

Nancy Grace Roman Space Telescope

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About Nancy Grace Roman Space Telescope

- It will provide one of the deepest-ever views into the heart of our Milky Way galaxy.
- Objectives: The mission will monitor hundreds of millions of stars in search of tell-tale flickers that betray the presence of planets, distant stars, small icy objects that haunt the outskirts of our solar system and isolated black holes.
- It will have two instruments
 - Wide Field Instrument: It will have a field of view that is 100 times greater than the Hubble infrared instrument, capturing more of the sky with less observing time.
 - It will measure light from a billion galaxies over the course of the mission lifetime.
 - It will perform a microlensing survey of the inner Milky Way to find ~2,600 exoplanets.
 - Coronagraph Instrument: It is a technology demonstration which will perform high contrast imaging and spectroscopy of individual nearby exoplanets.
- Its Galactic Bulge Time-Domain Survey will focus on the Milky Way.
- For this, it will use infrared vision to peer through clouds of dust that can potentially block the view of the crowded central region of our galaxy.

- This telescope plans to capture this by taking an image every 15 minutes around the clock for about two months.
- This process will be repeated six times over Roman's five-year primary mission, which will total more than a year of observations.
- Scientists will also conduct stellar seismology studies on a million giant stars.
- This will be done by analysing the brightness changes a star undergoes when sound waves are echoed through its gaseous interior.
- This will help them learn about the star's structure, age and other properties.

Key facts about Milky Way galaxy

- Galaxy type: Barred spiral
 - Age: 13.6 billion years (and counting)
 - Size: 100,000 light-years across
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Q1) What is a coronagraph?

A coronagraph is a specialized optical instrument or device used in astronomy to observe the outermost regions of the solar atmosphere, which is known as the solar corona. It works by blocking out the intense light from the Sun's disk, allowing the much fainter solar corona to be observed.

Source: [NASA readies to launch Roman telescope for humanity's farthest-ever peek into Milky Way galaxy](#)

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