

XRISM Mission and SLIM Lander

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About XRISM Mission

- The X-Ray Imaging and Spectroscopy Mission (**XRISM**) is a **joint mission of the Japan Aerospace Exploration Agency (JAXA)** and the **National Aeronautics and Space Administration (NASA)**, involving **contributions from the European Space Agency (ESA) and Canadian Space Agency** as well.
- **Objective:** The mission aims to **observe X-rays coming from deep space and to identify their wavelengths** with unprecedented precision.
- It will **use state-of-the-art spectroscopy to measure changes in the brightness of celestial objects at different wavelengths.**
- It **detects X-rays with energies ranging from 400 to 12,000 electron volts.** (For comparison, the energy of visible light is 2 to 3 electron volts.)
- This range **will provide astrophysicists with new information about some of the universe's hottest regions**, largest structures, and objects with the strongest gravity.
- **Instruments onboard:** The mission has two instruments, **Resolve and Xtend.**

- **Resolve:**

- It is an instrument that will **collect spectroscopic data with far more resolution** than X-ray observatories orbiting the Earth do.
- Resolve **must be cooled to just a fraction above absolute zero in order to measure tiny changes in temperature when X-rays hit** the instrument's surface.

- **Xtend:**

- It **will operate simultaneously to photograph the cosmos with a resolution comparable to the way our eyes might perceive it** if we were to have X-ray vision.
- **While Resolve zooms in, Xtend will zoom out**, providing scientists with complementary views of the same X-ray sources over a larger area.

About SLIM

- SLIM, or **Smart Lander for Investigating Moon**, is a **compact robotic moon lander with no astronauts aboard**.
- **Called 'Moon Snipper'** in the Japanese language, **it has lightweight equipment** for advanced observations and **adaptable landings on resource-scarce planets**, advancing exploration strategies.
- The **most important aim of the lander is to demonstrate accurate lunar landing techniques** with a precise touchdown.
- The **mission plan calls for a landing no more than 328 feet (100 m) from a target inside the moon's Shioli Crater**.

Q1) What are X-rays?

X-rays are a form of electromagnetic radiation, just like visible light, radio waves, and microwaves. However, X-rays have much higher energy and shorter wavelengths compared to visible light. They were discovered in 1895 by German physicist Wilhelm Conrad Roentgen, who named them "X-rays" because of their mysterious and unknown nature at the time.

Source: [Japan Scrubs Launch of X-Ray Telescope and Experimental Moon Lander](#)

Source: <https://vajiramandravi.com/current-affairs/xrism-mission-and-slim-lander/>

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