

WHITE DWARF SWITCH ON AND OFF



Issue

A team of international astronomers recently observed a white dwarf lose its brightness in 30 minutes.

Background

The losing of brightness by a white dwarf is not new but it usually takes place over a period of several days to months.

Details

- A white dwarf is usually half the size of our Sun and has a surface gravity 100,000 times that of Earth. Stars become white dwarf when it exhausts all its hydrogen energy.
- Scientists have discovered many white dwarfs using the Hubble Space telescope and Transiting Exoplanet Survey Satellite (TESS).

The recent discovery

- The phenomenon was observed by researchers using NASA's Transiting Exoplanet Survey Satellite (TESS).
- The discovered white dwarf is part of binary system called TW Pictoris. In this system a star and a white dwarf orbit each other.
- The closeness between planet and white dwarf allows material to be transferred from the planet to white dwarf. These materials form an accretion disk.
- The binary system is about 1400 light years from Earth. The TW Pictoris is a part of Pictoris constellation.

The occurrence

- The donor feeder material moves closer towards the white dwarf that helps it become brighter. Sometimes the donor system completely stops feeding the disc.
- The accretion disk takes about 1-2 months to drain most of the material. The white dwarf is still bright during this period.
- The darkness may have occurred due to a phenomenon known as magnetic gating during which magnetic field creates a barrier disrupting its energy to glow.

Significance

The study provides understanding of how black holes and neutron stars feed material from their nearby stars.

NOTES

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