



The Starry Messenger

THE BIGGEST & BEST IN THE METROPLEX!



Bring your sweetheart to the Planetarium this Valentine's Day, February 14 at 5 p.m., for our special Couples Only event, Romancing the Stars. We'll take you on a romantic journey through the heavens in our state of the art theater. Sit back and enjoy some of the stories of love and devotion found in the sky. Tickets are \$15 per couple and can be reserved by emailing the Planetarium at planetarium@uta.edu or by calling 817-272-1183.



Back to the Moon for Good Opening Reception

Join us Saturday, February 22 from 1:30 – 5:30 p.m., for a special opening reception to kick off our newest show - *Back to the Moon for Good*! Ken Murphy, president of the Moon Society, will give a free lecture about the moon after the screening of *Back to the Moon for Good*. Then join us for a raffle (grand prize is a telescope) and see some of the cool moon artifacts on display!

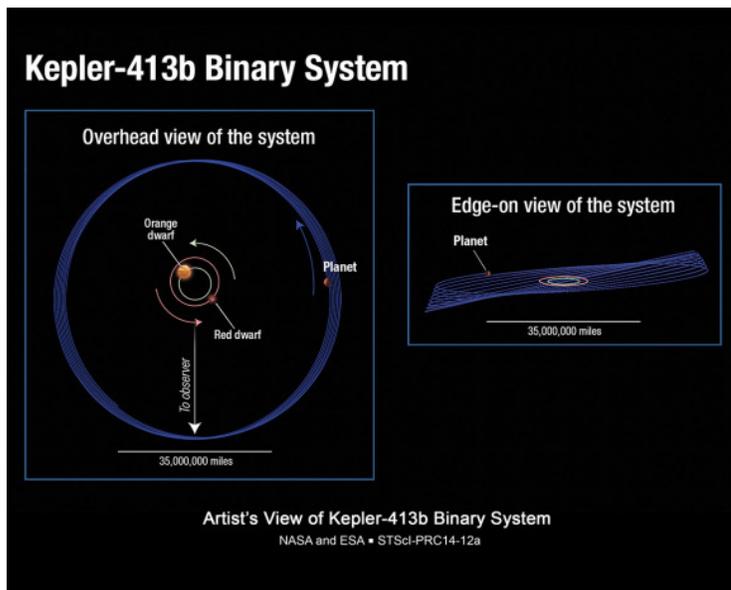
- 2:30 - Back to the Moon for Good
- 4:30 - Moon U., Ken Murphy, president of the Moon Society

In case you haven't heard, the moon is trending again... and in a big way. Unlike the glory days of the 1960s and 1970s, our big white space neighbor is enjoying the attention of a new generation of lunar explorers. Only this time, they're going back to the moon for good.

The educational Google Lunar XPRIZE full-dome planetarium show *Back To The Moon For Good* chronicles teams around the world competing for the largest incentivized prize in history, by landing a robotic spacecraft on the moon for the first time in more than 40 years.

To win the Google Lunar XPRIZE, a team must land a robotic spacecraft on the moon, travel it 500 meters over the lunar surface, and send video, images and data back to Earth. This global competition is designed to spark

imagination and inspire a renewed commitment to space exploration, not by governments or countries – by the citizens of the world.



Kepler Discovers Wobbly Planet with Weird Seasons

Imagine living on a planet with seasons so erratic you'd hardly know whether to wear Bermuda shorts or a heavy overcoat. That is the situation on a weird, wobbly world found by NASA's planet-hunting Kepler space telescope.

The planet, designated Kepler-413b, precesses, or wobbles, wildly on its spin axis, much like a child's top. The tilt of the planet's spin axis can vary by as much as 30 degrees over 11 years, leading to rapid and erratic changes in seasons. In contrast, Earth's rotational precession is a relatively tame 23.5 degrees over 26,000 years. Researchers are amazed that this far-off planet is precessing on a human timescale.

Kepler 413-b is located 2,300 light-years away in the constellation Cygnus. It circles a close pair of orange and red dwarf stars every 66 days. The planet's orbit around the binary stars appears to wobble, too, because the plane of its orbit is tilted 2.5 degrees with respect to the plane of the star pair's orbit. As seen from Earth, the wobbling orbit moves up and down continuously.

Kepler finds planets by measuring the dimming of starlight when a planet passes in front of its parent sun – or, in this case, suns, because the planet circles a pair of stars. Normally, planets transit like clockwork.



Olympic Torch Completes Longest Relay in History

As the XXII Winter Olympic Games begin in Sochi, Russia, the athletes who compete must turn their eyes to the sky to see how far the torch that is lighting the Olympic flame has traveled.

This torch, which has journeyed farther than any torch in Olympic relay history, arrives at Fisht Stadium in Sochi on the shores of the Black Sea. The traditional relay began in late September in Olympia, Greece. The torch, which in fact has been a succession of torches, traveled more than 40,000 miles through 2,900 towns and villages in 83 regions of Russia, to the top of Europe's highest mountain, Mount Elbrus, in the western Caucasus mountain range, to the depths of Siberia's Lake Baikal.

The symbol of peace, friendship, hope and understanding among the nations participating in the Olympic Games traveled by car, plane, reindeer and train, and by what arguably was its most unusual mode of transportation, a Russian Soyuz rocket that ferried it into space to the International Space Station, itself a symbol of peaceful international cooperation.

