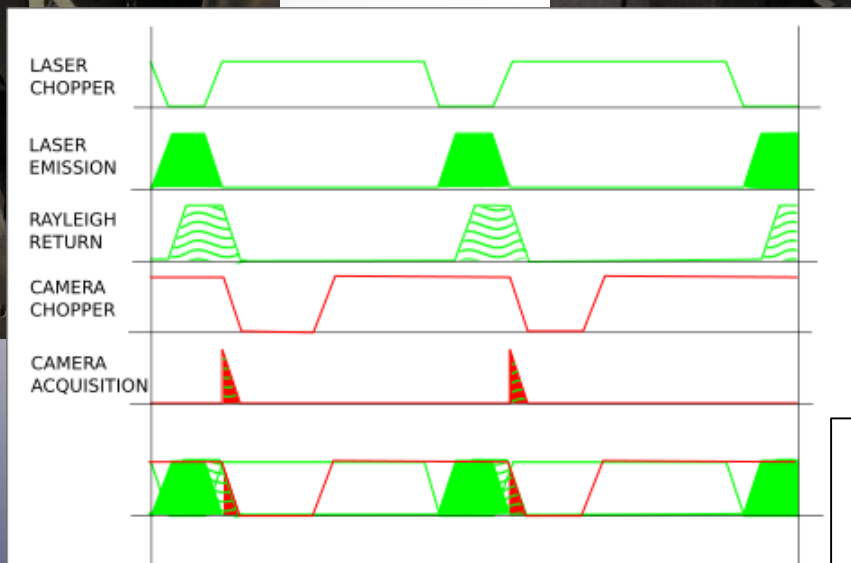
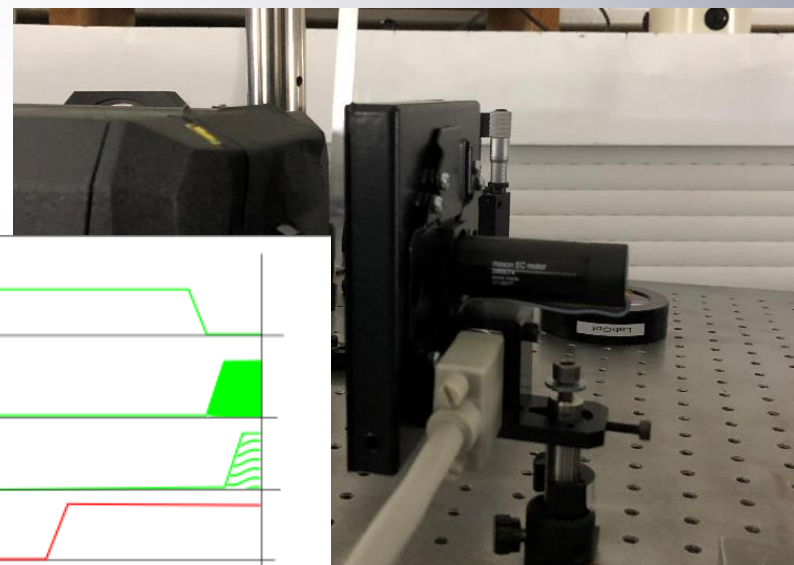
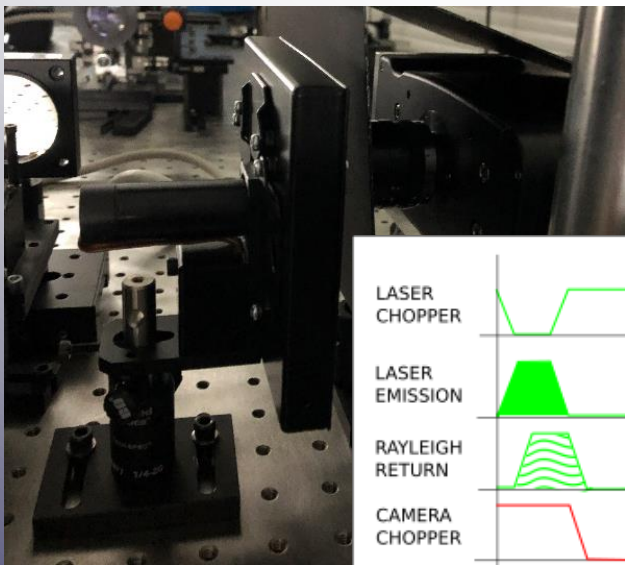


