

SPHEREx Telescope

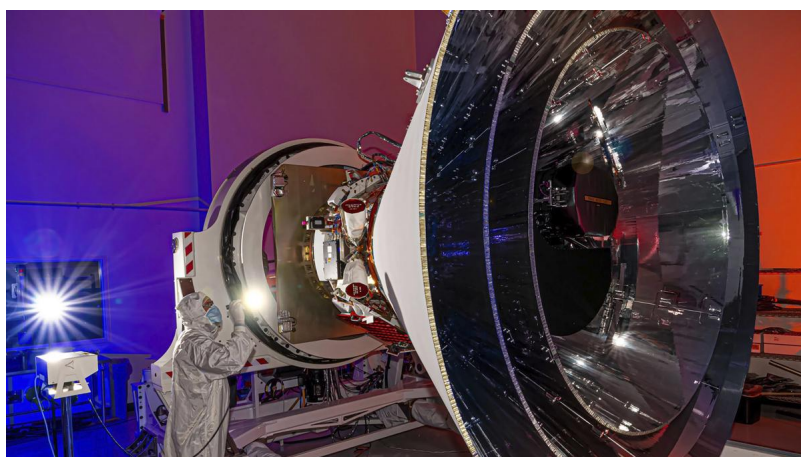
Why in news?

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](#)

