

SOLAR-C  
High speed spectro-polarimeter  
***Use SP like FG!***

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# Scientific requirement

- Multiple dynamical phenomena was discovered with Hinode:
  - Spectrographic observations become more important
  - Cadence to cover TBD area as fast as 10 sec is needed.
  - We need to maintain  $<0.2$  arcsec spatial resolution to see small scale features such as THMF.

# Implication to hardware

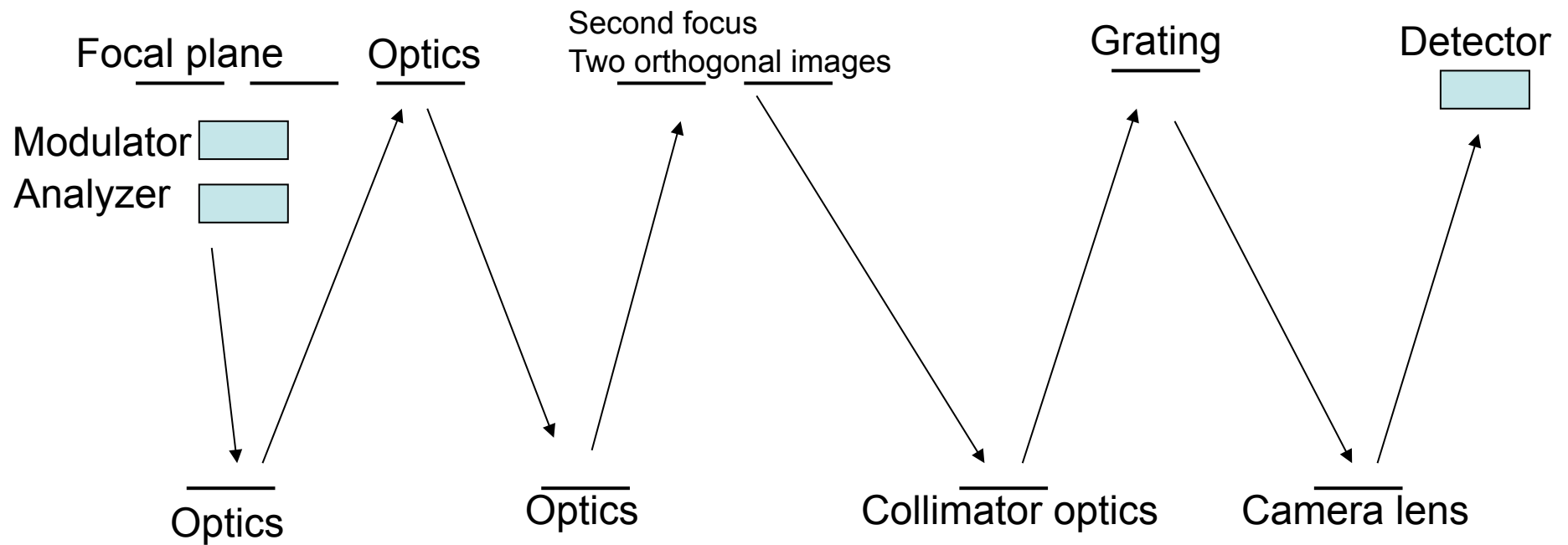
- Want to maintain basic SOT/OTA architecture due to development burden
- Spectrograph type instrument rather than filter-based instrument is still needed for precise Stokes polarimetry
- Classical slit scan does not work. Multi-slit spectrograph would help, but we need multi-object spectrograph with many simultaneous pixels.