OGS UWCS INTEGRATION

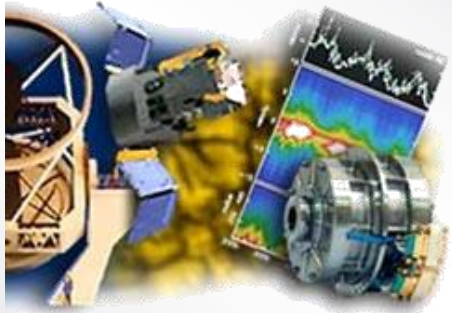
OPTICAL CHOPPERS

WFS

LASER

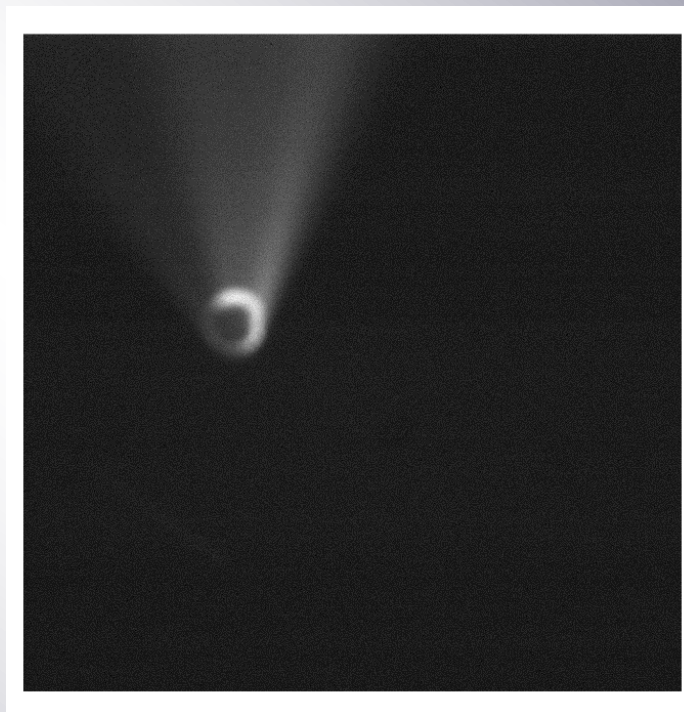
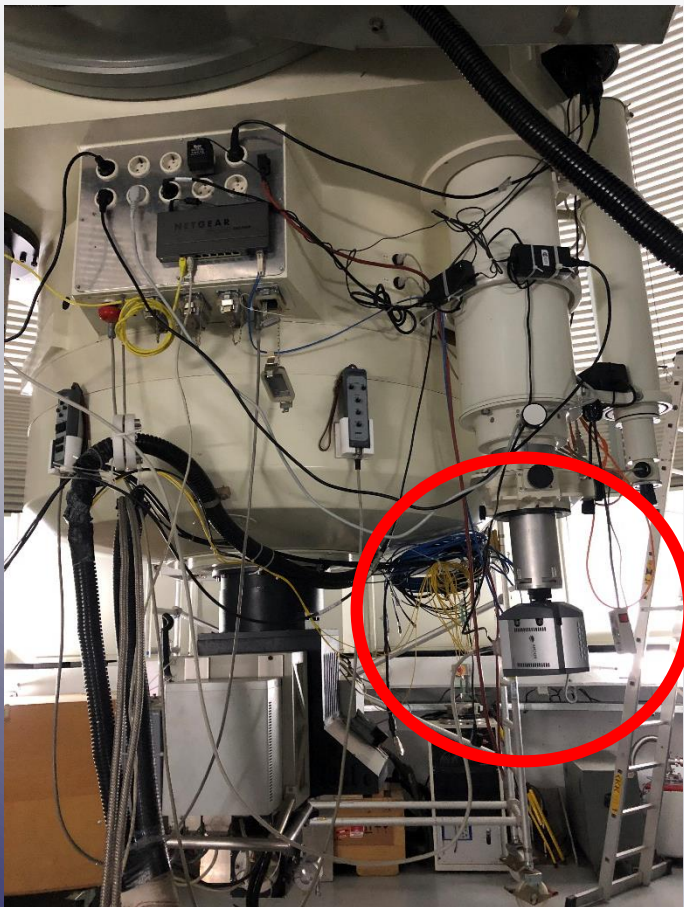


