

SPHEREx Telescope

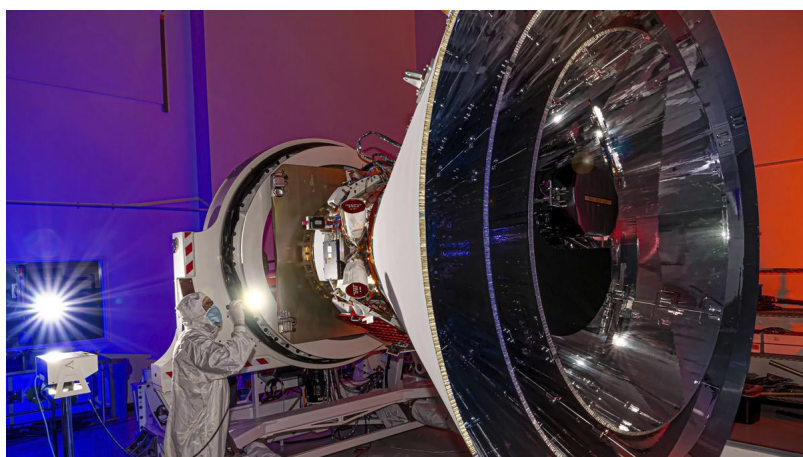
Why in news?

A new telescope SPHEREx is set to launch on February 27, 2025.

- **SPHEREx** - Spectro-Photometer for the History of the Universe, Epoch of Reionization and Ices Explorer.
- It is an *infrared telescope* designed to take spectroscopic images.
- **Launch agency** - NASA.
- **Objective** - To *map the whole sky*, covering 1 billion galaxies, 100 million stars, and 10,000 asteroids.

***Spectroscopy** is the separation of light into its component colors (or wavelengths) to reveal information about the chemical content, temperature and motion of planets, comets, stars, interstellar gas and galaxies.*

- **Working** - SPHEREx *divides cosmic light into 96 distinct spectral bands* and will generate 8 million new spectroscopic images of life-bearing molecules.



- **Usage** - Spectroscopic images will be able to tell us about the
 - **Formation of the universe** - Growth of all galaxies across cosmic history
 - **Cosmic inflation** - Rapid expansion of the universe after the Big Bang
 - **Biogenic molecules** - Location of water & life-forming molecules in our own galaxy.

***Biogenic molecules** are organic compounds essential for life, such as water (H₂O), carbon dioxide (CO₂), and methanol (CH₃OH).*

- **Significance** - It complements high-resolution telescopes like James Webb and Hubble, which focus on small sky patches.

Reference

[The Hindu | SPHEREx Telescope](#)

