

## *Ask an Astronomer*

**Question:** "Are other solar systems like our own?"

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Some nearby stars, like our Sun, have a family of planets in orbit around them.

Take, for example, the star 55 Cancri in the constellation Cancer, the Crab. It has at least three planets in orbit around it, one of which is four times heavier than Jupiter and orbiting the star at the same distance as Jupiter orbits our Sun. Its other two planets, one as heavy as Jupiter and one as heavy as Saturn, orbit very close to the star - as close as Mercury does to the Sun.

The star Upsilon Andromedae in the constellation Andromeda, the Chained Maiden, has its own family of at least three planets. Unlike our own solar system, however, Upsilon Andromedae has a second star in orbit around it. This other star lies about 20 times further away from the main star than Pluto lies from the Sun.

Other solar systems are much more exotic, with massive planets that plunge toward their host suns on much more extreme orbits.

The star HD 80606, for example, has a planet four times heavier than Jupiter which travels on a very unusual orbit, plunging ten times closer to the star than the planet Mercury orbits the Sun, then swinging wildly out to a distance equaling that between the Earth and the Sun.

Even though astronomers are uncovering an exciting variety of solar systems around nearby stars, one ultimate goal still eludes them - finding a planet like the Earth.

We're not able to detect any Earth-sized planet with current methods, but planned NASA missions are being constructed to uncover other Earth-like worlds. Stay tuned!

For "Ask an Astronomer" this is Davy Kirkpatrick at the Infrared Processing and Analysis Center at the California Institute of Technology.