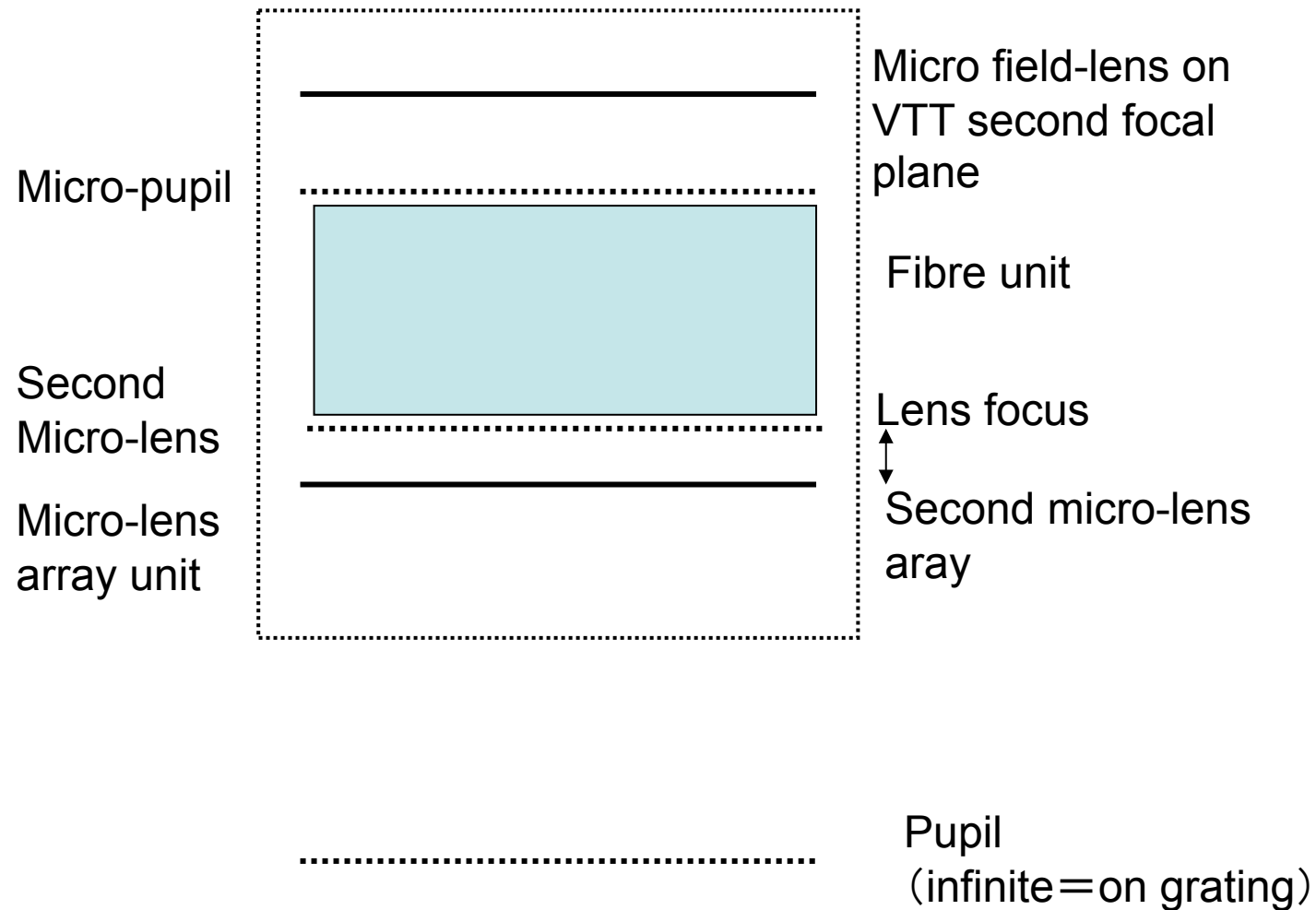
# Multi-object spectrograph

- Night-time astronomy
  - NASA James-Webb space telescope micro-shutter array (NASA GSFC)
- Fibre-based multi-object spectrograph
  - Being developed by Spanish IAC for VTT

