

Carpe Noctem



The News of Central Texas Astronomical Society

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President: Dick Campbell
(dick_campbell@baylor.edu)

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Editor: Kent Swarts
(kentswarts@me.com)

White Dwarf Workshop

Dean Chandler

Hi CTAS, I received a notice/invitation regarding the "21st European White Dwarf Workshop", which is to be held in Austin, Texas, July 23rd - July 27th. The cost is about \$500 to attend, which includes the banquet. This event is being held in Austin this year to honor the work of Professors D. E. Winget and S. O. Kepler, who have both sat at the controls of the CTAS/PJMO telescope, and who are pioneers in the field of astronomical research of white dwarf stars.

This is a professional gathering - not an introductory course - but several friends of ours are participating, and I wanted to be sure that you received the notice and registration information:

<https://sites.cns.utexas.edu/eurowd21/register>

Please let me know if you have any interest in attending!

President's Letter – May-June

Greetings CTASers. The nights are getting shorter and warmer, and I hope you are enjoying out night skies. Exciting things are happening with the observatory. I am pleased to announce that our capital campaign to raise funds for a new science camera has been successful, thanks to the very generous single gift by Mr. Ralph Miller as well as other significant donations by CTAS members. Not only will this new camera allow us to continue to do credible science, it will be useful for members who want to do astro-imaging. The camera will also allow us to continue student science research and science fair projects as part of our public outreach. Soon, Peter Mack will be returning to

complete the telescope upgrade that will greatly enhance our capability. If you have ever thought about learning how to use the Meyer telescope, now would be a good time to get involved.

Don't forget to put July 14th on your calendar. This will be our annual Star-B-Q and quarterly membership meeting at TRS-PJMO. In addition to good food and socializing, we will have a program, and hopefully Clear Skies. I look forward to seeing you at a future star party.

Dick Campbell

President

Small Asteroid Hits Earth

By: spaceweather.com

On Saturday, June 2nd, astronomers working with the Catalina Sky Survey in Arizona discovered a small asteroid (2018 LA) near the orbit of the Moon. Hours later, it hit Earth. The boulder-sized space rock entered the atmosphere traveling 38,000 mph (17 km/s) and exploded over Botswana at 6:44 p.m. local time. Fragments may have hit the ground.

"The yield was in the range 0.3 to 0.5 kilotons of TNT," he says. "That corresponds to a 2 meter diameter asteroid."

Omega Centauri

Jeffrey W McClure on 5/15/2018

Each year that I attend the Texas Star Party near Ft. Davis, TX, part of my personal ritual is getting a better image of Omega Centauri. I believe this is the best I have accomplished to date. The globular star cluster contains about 10 million stars and is nearly as old as the universe. It once was the

center of a galaxy whose stars have been stripped away and made part of our own Milky Way. It is about 15,800 light years from earth and orbits our galaxy far above its disk.



Needle or Spindle Galaxy (NGC 4565)

Jeffrey W McClure on 5/19/2018

In the image several other galaxies can be seen, NGC 4562 in the lower left (SW), NGC 4565B in the lower right, UGC 7778 right side center, and IC 3572 just to the right of the Needle are the most prominent.



M101 PINWHEEL GALAXY

Johnny Scarborough May 21, 2018

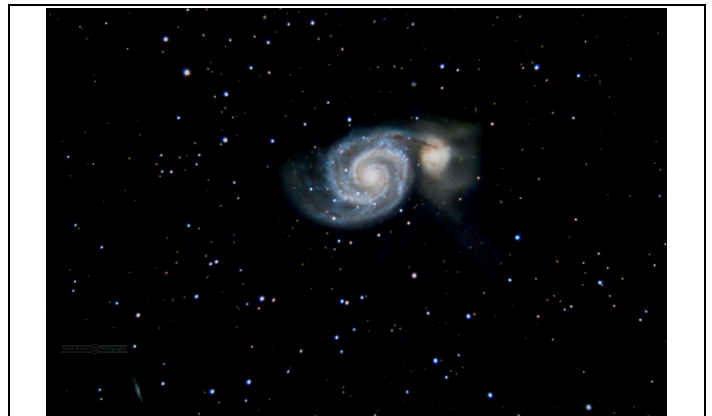
M101 is a large face-on spiral galaxy located 22 million light-years away in the constellation of Ursa Major.



M51 - The Whirlpool Galaxy

Steve Brown on 5/21/2018

See the article about M51 on page 3.



