



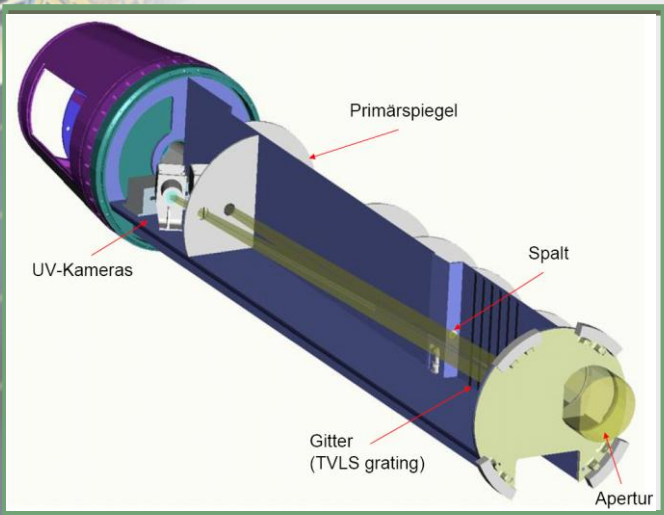
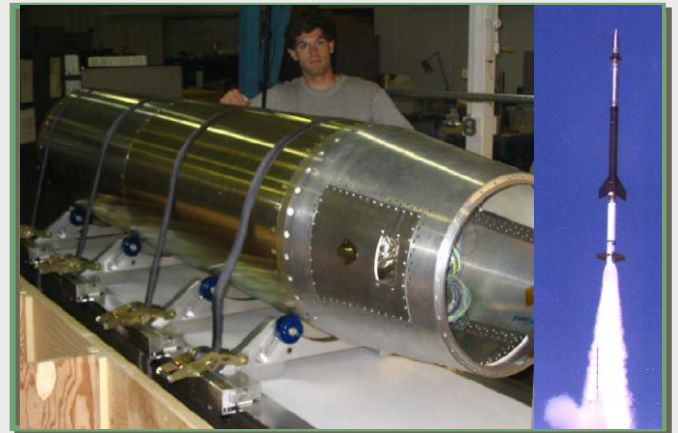
MAX-PLANCK-GESELLSCHAFT

# RAISE – VUV spectrograph with MPS contributions



## Rapid Imaging Spectrograph Experiment (RAISE):

- a vacuum-UV spectrograph built for a rocket mission of NASA to be launched in 12/2009 bearing new technology of optics and detectors
- will serve as a prototype for the next generation of space-based solar spectrographs for plasma diagnostics of the chromosphere, transition region and corona
- US-Principal Investigator:  
*Don M. Hassler*  
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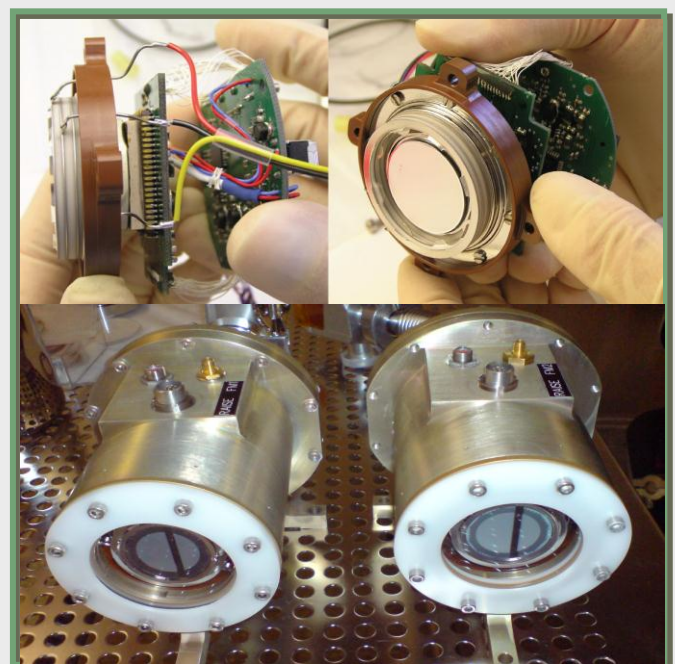
## The VUV Spectrograph:

- a precursor for the Solar Orbiter Mission with only two optical elements:
  1. off-axis paraboloid telescope mirror and
  2. toroidal variable line-space grating
- two detectors for two wavelength ranges:
  1. 120.5 – 124.3 nm (60.2 – 62.1 nm, 2<sup>nd</sup> order)
  2. 152.6 – 156.4 nm (76.3 – 78.2 nm, 2<sup>nd</sup> order)

RAISE is optimized for time-resolved imaging and spectroscopy to diagnose coronal plasma dynamics. Two wavelength passbands contain strong emission lines that provide broad, continuous temperature coverage from the chromosphere (formed at 10,000 degrees K) to the low corona (formed at more than 1 million degrees K). An exposure time of only 100 ms is sufficient to record line profiles in all of the bright lines throughout this range. Because the APS detectors can read out and expose simultaneously, downtime between exposures is negligible.

### MPS contribution:

- development of VUV cameras with intensified CMOS-APS sensors
- a collaboration with DLR and industry:  
DLR Inst. for Planetary Research  
Proxitronic Imaging GmbH



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<http://www.swri.org/3pubs/ttoday/Spring06/Solar.htm>