

## SPHEREx Telescope

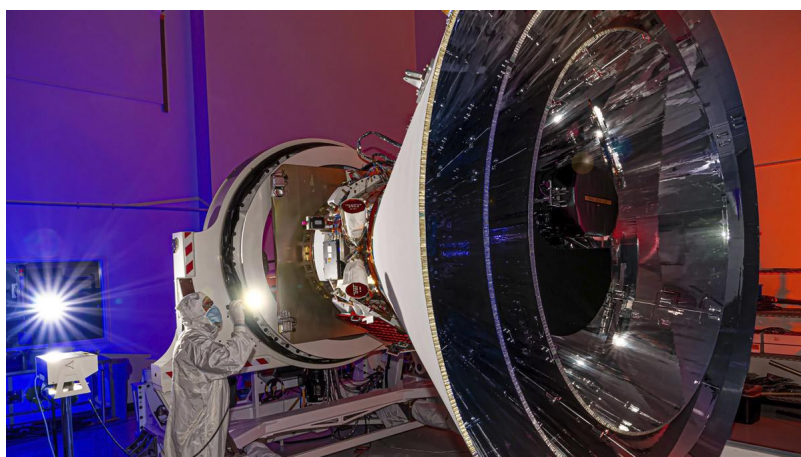
### Why in news?

*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 ( $H_2O$ ), carbon dioxide ( $CO_2$ ), and methanol ( $CH_3OH$ ).*

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

## Reference

[The Hindu | SPHEREx Telescope](#)

