



Save The Night November 6th

It's dark out there at night. But maybe that's good for you and everything around you.

Nationally respected conservationists Paul Bogard, author of *The End of Night: Searching for Natural Darkness in an Age of Artificial Light*, and Green Earth Lighting owner Cindy Luongo Cassidy will examine the impact of nighttime artificial light on physical, mental and spiritual health at an Arlington Conservation Council (ACC) workshop and lecture Wednesday, Nov. 6, at the Planetarium at UT Arlington.

Cassidy will lead the 5-6:45 p.m. lighting assessment workshop featuring a walk-around critique of installed lighting on the UTA campus, followed by the Planetarium show "The November Night Sky." The Planetarium is in the Chemistry and Physics Building; the workshop will be in CPB 303, the conference room above the Planetarium.

At 7:15 Cassidy and Bogard will present "Save the Night," a lecture with Q&A. Bogard will sign his book afterward.

The workshop and lecture are free, but seating is limited for the workshop. Register with the [Arlington Conservation Council](#). Directions to the Planetarium and a parking pass will be returned with registration confirmation.



Astronomers Discover Farthest Known Galaxy

As the [McDonald Observatory gears up to celebrate its 75th year](#) as an internationally renowned scientific hub, astronomers at UT have yet another landmark discovery to be proud of: spotting and measuring the most distant galaxy ever found.

The galaxy, dubbed z8_GND_5296, was pinpointed after a research team led by UT assistant professor [Steven Finkelstein](#) selected it — and 43 others — for further review out of the more than 100,000 galaxies discovered by the [Hubble CANDELS survey](#). Because of the speed at which light travels, the astronomers are able to see the galaxy just as it was 700 million years after the Big Bang — literally looking into the Universe's past.

"We like to study how we came to be: humans, civilizations, society, galaxies," Finkelstein says. "When you look back at distant galaxies, things look very different. How did they go from little bumps to big, beautiful spirals? By looking at galaxies far away, we can kind of play a movie of how the Universe was formed."

With the help of the Keck I telescope in Hawaii, Finkelstein and his team were able to definitively confirm that Galaxy z8_GND_5296 is the farthest and earliest ever discovered using spectroscopy, or measuring how much a galaxy's light wavelengths have shifted toward the red end of the spectrum as they make their way toward Earth — a phenomenon called redshift.

Galaxy z8_GND_5296 has the highest redshift ever confirmed, indicating that it originated only 700 million years after the Big Bang (or 5 percent of the Universe's current age of 13.8 billion years). The more distant galaxies we study, Finkelstein says, the closer scientists get to being able to study the Universe's mysterious



Balloon Ride to Near Space

If you can't afford a trip into orbit as a space tourist aboard a [cramped Russian Soyuz capsule](#) (about \$35 million) or a reservation on [Virgin Galactic's SpaceShipOne](#) (price tag: \$250,000), [World View Enterprises](#) just might have the ticket: a leisurely high-altitude balloon ride for a less-than-stratospheric \$75,000.

Tucson-based World View on Tuesday unveiled the planned balloon rides, which the company says will reach altitudes of about 100,000 feet — high enough to see the blackness of space and the curvature of the Earth.

On its website, World View boasts "majestic views of our planet, slowly expanding below ... certain to captivate you, as you ascend to the edge of space."

"Seeing the Earth hanging in the ink-black void of space will help people realize our connection to our home planet and to the universe around us," World View CEO Jane Poynter said in a statement on Tuesday. "It is also our goal to open up a whole new realm for exercising human curiosity, scientific research and education."

But going aloft 19 miles isn't for the faint of heart. A look at the company's promotional animation ([here](#)) shows the gentle ascent of the gondola/capsule and then its separation and return via para-glider.

This article was written by the staff at [NPR](#). Please see the full article [here](#).

beginnings.

Despite this incredible finding, however, Finkelstein was still perplexed. [Visit [Alcalde](#) to read more.]

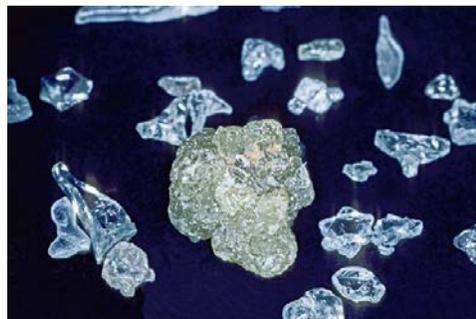
For more detailed information about Finkelstein's findings, check out [McDonald Observatory's website](#).



