

## Similar Solar System Found Only 90 Light Years Away

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A team of British, Australian and American astronomers announced yesterday that they had found a hint of home 90 light years away in the constellation Puppis.

There, in what they say is the closest resemblance to Earth's solar system yet found in outer space, a Jupiterlike planet circles a sunlike star known as HD70642 in an orbit that corresponds to one halfway between Mars and Jupiter in our own system. The discovery raises the hopes of planet hunters that if they keep working they will find more and more potentially habitable systems like our own.

More than 100 planets have been detected orbiting other stars in the nearby reaches of our galaxy in the last few years. Most have been brutes the size of Jupiter, but in elongated orbits that whiz them around uncomfortably close to their stars, often inside the distance of Earth to the Sun. Such planets would be too hot and dense to support life, and their gravitational effects would chase smaller potentially habitable planets out of the system.

The new planet has about twice the mass of Jupiter, and is in a circular, six-year orbit. Perhaps even more intriguing, there is no evidence of any giant planets orbiting inward of the new planet, leaving a swath of space where smaller terrestrial planets could happily and stably exist.

"This is the closest we have yet got to a real solar system-like planet, and advances our search for systems that are even more like our own," said Dr. Hugh Jones of Liverpool John Moores University in England.

Dr. Geoffrey W. Marcy of the University of California, who along with Dr. Paul Butler of the Carnegie Institution of Washington, has pioneered the search for so-called extrasolar planets, agreed, saying, "This new planet around HD70642 is by the far the closest analog to our Jupiter ever found."

Dr. Jones led the international team of astronomers who made the discovery using a 3.9-meter-diameter Anglo-Australian Telescope in New South Wales, Australia. He announced the discovery yesterday in Paris at a conference, "Extrasolar Planets: Today and Tomorrow."

The team made the discovery by examining the light from HD70642 for signs of a wobble in its motion away from us. If a star has a planetary companion, the gravity of the planet as it circles the star exerts a tug that alternately speeds and slows the star's motion, imparting a characteristic shift in the wavelength of its light. The more massive the planet and the closer it is to its star, the greater the induced wobble, which is why the more musclebound systems with close-in planets were discovered first.

But as observations have continued, astronomers explain, they have become more sensitive to

planets in more distant orbits. Last year, astronomers reported the discovery of several Jupiter-size planets at Jupiterlike distances from their stars.

The new discovery stands out, in part, Dr. Marcy said, because of its parent star's resemblance to the Sun. The star HD70642 has the same mass as the Sun, within a few percent, and nearly the same age, 4.8 billion years, making it seem even more like a home away from home.

After a decade of searching for new planets, Dr. Marcy said, "Searching for analogs to our solar system is what gets me up in the morning."