

Technology Sub-committee discussion results

Whitepapers submitted

- http://sig2.asu.edu/sub_tech.html
- Take a look, good summaries of what's going on

Discussion

- We had a good and occasionally non-topical discussion
- We covered the COR gap technologies
- No huge surprises

Optical Coatings

- This remains a place of potential gamechanging improvement to a future mission
- After discussion, the issue regarding exo-planet science appears to be neutral to new coatings (i.e., exo-planet coronagraphs will have to deal with it no matter what with protected silver)

Improved Detectors

- Overall there is a desire for “better” detectors.
 - Higher detection efficiency (detected photons / incident photons) over relevant bandpass
 - Higher radiation tolerance
 - Improved dynamic range (high S/N capability)
 - Larger continuous format
 - Photon counting where appropriate
 - Not restricted to UV – better visible light detectors are also viable

Improved Instruments

- High efficiency multi-object spectrographs
 - Direct multiplexing of capability is an improvement for the science return of a large missions
- We had a discussion regarding potential funding schemes to have optical designers produce improved designs
 - Part of APRA? Part of concept studies?

Stability

- COR should have requirements on stability for a large mission but...
- With a combined mission, the exo-planet requirements will dominate the stability requirements

Servicing

- Not specifically a technology for instruments or APRA/SAT
- A feature that cannot be added later – need to start with the idea in place
 - Servicing is why Hubble is relevant after such a long lifetime
 - Strong recommendation that this feature at some significant level be in place for the future
- 50 year mission life with continuous updates...

Improved components

- Examples would include bandpass filters, gratings, etc
 - Higher out of band rejection
 - Higher throughput in band
 - Improved performance in the UV
 - Lower scatter
- A low disturbance cryocooler would also be of interest

Science will prioritize the goals

- With the inputs from the science groups, priorities within the technology opportunities
- There should be several different strategies because we don't know a priori which will be the most successful
- We also suggest appropriate discussion between projects – detectors vs. detectors, coatings vs. coatings...

Future work

- Writing volunteers to put together a recommendation by mid-July
 - Be careful about being too vocal during discussion
- Will inform funding relevant to technology that needs to be in place before the next decadal survey