

## News & Comments

# Detecting Exoplanets With a New Technique

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An orbiting third body disturbs the material being fed from one star to another, allowing the new technique to work. Astronomers may be able to detect exoplanets orbiting exotic binary stars like cataclysmic variables with the help of a new technique.

In such systems, the larger body transfers mass to the smaller one as they orbit each other so closely. In the process of falling to the receiving star, this material forms an accretion disk that is thin and bright. The brightness of the disk can be changed by a third body orbiting the pair of stars, like a planet. Based on this disruption, a team led by Carlos Chávez, a researcher at Nuevo León's Autonomous University, has developed a new technique for detecting exoplanets.

A third body can induce changes in brightness in a system by perturbing a cataclysmic variable in this way. Pseudo-periods ranging from 42 to 265 days have been observed with these perturbations, as well as their amplitudes.

Thousands of exoplanets have been discovered around other stars since the first one was discovered in the 1990s. There are, however, quite a few of these worlds orbiting stars quite similar to the sun or red dwarfs that are active but small.

Scientists want methods to detect planets around exotic stars, such as pulsars or cataclysmic variables, in order to better understand planetary populations.

It is possible for a white dwarf to siphon material from a red dwarf in this type of partnership. Unlike typical white and red dwarf stars, this material forms an accretion disk as it moves between stars.

It is possible, however, for a dim third body orbiting the binary pair to influence the rate of transfer of this material, and therefore the brightness of its accretion disk. Accordingly, the researchers estimated the mass of the third body and its distance from the inner stars based on changes in brightness of four cataclysmic variable systems.

In two of the four systems Chávez studied, they found objects with planetary masses in orbit around them.

Though thousands of planets can be found by this method, it has its own limitation. Like the things have to be properly aligned or lined up to be found. It may be possible that we would be looking at it from one side, and the planet won't transit the star from that view, and we won't get a dip in starlight.



**KEYWORDS**

Cataclysmic, binary stars, exotic star, red dwarf stars, exoplanets, cataclysmic variable, News, astronomy, science, NASA, white dwarf, space, body, Chavez, CVS, duration, Dwarf, flash, main, Management, material, Point, Stars, tars, Study