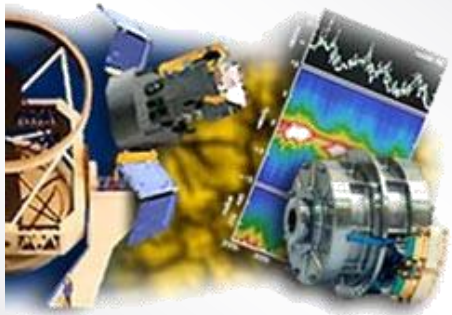
20% Rayleigh return at 300 Hz



OGS UWCS INTEGRATION

SCORING CAMERA

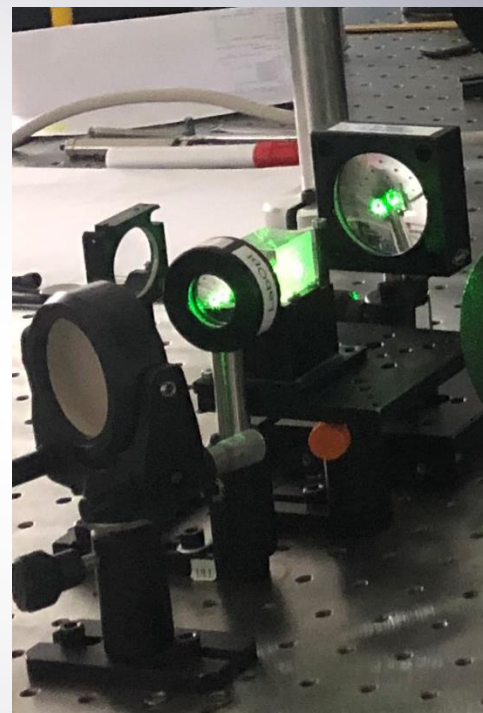
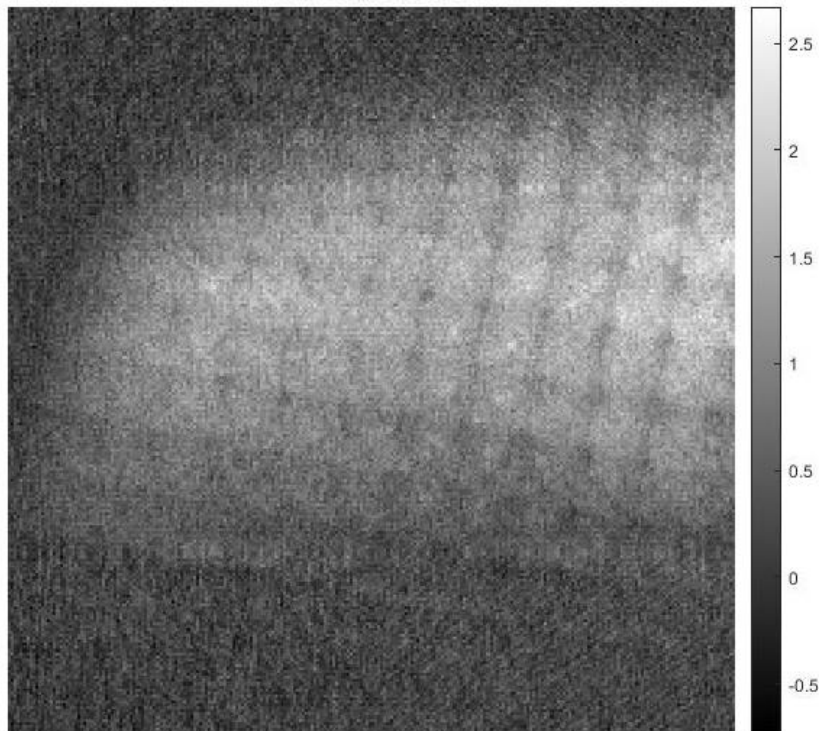




