

## 32 New Planets Found Outside Our Solar System

James Owen  
for [National Geographic News](#)

October 19, 2009

Astronomers have added 32 new [planets](#) to the list of planets found orbiting stars outside our [solar system](#).

The discoveries, announced today at a press briefing in Portugal, increase to more than 400 the number of known extrasolar planets, or "exoplanets."

The 32 previously unseen planets range from five times the mass of Earth up to eight times the mass of [Jupiter](#), scientists said.

In addition, the new planets were found around different types of stars, challenging existing theories for where and how planets form.

Overall, the research suggests that 40 to 60 percent of all planetary systems in the universe contain low-mass planets.

Since lower masses most likely mean Earthlike sizes, such planets are considered to be the best candidates in the search for extraterrestrial life. (Related [pictures](#): "[3 Worlds Most Likely to Harbor Life Named](#).")

"The models are predicting even larger numbers of low-mass planets like Earth, so I am pretty confident that there are Earth-type planets everywhere," said team member Stephane Udry of the Observatory of Geneva in Switzerland.

"Nature doesn't like a vacuum," he added, "so if there is space to put a planet, it will put the planet there."

### **New Planets: Super-Earths, Gas Giants**

The 32 new planets were found over the past five years using an instrument called a spectrograph at the European Southern Observatory in La Silla, Chile.

Known as HARPS, for High Accuracy Radial velocity Planetary Searcher, the spectrograph detects wobbles in a star's orbit caused by the pull of an unseen exoplanet.

The HARPS team selected [stars](#) like our sun, as well as lower-mass dwarf stars, to watch for wobbles.

Red dwarf stars were targets because they are dimmer, low-mass stars, which makes it easier to detect wobbles from low-mass satellite planets, said team member Nuno Santos, of the University of Porto, Portugal.

The 32 newfound exoplanets include several super-Earths, such as two planets no more than five times Earth's mass and two about six times Earth's mass, the Observatory of Geneva's Udry said.

The largest newly discovered exoplanet is a monster at seven to eight times Jupiter's mass, he estimated.

In addition, several Jupiter-mass planets were found around stars that don't have many metals.

Previous theories had stated that planets wouldn't tend to form around metal-poor stars, since planets are thought to take shape inside the metal-filled disks of debris left over from stellar birth.

The new finds suggest that astronomers might need to revise theories of planet formation—and may increase the number of possible star systems in the universe.

(Related: "[Turbulence Key to Planet Formation, New Study Suggests](#).")

Exact details about each of the 32 new planets have yet to be published, Udry said, but "a bunch of the new planets

will be described in the next six months."

### **Planets and Habitability: The Next Step**

Counting the 32 new planets, the HARPS instrument has so far helped astronomers find 75 of the roughly 400 known exoplanets.

For example, a team using HARPS had previously found several low-mass planets orbiting Gliese 581, a red dwarf star some 20.5 light-years away.

One of these planets, Gliese 581 c, has been touted as [the first Earthlike planet yet found outside the solar system](#).

But for most of the newly revealed exoplanets, appraisals of their habitability will probably have to wait, the team said.

"It will be very difficult to confirm a planet detected [by HARPS] is the size of the Earth and that it would also be in the habitable zone," Udry said.

"We need the next generation of radio-velocity machine to do that," he said, adding that such a device should be ready in the next five years.

---

© 1996-2008 National Geographic Society. All rights reserved.