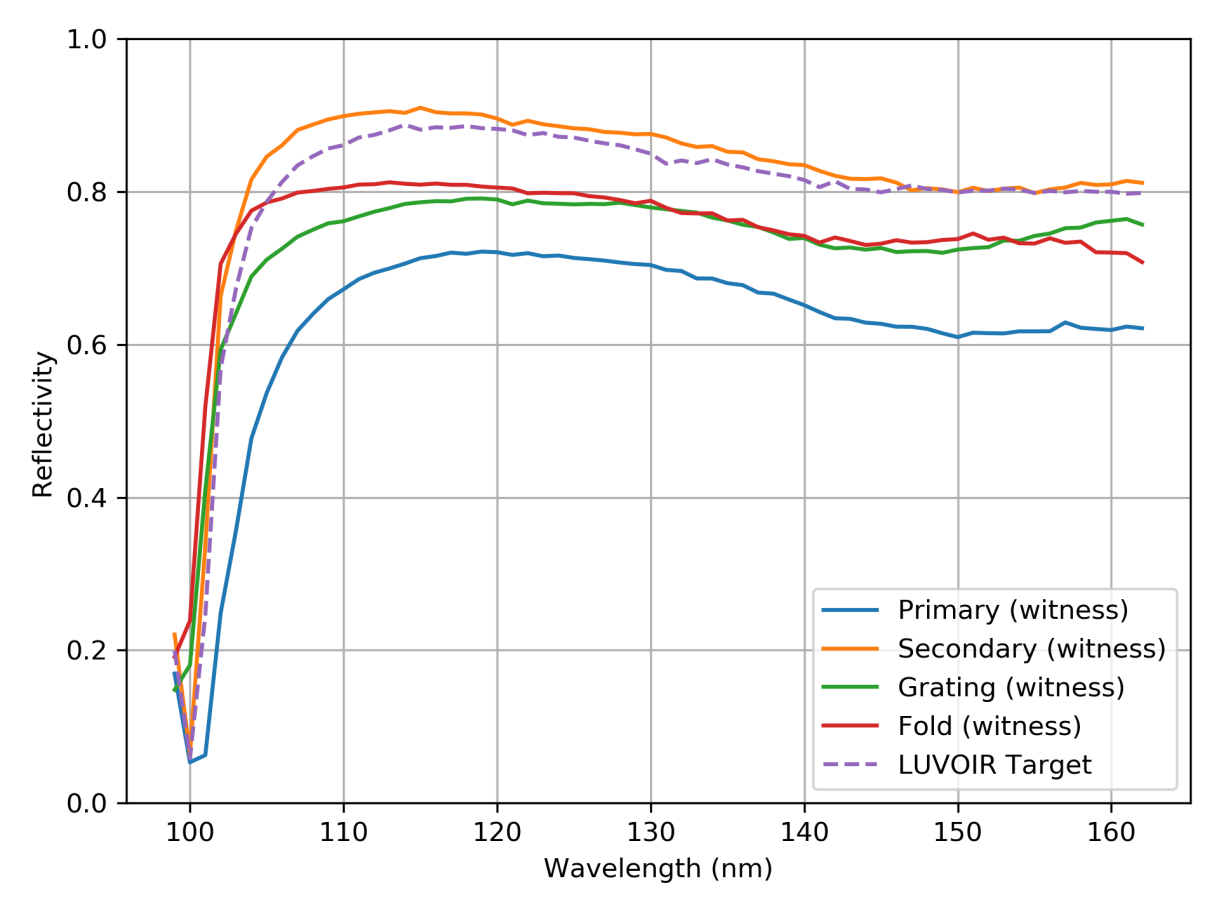
SISTINE Witness Samples

Laboratory for Atmospheric and Space Physics
University of Colorado **Boulder**

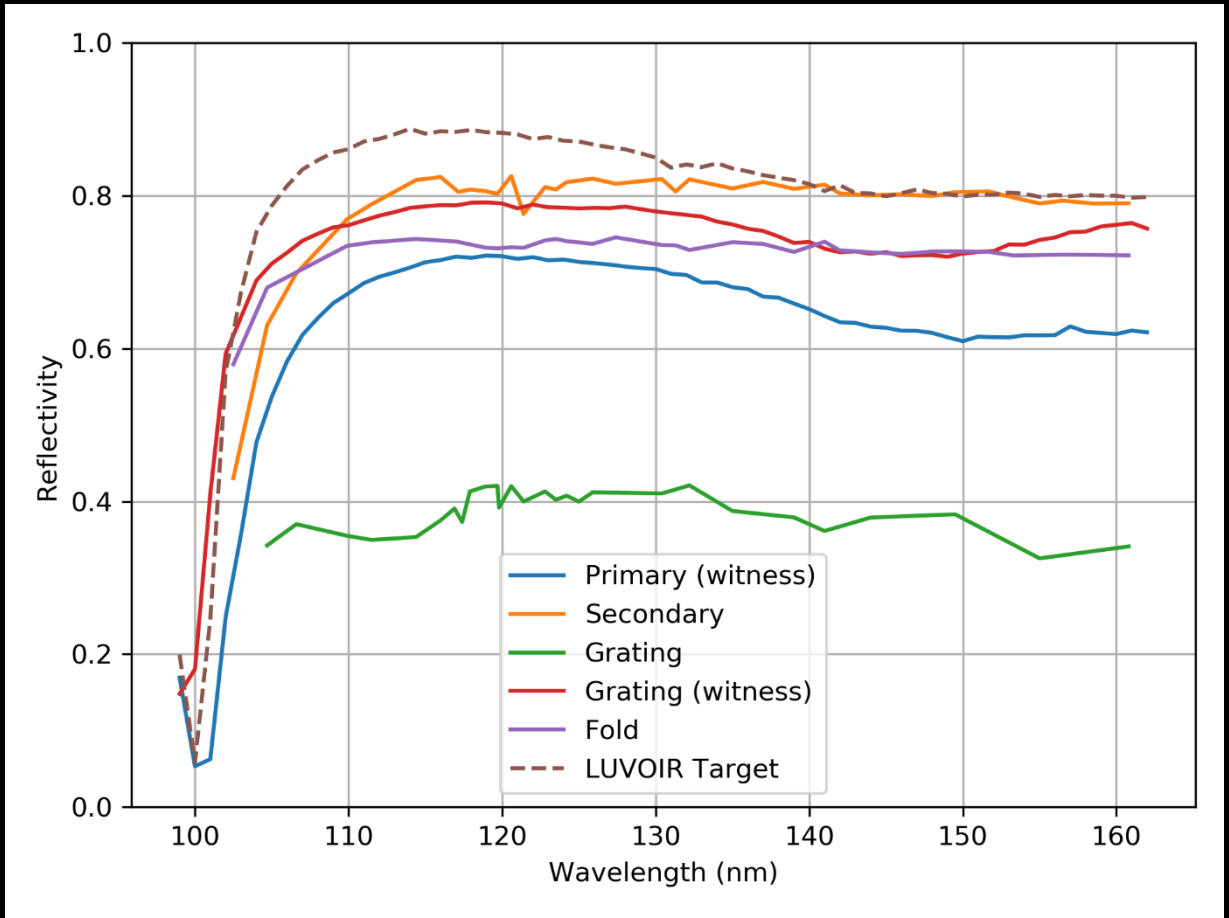


SISTINE is a rocket-borne FUV imaging spectrograph (100-160 nm bandpass)

Coatings overview

- All optics/witness samples coated at GSFC TFCL with eLiF except grating (coated with LiF)
- Primary coating performed in large chamber
- Other coatings performed in smaller chamber
- Secondary mirror and witness coated with protective AlF3 ALD coating at JPL Microdevices Laboratory

SISTINE Optics Coating Results



- eLiF optics generally don't perform as well as accompanying witness samples
- This is thought to be related to thermal environment
- Results still show general improvement and witness samples demonstrate possibilities
- Secondary mirror was tested before and after AlF3 coating with no measurable change

Summary/Status/Future

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- Post-flight results pending hardware availability (SISTINE campaign schedule interferes with tests)
- AlF3 ALD protective coating shows no measurable effect on coating performance
- Thermal issues for eLiF deposition likely need continued effort
- SISTINE has a possible future eLiF grating master coating

References:

- Fleming et al 2017 (https://doi.org/10.1364/AO.56.009941)
- Hennessy et al 2016 (https://doi.org/10.1117/1.JATIS.2.4.041206)