PARAS-2 Spectrograph

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PARAS-2 Spectrograph Latest News

Recently, scientists at Physical Research Laboratory (PRL) discovered a new dense sub Saturn exoplanet TOI-6038A b by using PARAS-2 Spectrograph at Mt Abu Telescope.

About PARAS-2 Spectrograph

- The **PRL Advanced Radial-velocity All-sky Search-2** (PARAS-2) is a cutting-edge **fiber-fed spectrograph** integrated with the PRL 2.5m telescope, constituting a significant advancement over its predecessor.
- It is a state-of-the-art high-resolution spectrograph that operates in **380-690 nm wave-band.** It is aimed to unveil the **super-Earth-like worlds**.
- It was conceived with the primary objective of achieving **sub-m/s precision in radial velocity (RV)**, a crucial capability for the detection and characterization of super-Earths or massive planets orbiting **G and K dwarf stars.**

- It is the **highest-resolution spectrograph in Asia which** is under an ultra-stable temperature and pressure environment.

What is Exoplanet?

- These are **planets that orbit other stars** and are beyond our solar system.
- Exoplanets come in a host of **different sizes**. They can be gas giants bigger than Jupiter or as small and rocky as Earth.
- They are also known to have different kinds of temperatures; boiling to cold.
    - The recently discovered sub **Saturn exoplanet TOI-6038A b** lies in the transition region between Neptune-like and gas giant exoplanets, called as “Sub-Saturn,” a category absent in our solar system, providing a unique opportunity to study planetary formation and evolution.

PARAS-2 Spectrograph FAQs

Q1: What is a spectrograph used for?

Ans: A spectrograph is an instrument used to separate and measure the wavelengths present in Electromagnetic radiation and to measure the relative amounts of radiation at each wavelength.

Q2: What is the difference between a spectrometer and a spectrograph?

Ans: The two devices do basically the same job but using different technology. A spectrometer generates a spectrum by measuring the intensity of incoming light at a range of wavelengths in step by step increments. A spectrograph generates a spectrum in one go.

Q3: Who discovered the spectrograph?

Ans: William Hyde Wollaston

Source: ISRO