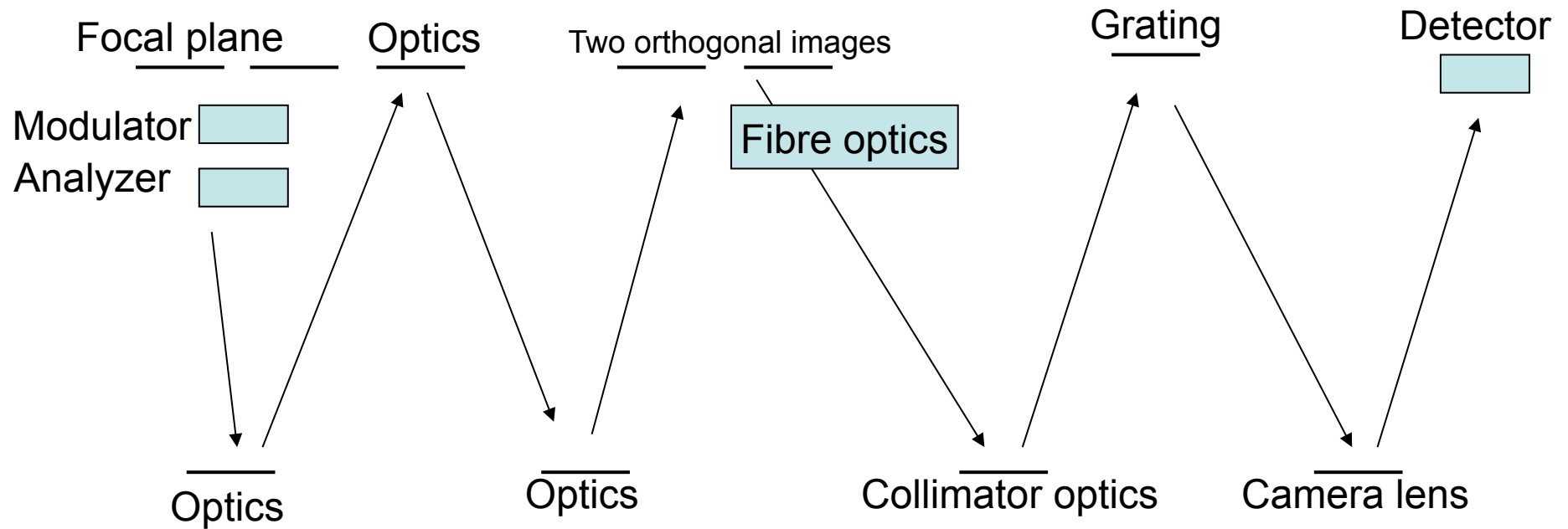
# VTT spectrograph



# Second focal plane of VTT (IAC Manolo Collados)

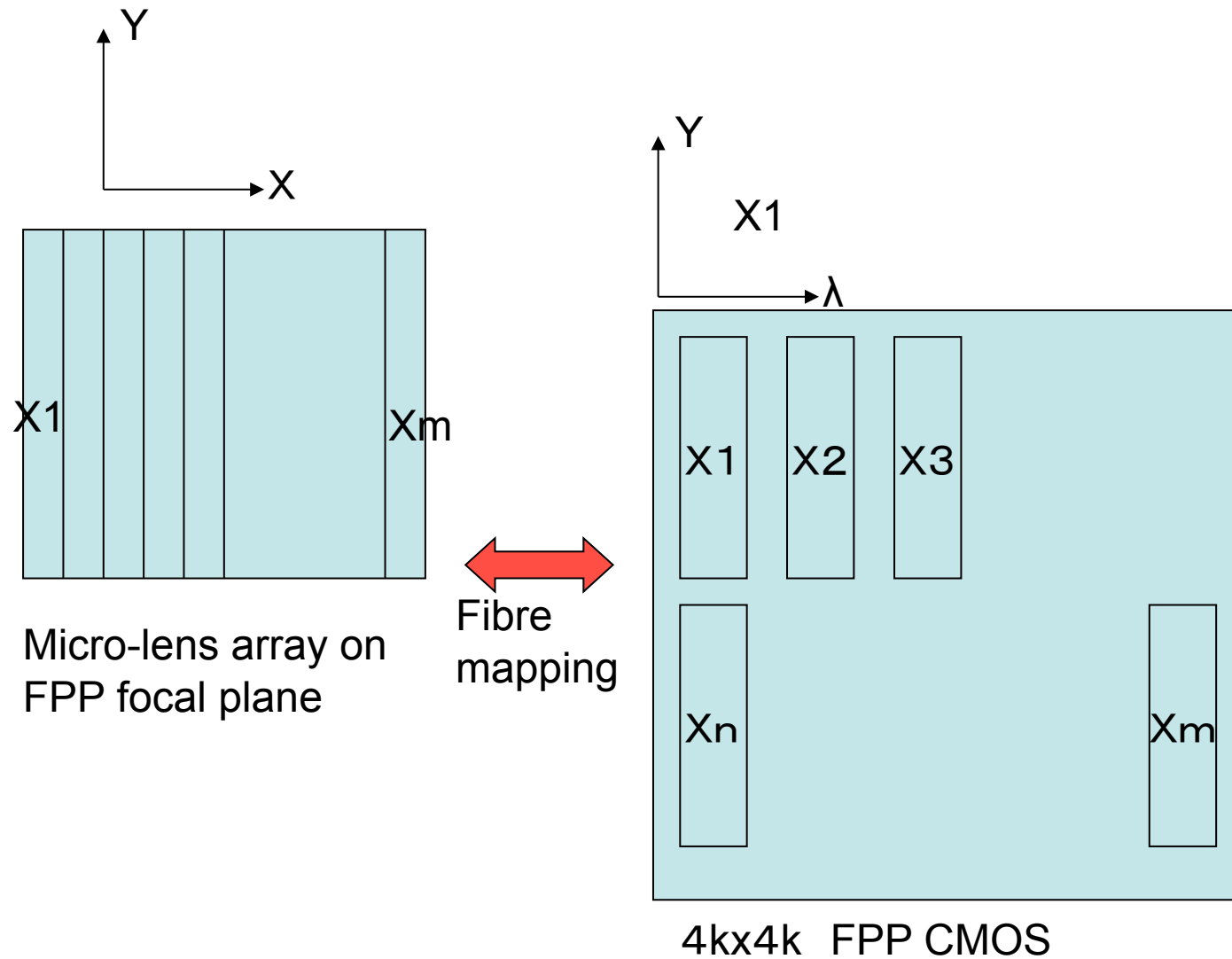


# Location of fibre optics (IAC Manolo Collados)

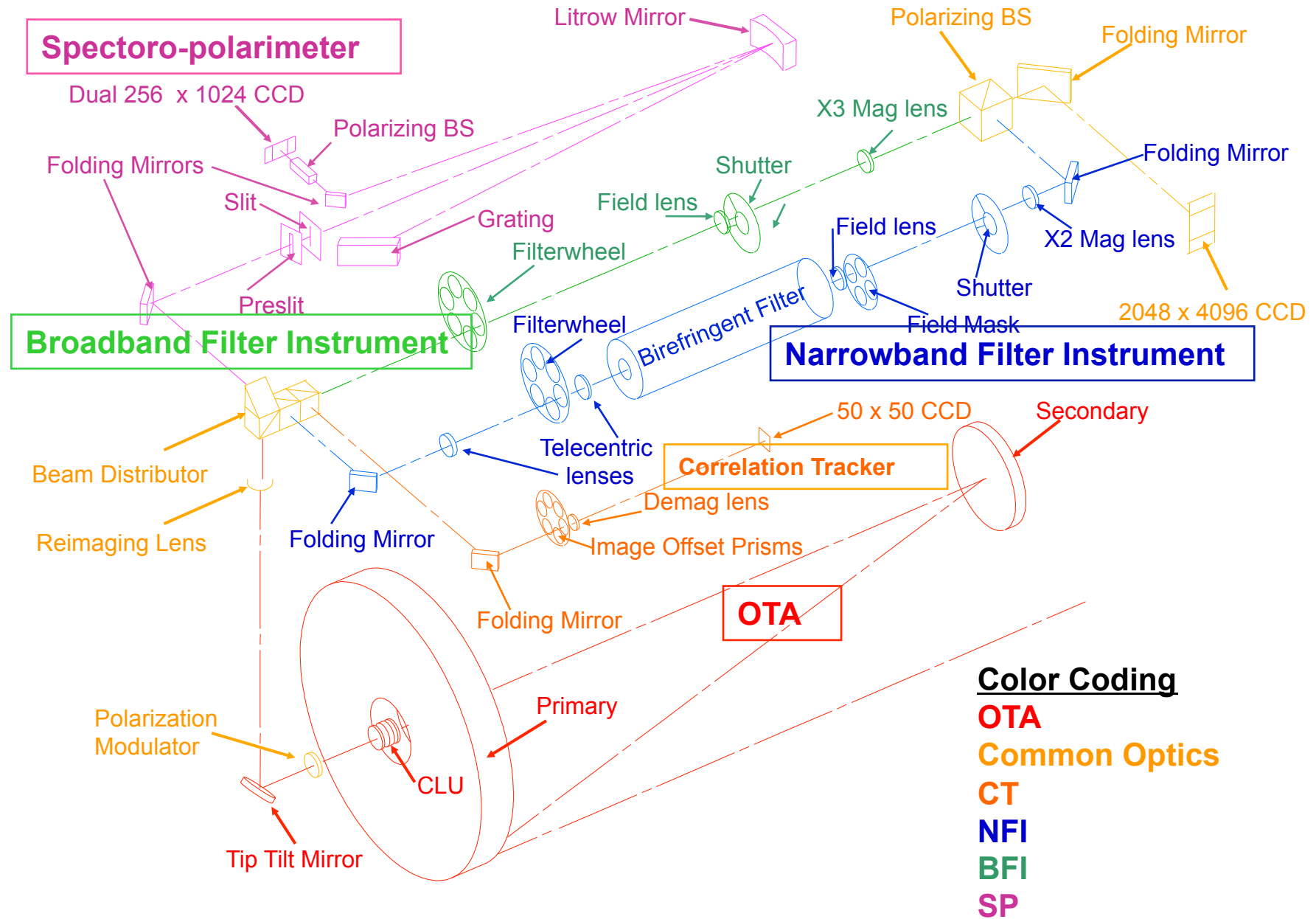




