

## ISRO's PRL scientists discover an 'EPIC' planet

Planet size comparison | Photo Credit: [ISRO](#)

In an epic Indian discovery, a team from the Physical Research Laboratory, Ahmedabad, has spotted for the first time a distant planet six times bigger than Earth and revolving around a Sun-like star about 600 light years away. Both the planet and the star have been named EPIC.

"With this discovery India has joined a handful of countries which have discovered planets around stars," PRL's parent Indian Space Research Organisation has announced. Significantly, the discovery was made using a PRL-designed spectrograph, PARAS, to measure and confirm the mass of the new planet.

EPIC 211945201b (or K2-236b) is the name given to the planet by the discovery team led by PRL's Abhijit Chakraborty. The host star is named EPIC 211945201 or K2-236.

"The spectrograph is the first of its kind in the country which can measure the mass of a planet going around a star. Very few such spectrographs exist around the world (mostly in the USA and in the Europe) that can do such precise measurements," the space agency said on its website late on June 8.

The scientists observed the target over a time 420 days or about 1.5 years. They measured the mass of the planet using the indigenously designed PRL Advance Radial-velocity Abu-sky Search or PARAS spectrograph integrated with the 1.2-metre telescope located at PRL's Gurushikhar Observatory in Mount Abu, Rajasthan.

PRL, described as the cradle of space sciences in India, conducts fundamental research in a host of physical sciences including astronomy and space.

"Such a discovery is of importance for understanding the formation mechanism of such super-Neptune or sub-Saturn kind of planets that are too close to the host star." The detection also adds to a sparse catalogue of 22 other confirmed exoplanet systems that have a mass and radius in this range, ISRO said.

EPIC was found circling very close to the Sun-like star, going around it once in about 19.5 days and unlikely to be inhabitable because of its high surface temperature of around 600°C. The team found the planet to be smaller in size than Saturn and bigger than Neptune. Its mass is about 27 times Earth's and six times that of Earth at radius. The scientists estimate that over 60% of its mass could be made up of heavy elements like ice, silicates and iron.

Asked for his view, Jayant Murthy, senior professor of the Indian Institute of Astrophysics, Bengaluru, said Dr. Chakraborty's group is the only one in the country doing this important work and has spent several years in developing the facility. "Over the next few years, I expect that they will be able to make further contributions to this exciting field of astronomy."

Dr. Murthy said, "The work done by Dr. Chakraborty and his collaborators is important in characterising the nature of the exoplanet and they were able to show that the candidate is a close to Saturn-size planet orbiting near its star. These planets are very unlike those in our own Solar System and understanding them will tell us more about how planetary systems are formed." However, he said, radial velocity observations as made in this case "are not, in general, discovery observations but [a] look at already known planetary systems for a better understanding of their nature."

The research work will appear in the June issue of the *Astronomical Journal* owned by the American Astronomical Society

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