Exoplanets Everywhere

By: Kent Swarts

Step outside on a clear night, and you can be sure of something our ancestors could only imagine: Every star you see likely plays host to at least one planet.

The worlds orbiting other stars are called “exoplanets,” and they come in a wide variety of sizes, from gas giants larger than Jupiter to small, rocky planets about as big around as Earth or Mars. They can be hot enough to boil metal or locked in deep freeze. They can orbit their stars so tightly that a “year” lasts only a few days; they can orbit two suns at once. A few exoplanets are sunless rogues, wandering through the galaxy in permanent darkness.

The Milky Way contains about 400 billion stars, our Sun among them. And if each of those stars has not just one planet, but, like ours, a whole system of them, then the number of planets in the

galaxy is truly astronomical: We're already heading into the trillions.

We humans have been speculating about such possibilities for thousands of years, but ours is the first generation to know, with certainty, that exoplanets are really out there. Our nearest neighboring star, Proxima Centauri, was recently found to possess at least one planet – probably a rocky one. The bulk of exoplanets found so far are hundreds or thousands of light-years away.

The vast majority of exoplanets have been found by searching for shadows: the incredibly tiny dip in the light from a star when a planet crosses its face. Astronomers call this crossing a “transit.” The size of the dip in starlight reveals how big around the transiting planet is. Unsurprisingly, this search for planetary shadows is known as the transit method. And NASA's Kepler space telescope, launched in 2009, has found nearly 2,700 confirmed exoplanets this way.

Peering into M51

Provided by: Case Western Reserve University

Astronomers have been keenly peering into M51, or the Whirlpool Galaxy, since the 1800s.

But no one -- not with the naked eye or with increasingly powerful modern telescopes -- has ever seen what Case Western Reserve University astronomers first observed using a refurbished 75-year-old telescope in the mountains of southwest Arizona.

"I looked at the image and said, 'What in the world is that?'" said Case Western Reserve astronomy professor Chris Mihos.

It turned out to be a massive cloud of ionized hydrogen gas spewed from a nearby galaxy and then essentially "cooked" by radiation from the galaxy's central black hole.

Mihos and a trio of collaborators -- Aaron Watkins, Paul Harding and Matthew Bershadsky -- wrote about the discovery this month in the journal *The Astrophysical Journal Letters*.

The discovery of the giant gas cloud, first observed by Watkins in 2015 potentially provides astronomers around the world with an unexpected "front row seat" to view the behavior of a black hole and associated galaxy as it consumes and "recycles" hydrogen gas.

"We know of a few clouds like this in distant galaxies, but not in one so close to us," Mihos said. "This gives astronomers a great opportunity to

study up close how gas is ejected from galaxies and how black holes can influence large regions of space around those galaxies."

Exiled Asteroid Discovered in Outer Reaches of Solar System

Source: ESO

An international team of astronomers has used ESO telescopes to investigate a relic of the primordial Solar System. The team found that the unusual Kuiper Belt Object 2004 EW95 is a carbon-rich asteroid, the first of its kind to be confirmed in the cold outer reaches of the Solar System. This curious object likely formed in the asteroid belt between Mars and Jupiter and has been flung billions of kilometres from its origin to its current home in the Kuiper Belt.



The early days of our Solar System were a tempestuous time. Theoretical models of this period predict that after the gas giants formed they rampaged through the Solar System, ejecting small rocky bodies from the inner Solar System to far-flung orbits at great distances from the Sun. In particular, these models suggest that the Kuiper Belt -- a cold region beyond the orbit of Neptune -- should contain a small fraction of rocky bodies from the inner Solar System, such as carbon-rich asteroids, referred to as carbonaceous asteroids.

The peculiar nature of 2004 EW95 first came to light during routine observations with the NASA/ESA Hubble Space Telescope by Wesley Fraser, an astronomer from Queen's University Belfast who was also a member of the team behind this discovery. The asteroid's reflectance spectrum - the specific pattern of wavelengths of light reflected from an object -- was different to that of similar small Kuiper Belt Objects (KBOs), which typically have uninteresting, featureless spectra that reveal little information about their composition.

Other inner Solar System objects have previously been detected in the outer reaches of the Solar System, but this is the first carbonaceous asteroid to be found far from home in the Kuiper Belt.

CENTRAL TEXAS ASTRONOMICAL SOCIETY
528 Wildwood Trail
Lorena, TX 7665

Observatory Open House	Jun16
Hubbard & Belton Star Party	Jun 16
Member Star Party	Jun 9