Brooch of Tutankhamun Holds Evidence of Ancient Comet

Most have heard of the treasures of the 18th Dynasty pharaoh Tutankhamun, first discovered by Howard Carter and Lord Carnarvon in 1922 when they uncovered his tomb in the Valley of the Kings in Egypt. Few are familiar with his impeccably preserved brooch, recovered along with the numerous other artifacts within the tomb. Fewer still know about the striking yellow-brown scarab that is set at its center, and that it is made of a yellow silica glass stone procured from the sand of the Sahara and then shaped and polished by ancient craftsmen. The silica glass was originally formed 28 million years ago, when an ancient comet entered the earth's atmosphere and exploded over Egypt, heating up the sand beneath it to a temperature of about 2,000 degrees Celsius and resulting in the formation of a huge amount of the yellow silica glass, which lies scattered over a 6,000 square kilometer area in the Sahara.

The silica glass was one of a number of clues that eventually led Professor Jan Kramers of the University of Johannesburg, South Africa, and colleagues to a remarkable new discovery. At the center of it all is a mysterious black pebble found years ago by an Egyptian geologist in the area of the silica glass. After conducting highly sophisticated chemical analyses on this pebble, Professor Jan Kramers of the University of Johannesburg and a team of colleagues came to the inescapable conclusion that it represented the very first known hand



Diamonds Stud the Atmospheres of Jupiter and Saturn

It sounds like science fiction, but as much as 10 million tons of diamonds may be stored in [Saturn](#) and [Jupiter](#), researchers announced this week.

Observational evidence of storms on Saturn that actively generate carbon particles, combined with new laboratory experiments and models that show how carbon behaves under extreme conditions, have led a pair of scientists to posit that both planets may offer stable environments for the formation of diamonds.

"We now know the high temperature limit [8,000 Kelvin] for solid diamond, above which it melts. And we also now have more precise pressure [and] temperature structures for the interiors of Saturn and Jupiter," said Kevin Baines, a planetary scientist at University of Wisconsin–Madison and co-author of the study presented this week at a conference in Denver, Colorado.

"These two results together show us for the first time that solid diamonds can exist over large vertical regions of both planets."

[Earlier theories](#) included only [Uranus](#) and [Neptune](#) as suspected diamond producers. Scientists suggested that intense temperature and pressure on those planets may be able to convert atmospheric methane

specimen of a comet nucleus, rather than simply an unusual type of meteorite.

Kramers describes this as a moment of career defining elation. "It's a typical scientific euphoria when you eliminate all other options and come to the realisation of what it must be," he said.

"Comets always visit our skies – they're these dirty snowballs of ice mixed with dust – but never before in history has material from a comet ever been found on Earth," says Professor David Block of Wits University, a key researcher on the team.

The impact of the explosion also produced microscopic diamonds found within the pebble. "Diamonds are produced from carbon bearing material. Normally they form deep in the earth, where the pressure is high, but you can also generate very high pressure with shock. Part of the comet impacted and the shock of the impact produced the diamonds," says Kramers.

The team named the diamond-bearing pebble "Hypatia" in honour of the first well known female mathematician, astronomer and philosopher, Hypatia of Alexandria.

Comet material is very elusive. Comet fragments have not been found on Earth before except as microscopic sized dust particles in the upper atmosphere and some carbon-rich dust in the Antarctic ice. Space agencies have spent billions to secure the smallest amounts of pristine comet matter.

This article was written by the staff of [Popular Archaeology](#), please read the [full article here](#).

gas directly into diamonds, which rain down into their interiors.

Jupiter and Saturn, which are presumed to have much lower temperatures and less methane, have traditionally not been associated with the capacity to form these precious gems.

Giant lightning storms spotted by Cassini spacecraft in the upper clouds of Saturn—similar storms have been seen on Jupiter—may be the key events that spark the production of diamonds, according to Baines.

Dark stormy regions seen on infrared images are thought to correspond to the breakup of methane molecules into carbon, most probably soot particles.

Once formed, the new theory states, noncrystalline carbon sinks down through the atmosphere until it reaches an altitude of similar density and is converted to graphite under the increasing pressure. The graphite continues its descent into the deeper depths of Saturn's atmosphere until pressure and temperature builds and converts the material into solid diamonds.

"This creates about a thousand tons of diamonds per year, and I estimate that in the 30,000-kilometer-thick diamond-containing layer, there are about 10 million tons of diamonds formed in this manner," said Baines.

This article was published by the staff of National Geographic, read the [entire article here](#).