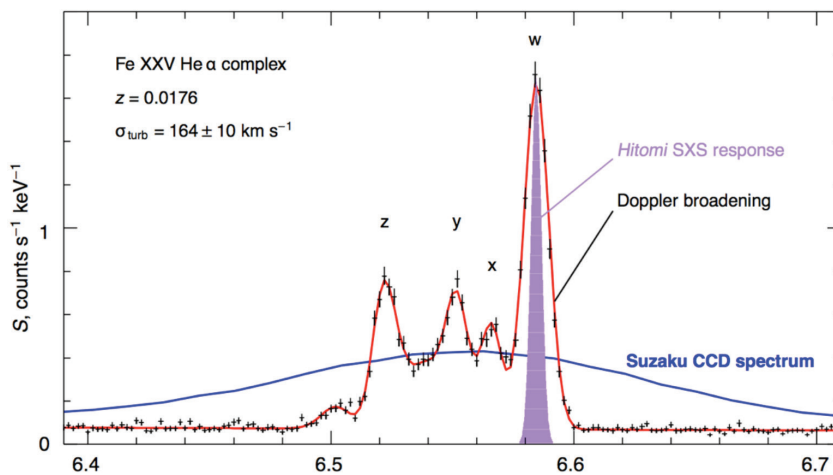
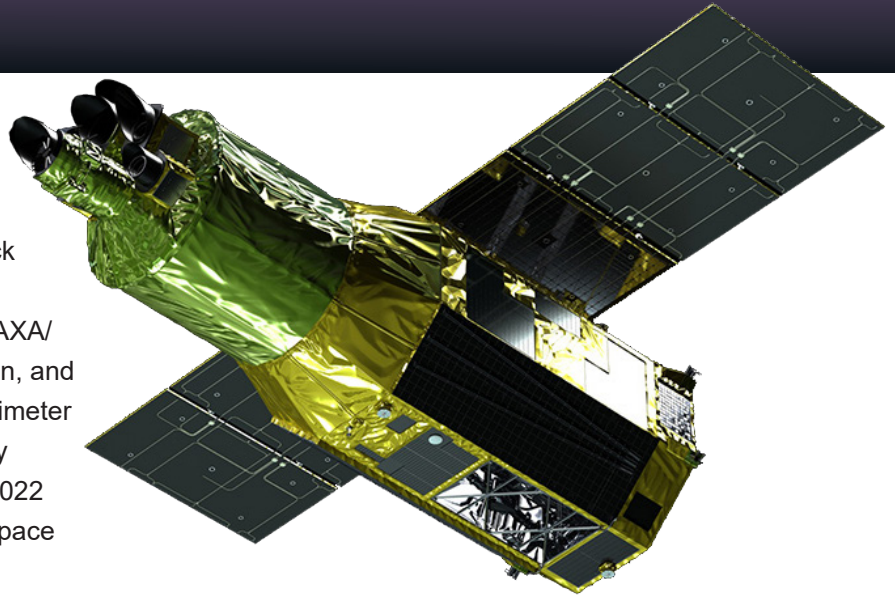


XRISM

X-Ray Imaging and Spectroscopy Mission

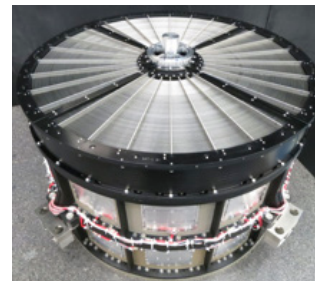
Through high-resolution X-ray spectroscopy, XRISM will transform our understanding of the hot and energetic universe, allowing ground-breaking new scientific research into black holes, clusters of galaxies, compact objects, and the aftermath of stellar explosions. XRISM is a JAXA/NASA collaborative mission with ESA participation, and contains two instruments: Resolve - a microcalorimeter spectrometer, and Xtend - a wide field CCD X-ray imager. XRISM is scheduled for launch in early 2022 on a Japanese HII-A rocket from Tanegashima Space Center.



The Hitomi spectrum of the Perseus Cluster, showing the power of microcalorimeter X-ray spectroscopy. The previous best X-ray spectrum of this object is the Suzaku spectrum, shown in blue.

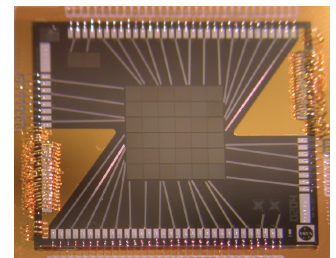
Parameter	Requirement	Goal
Energy Resolution	7 eV (FWHM)	5.0 eV
Energy Scale Accuracy	± 2 eV	± 0.5 eV
Residual Background	2×10^{-3} counts/s/keV	$< 1 \times 10^{-3}$ counts/s/keV
Field of View	2.9×2.9 arcmin	same, by design
Angular Resolution	1.7 arcmin (HPD)	1.2 arcmin
Effective Area (1 keV)	> 160 cm ²	250 cm ²
Effective Area (6 keV)	> 210 cm ²	312 cm ²
Cryogen-mode Lifetime	3 years	4+ years
Operational Efficiency	$> 90\%$	$> 98\%$

XRISM Technology



The X-ray Mirror Assembly (XMA) consists of hundreds of concentric shells, which focus X-rays at low grazing incidence angles. XRISM has two identical mirrors, one for each instrument.

The Resolve detector is a 6x6 pixel microcalorimeter array. Each pixel is 30" in size, and the entire detector must be cooled to 50 mK to detect the heat imparted by individual X-ray photons that are focused onto the detector.



<http://xrism.isas.jaxa.jp/en>

