REXIS

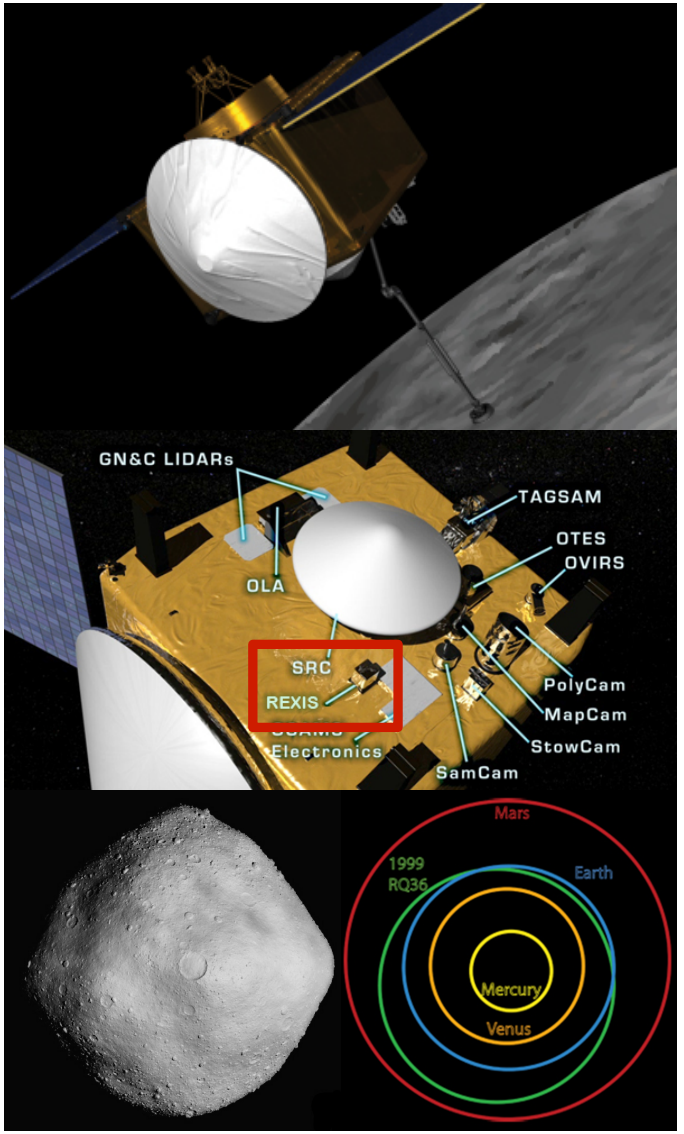
- **In 2016, NASA will launch OSIRIS-REx (Origins Spectral Interpretation Resource Identification Security Regolith Explorer), a spacecraft that will return a sample of the regolith of asteroid 1999 RQ_{36} to Earth**

- **REXIS is the Student Collaboration Experiment aboard OSIRIS-REx**
  - REXIS is a concerted effort between MIT's Space Systems Lab, Kavli Institute, and EAPS Department; Harvard College Observatory; and NASA's Goddard Space Flight Center

- **REXIS will measure the global surface elemental abundance ratios of 1999 RQ_{36}**

- **REXIS will measure spatial variations on scales ranging from ~300 m to <50 m during Orbital Phase B**

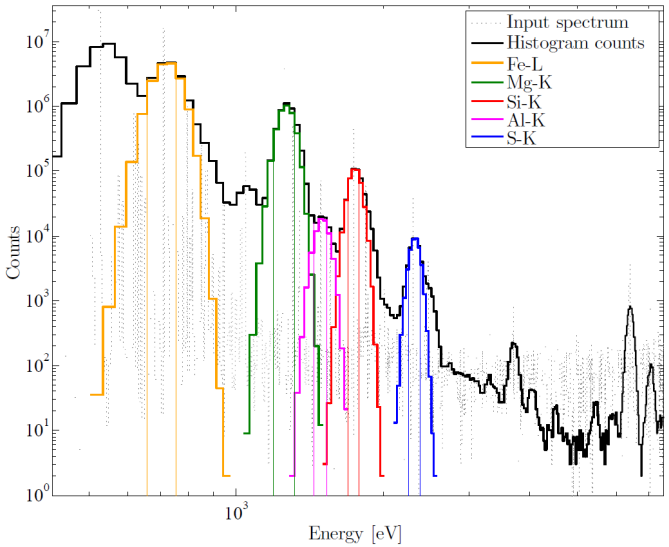
- **REXIS elemental abundance measurements will provide supporting context for selection of sample return site and corroborate other instrument data**