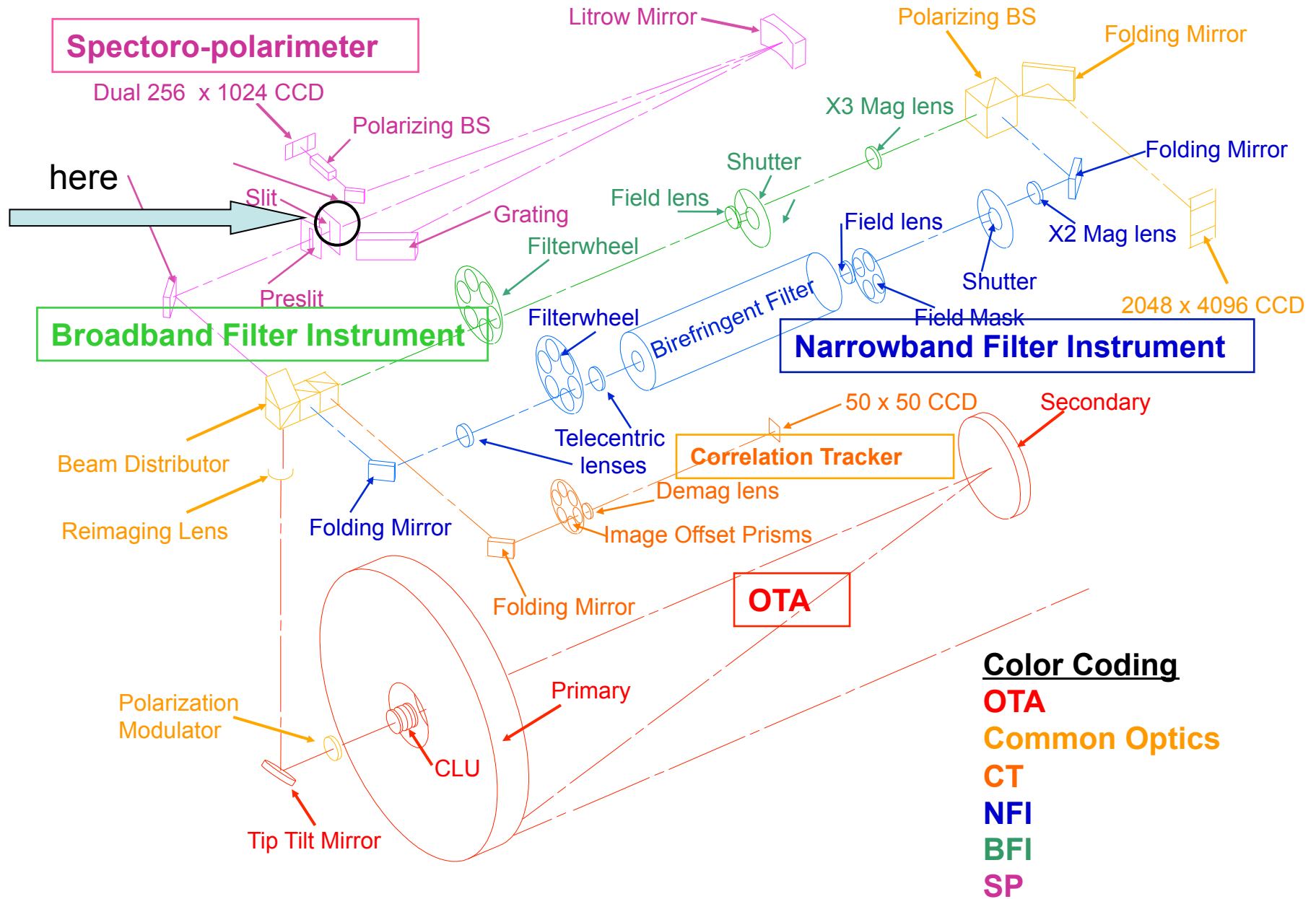
# Application to SOT/FPP



# Optical layout of SOT



# Where is it located?



# FPP with multi-object spectrograph

- Fibre optics on the FPP SP slit
- Fibre does not preserve the polarization state
  - Move polarization beam splitter in front of SP CCD to before-fibre optics
- 4k x 4k CMOS instead of CCD
- Simultaneous observations of 256 wavepoints and 16x4096 pixel = 40arcsec sqrd FOV. We need scan mirror for wider FOV
- Multiple line obs with blocking filter
- Use SP like FG