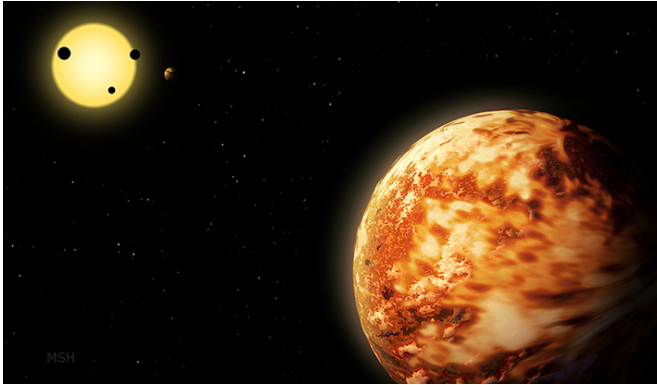


# Finding a 'lost' planet, about the size of Neptune

30 March 2017



An artist's rendering of Kepler-150 f. Credit: Michael S. Helfenbein

Yale astronomers have discovered a "lost" planet that is nearly the size of Neptune and tucked away in a solar system 3,000 light years from Earth.

The new planet, Kepler-150 f, was overlooked for several years. Computer algorithms identify most such "exoplanets," which are planets located outside our solar [system](#). The algorithms search through data from space mission surveys, looking for the telltale transits of planets orbiting in front of [distant stars](#).

But sometimes the computers miss something. In this case, it was a planet in the Kepler-150 system with a long orbit around its sun. Kepler-150 f takes 637 days to circle its sun, one of the longest orbits for any known system with five or more planets.

The Kepler Mission found four other planets in the Kepler-150 system—Kepler-150 b, c, d, and e—several years ago. All of them have orbits much closer to their sun than the new planet does.

"Only by using our new technique of modeling and subtracting out the transit signals of known [planets](#)

could we then actually see it for what it really was," said Joseph Schmitt, a graduate student at Yale and lead author of a new paper in the *Astronomical Journal* describing the planet. "Essentially, it was hiding in plain sight in a forest of other [planetary transits](#)."

Co-authors of the study are Yale astronomy professor Debra Fischer and Jon Jenkins of NASA's Ames Research Center.

**More information:** Joseph R. Schmitt et al. A Search for Lost Planets in the Multi-planet Systems and the Discovery of the Long-period, Neptune-sized Exoplanet Kepler-150 f, *The Astronomical Journal* (2017). [DOI: 10.3847/1538-3881/aa62ad](https://doi.org/10.3847/1538-3881/aa62ad)

Provided by Yale University

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