



- RAY ASTRONOMY 2019

Current Challenges and New Frontiers in the Next Decade

8-13 September 2019
CNR/INAF Research Area, Bologna, Italy

Contribution ID: 265

Type: **Poster**

Arcus, The Soft X-ray Grating Explorer

Friday, 13 September 2019 20:24 (2 minutes)

Arcus will provide high-resolution soft X-ray spectroscopy in the 12-50Å bandpass with sensitivity orders of magnitude higher than any previous astronomical observatory. Its capabilities include spectral resolution >2500 and effective area of $\sim 250 \text{ cm}^2$. The three top science goals for Arcus are to (1) measure the effects of structure formation imprinted upon the hot baryons that are predicted to lie in extended halos around galaxies, groups, and clusters, (2) trace the propagation of outflowing mass, energy, and momentum from the vicinity of the black hole to extragalactic scales as a measure of their feedback and (3) explore how stars, circumstellar disks and exoplanet atmospheres form and evolve. Arcus relies upon the same 12m focal length grazing-incidence silicon pore X-ray optics (SPO) that ESA has developed for the Athena mission; the focal length is achieved on orbit via an extendable optical bench. The focused X-rays from these optics are diffracted by high-efficiency Critical-Angle Transmission (CAT) gratings, and the results are imaged with flight-proven CCD detectors and electronics. The power and telemetry requirements on the spacecraft are modest and mission operations are straightforward, as most observations will be long, uninterrupted, and pre-planned.

Topic

Future missions

Affiliation

Smithsonian Astrophysical Observatory

Primary author: Dr SMITH, Randall (SAO)

Presenter: Dr SMITH, Randall (SAO)

Session Classification: POSTER SESSION