Astronomers using Kepler discovered the wobbling when they found an unusual pattern of transiting for Kepler-413b.

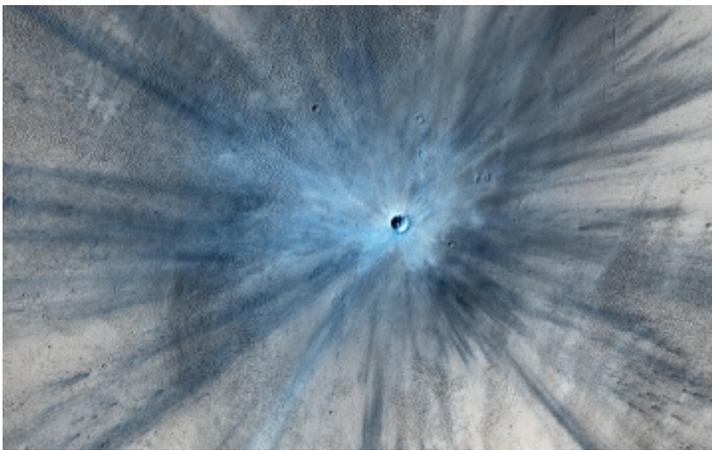
“Looking at the Kepler data over the course of 1,500 days, we saw three transits in the first 180 days — one transit every 66 days — then we had 800 days with no transits at all. After that, we saw five more transits in a row,” said Veselin Kostov, the principal investigator on the observation. Kostov is affiliated with the Space Telescope Science Institute and Johns Hopkins University in Baltimore, Md.

See pictures of this strange planetary system and read more about Kepler 413-b [here](#).

More than 14,000 people served as torchbearers during the relay, including Russian cosmonauts Mikhail Kornienko, who next year will launch with NASA astronaut Scott Kelly to spend one year on the station; Sergey Krikalev, head of the Gagarin Cosmonaut Training Center; and Valentina Tereshkova, the first woman to fly in space, who last year marked the 50th anniversary of her ground-breaking mission.

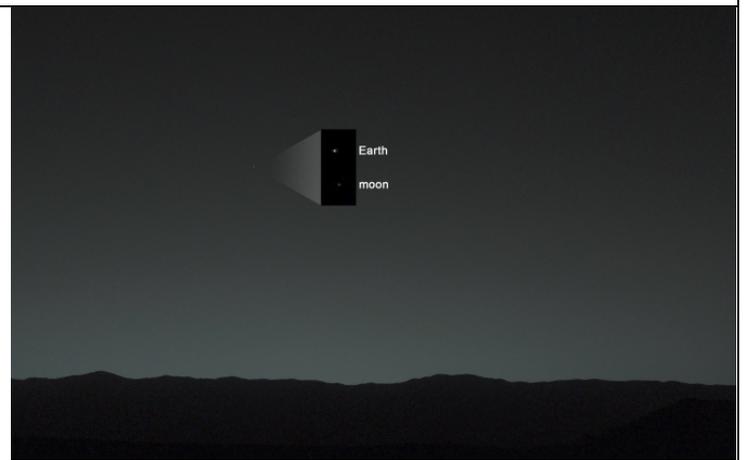
But it was Soyuz Commander Mikhail Tyurin of the Russian Federal Space Agency (Roscosmos), Rick Mastracchio of NASA and Koichi Wakata of the Japan Aerospace Exploration Agency who made the longest – and fastest -- leg of the relay, carrying the torch 260 miles into space at speeds up to 17,500 mph, launching Nov. 7 from the Baikonur Cosmodrome in Kazakhstan.

Read more about the Olympic torch’s visit to ISS and watch video of the spacewalk on [NASA’s webpage](#).



Mars Orbiter Examines Dramatic New Crater

Space rocks hitting Mars excavate fresh craters at a pace of more than 200 per year, but few new Mars scars pack as much visual punch as one seen in a NASA image released February 5. The image from the High Resolution Imaging Science Experiment (HiRISE) camera on NASA's Mars Reconnaissance Orbiter shows a crater about 100 feet in diameter at the center of a radial burst painting



NASA Mars Rover, Curiosity, Sees “Evening Star” Earth

New images from NASA's *Curiosity* Mars rover show Earth shining brighter than any star in the Martian night sky. The rover's view of its original home planet even includes our moon, just below Earth. A human observer with normal vision, if standing on Mars, could easily see Earth and the moon as two distinct, bright "evening stars."

the surface with a pattern of bright and dark tones.

The scar appeared at some time between imaging of this location by the orbiter's Context Camera in July 2010 and again in May 2012. Based on apparent changes between those before-and-after images at lower resolution, researchers used HiRISE to acquire this new image on Nov. 19, 2013. The impact that excavated this crater threw some material as far as 9.3 miles.

Read [more](#) about this crater from [NASA](#).

The images, taken about 80 minutes after sunset during the rover's 529th Martian day (Jan. 31, 2014) are available for a [broad scene](#) of the evening sky, and for a [zoomed-in view](#) of Earth and the moon.

[NASA](#)'s Mars Science Laboratory Project is using *Curiosity* to assess ancient habitable environments and major changes in Martian environmental conditions.