Planetary Instability in Twin Star Systems

Source: IE

The stability and dynamics of planetary systems have long captivated astronomers, with a recent study shedding light on the **intriguing interactions within twin star systems.**

- This study, published in the ***journal Nature,*** was conducted by Monash University in Australia, investigates the potential for planetary instability and the process of **planetary ingestion (star engulfs a planet)** within these celestial configurations.
- The study focused on 91 pairs of stars referred to as **"twins", which share identical chemical makeup and are of similar mass and age,** originating from the same interstellar cloud also known **as co-natal stars.**
    - Despite their similarities, these **twin stars are not gravitationally bound binary systems.**
- When a **star engulfs a planet, its chemical composition changes**, allowing researchers to identify stars with elevated levels of specific elements as remnants of rocky planets.
    - Surprisingly, a significant number of these **twin star systems exhibited signs of having ingested planets,** resulting in alterations to their chemical compositions.
- The study indicates that planetary instability may be more prevalent than previously assumed, with **approximately 8% of observed pairs** displaying signs of planet ingestion.
    - This research **challenges the conventional understanding of planetary system stability,** revealing that a notable fraction of studied stellar pairs included one star that had consumed a planet.

Read more: Star Engulfing Jupiter-Sized Planet