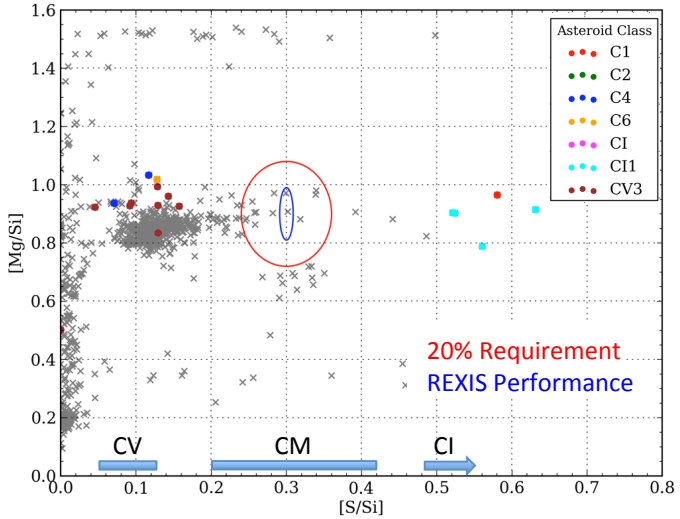
 Presenter: Niraj Inamdar

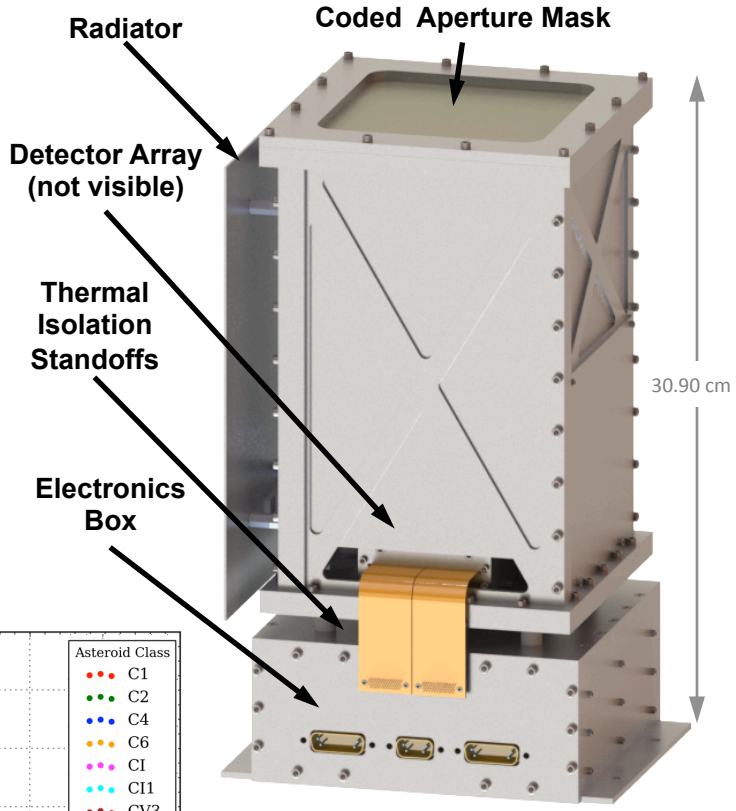
REXIS

- **REgolith:** We measure the composition of the uppermost layer of the asteroid surface
- **X-ray:** We monitor X-rays fluoresced from the surface of the asteroid (0.5-8 keV) by incident solar X-rays (which we also monitor)
- **Imaging:** We use CCDs and a coded aperture mask to capture images of the asteroid and create a global map
- **Spectrometer:** We identify spectral lines in the collected X-rays to determine the elemental composition of the asteroid



Simulated X-ray spectrum from 1999 RQ_{36} convolved with detector response





Solar X-ray Monitor (SXM)

Meteorite data from Nittler et al., 2004

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