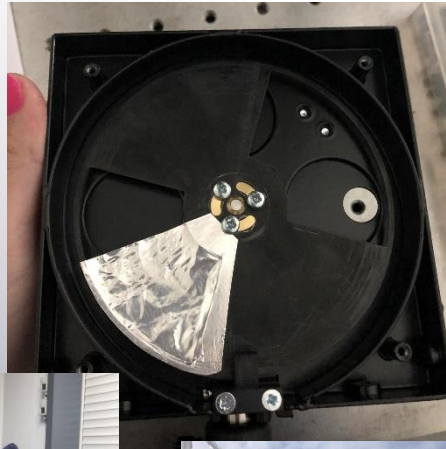
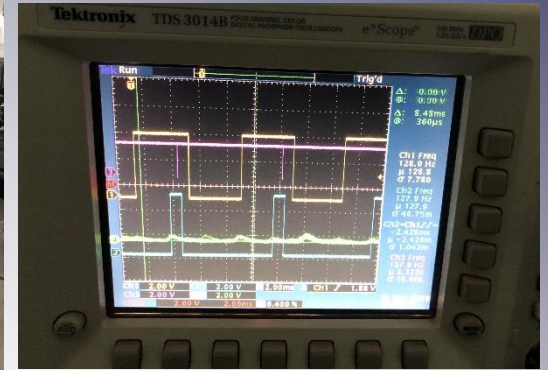
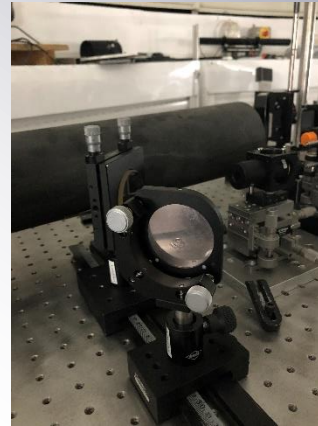
OGS UWCS INTEGRATION

