CCAT design space
Draft 24 Nov 08

Requirements
10 micron total \( \frac{1}{2} \) WFE,
Under gravity, thermal, and wind

(need to specify wind loading)

Passive telescope
(CFRP)

	unconnected

Possible per Woody von Hoerner plot w/ CFRP
• Specify thermal gradients
• CTE variations in CFRP
• Wind loading?

Active telescope

Substructure-Sensed

• Mechanical model of truss
  • Normal modes (how many are important)
• Specify thermal gradients
• CTE variations in CFRP
• Wind loading?
• will require long-baseline or absolute sensing to measure low-order modes

Panel-sensed

rafs

Reflector-sensed

• Can edge sensors work -> raft serves as metrology lever
• Specify thermal gradients
• CTE variations in CFRP
• Wind loading?
⇒ Mechanical model of raft, compute modes of telescope w/ seg.
• Study panel mounting

Requires long-baseline or absolute measurement to beat cupping (well-studied).
• Cupping understood by what about other panel distortion modes?
• Specify thermal gradients and CTE variations in panels.

Need to specify thermal environment behind primary and thermal properties of CFRP structural members

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