2015 HARCOURT C. "ACE" VERNON MEMORIAL LECTURE

Wednesday, October 14, 2015 | 7:30 PM | Clayton Hall Conference Center

UNIVERSITY OF DELAWARE

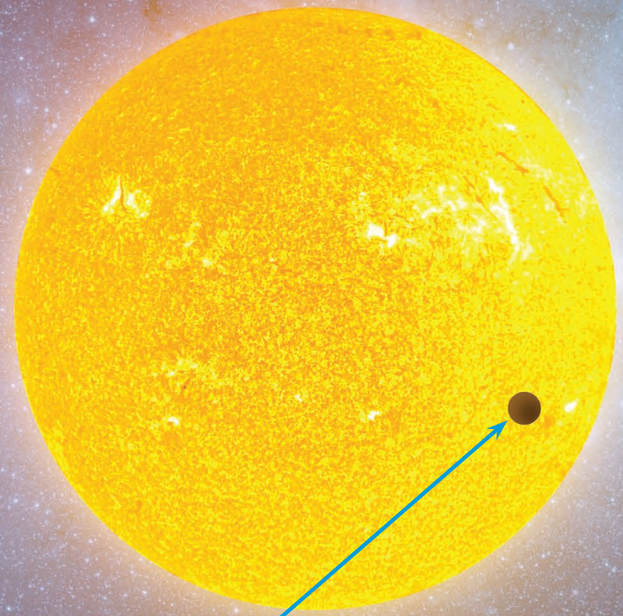
Chasing Shadows

Searching for Earth-size Planets with NASA's Kepler Space Telescope

Fergal Mullally
Kepler Science Officer,
The SETI Institute and
NASA Ames Research Center

Is Earth the only planet in the universe that supports life?

It's astronomy's biggest question. NASA's Kepler space telescope, launched in 2009, has found thousands of planets, some like Earth. Kepler scientist Fergal Mullally will introduce you to how the spacecraft sleuths out planets, introduce some of its most exciting discoveries, and discuss future missions that will help us finally understand whether we are truly alone in the universe.



This artist's conception depicts the Kepler-10 star system, located about 560 light-years away. Kepler-10b—to date, the smallest known planet outside our solar system (dark spot against yellow sun)—has a radius of 1.4 times that of Earth's. In May 2010, the Kepler team announced another member of the Kepler-10 family, called Kepler-10c (larger foreground object). It's bigger than Kepler-10b with a radius of 2.2 times that of Earth's, and it orbits the star every 45 days.

Credit: NASA/Ames/JPL-Caltech

Free and open to the public.
Please register online at mountcuba.org

Sponsored by Delaware Asteroseismic Research Center at UD (www.physics.udel.edu/darc) and Mount Cuba Astronomical Observatory (mountcuba.org)

Kepler-20e and f: Earth-Class Planets Line-Up

This chart compares the first Earth-size planets found around a sun-like star to planets in our own solar system, Earth and Venus. NASA's Kepler mission discovered the newfound planets, called Kepler-20e and Kepler-20f. Kepler-20e is slightly smaller than Venus with a radius .87 times that of Earth. Kepler-20f is a bit larger than Earth at 1.03 times the radius of Earth. Venus is very similar in size to Earth, with a radius of .95 times that our planet. Prior to this discovery, the smallest known planet orbiting a sun-like star was Kepler-10b with a radius of 1.42 that of Earth, which translates to 2.9 times the volume.

Both Kepler-20e and Kepler-20f circle in close to their star, called Kepler-20, with orbital periods of 6.1 and 19.6 days, respectively. Astronomers say the two little planets are rocky like Earth but with scorching temperatures.

There are three other larger, likely gaseous planets also known to circle the same star, known as Kepler-20b, Kepler-20c and Kepler-20d.

Credit: NASA/Ames/JPL-Caltech

UNIVERSITY OF DELAWARE

Learn more:

Delaware Asteroseismic Research Center at UD
www.physics.udel.edu/darc

Mount Cuba Astronomical Observatory
mountcuba.org