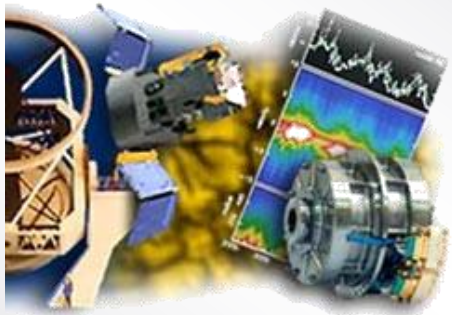
FLUORESCENCE DETECTION

18W - fluorescence



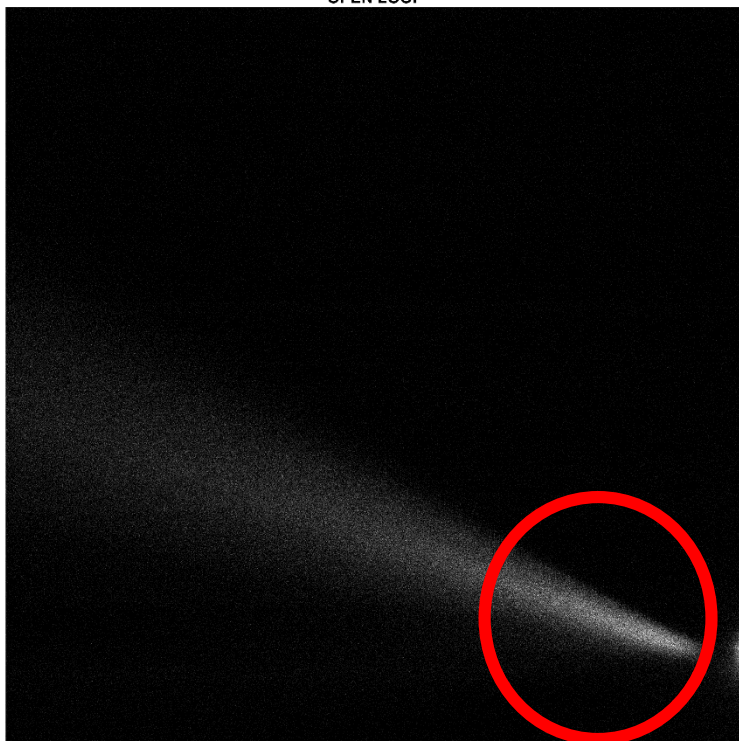
OGS UWCS INTEGRATION



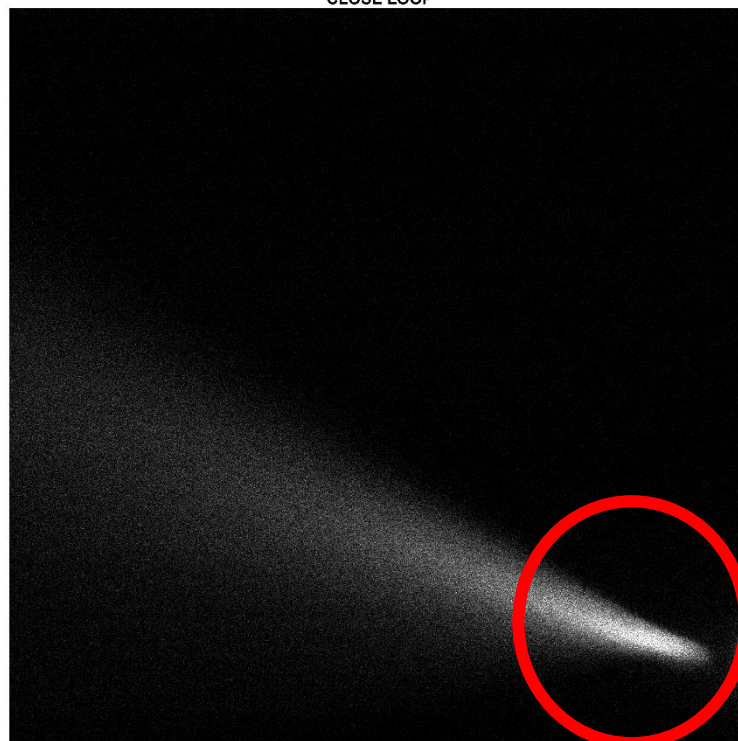


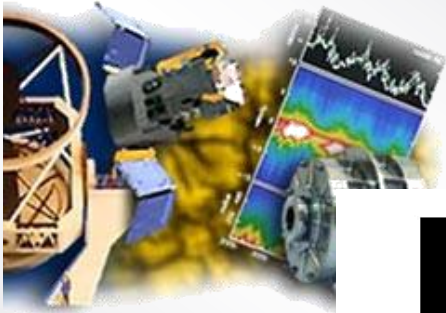
