

# Key Trade Study Requirements

*Boulder Meeting*

*2005-01-08*

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## Top Level: Trade Study Parameters

Item	Req'ment	Goal
Aperture	25 m	> 25 m
Wavelength range	350 - 850 $\mu\text{m}$	200 – 1100
Field of view	20'	TBD'
Pointing (spectrographs)	0.35"	0.2"
Tracking	0.17"	0.1"
On-axis	Yes?	
Elevation limits		
Infrared mode ( $\lambda < 40 \mu\text{m}$ , non-redundant masking)	< 5 $\mu\text{m}$ rms TBD panels	< 5 $\mu\text{m}$ rms 90% of panels
Polarization capability (should be vs. $\lambda$ )	calibratable to 0.2%	calibratable to < 0.05 %

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## Ancillary: Trade Study Parameters

Item	Req'ment	Goal
Nasmyth instruments	Yes	limited bent Cass
Chopping secondary	No	could be changed
Secondary blockage	< 4%	< 2%
Delivered instrument f#	< f/12	< f/6
Instrument mass	< 2 tons	?
Scanning requirements		
Addition eng. Req'ts		
Daytime ops	limited (morning hours)	full daytime hours

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## Key quick studies

- Parametric straw man design for wide-field imager
  - Varying f/# for delivered beam (f/6 – f/12)
  - Afocal telescope?
    - (Lyot stop at dewar window?)
- Straw man chopping (~ 1 Hertz) implementation for heterodyne spectrometers
  - Implement after bolometer study
  - Required long integrations
  - Part of “instrument”
- Telescope designs (to deliver lower f#)
  - Non-flat tertiary
  - “relay” from tertiary to instrument focal plane to deliver faster system.

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