UWCS PERFORMANCE RESULTS

OPEN LOOP



CLOSE LOOP





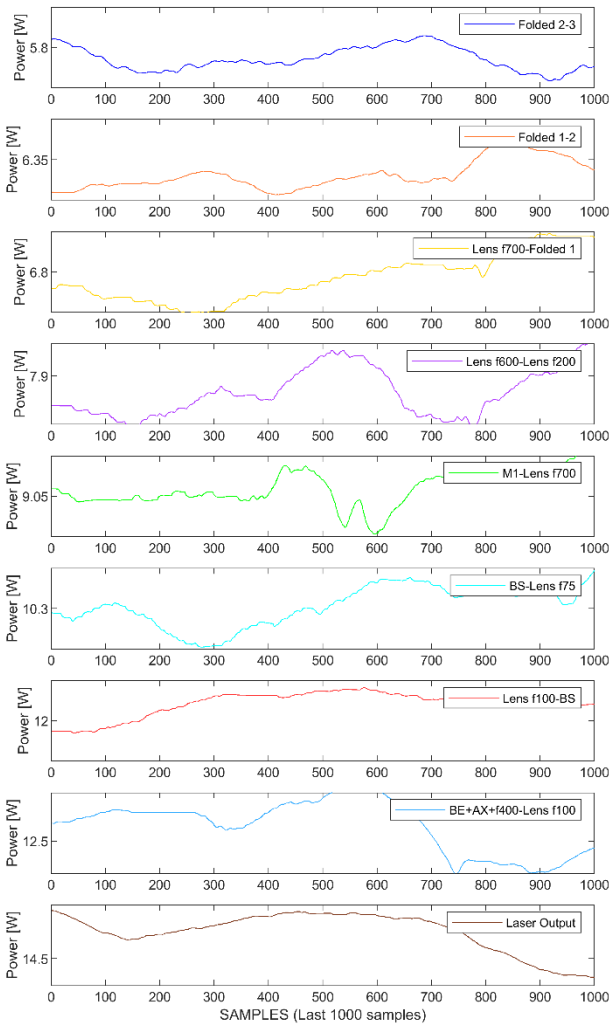
UWCS PERFORMANCE RESULTS

Open Loop

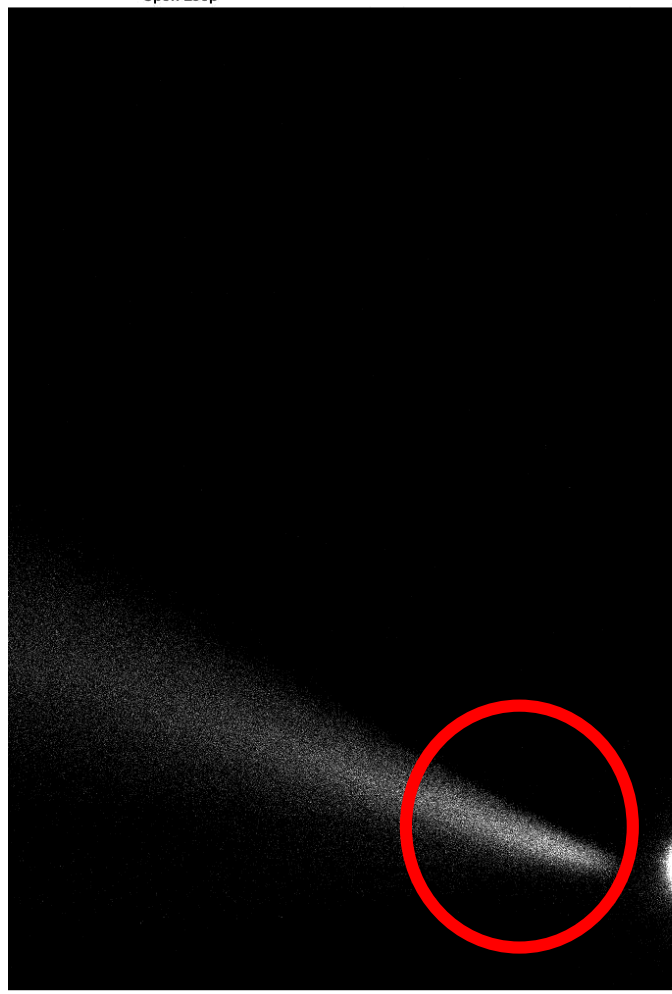




UWCS PERFORMANCE RESULTS



Open Loop





THANK YOU