Central Appalachian Astronomy Club Newsletter

NOVEMBER 2011

ASTRO NEWS

"The astronomy club that brings the wonders of the universe to the public"

CALENDAR OF EVENTS

NOV/DEC 2011

NOV 19 @ 6:00 CAAC meeting at the First United Methodist Church in Clarksburg

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DEC 3 @ 6:00 at the Good Hope Observatory Christmas Dinner/Meeting

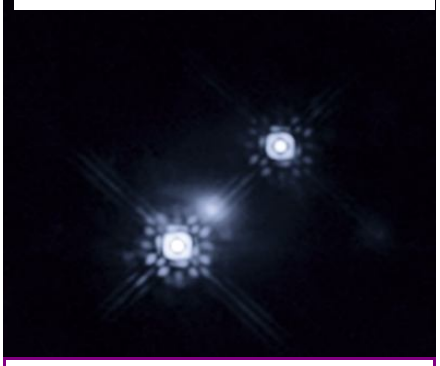
Central Appalachian Astronomy Club P.O. Box 1862 Clarksburg, WV 26302
WWW.CAACWV.COM

THE BLACK HOLE

The Hubble Space Telescope has directly observed a disk of matter being sucked into a huge black hole. Astronomers capitalized on an effect called gravitational lensing to magnify the image, taking advantage of the warping of light by strong gravity that made the scene visible to Hubble. The high precision of the technique allowed the researchers to measure the size and temperature of the disk.

Such disks of matter falling onto extremely large supermassive black holes are called quasars, and are some of the brightest objects in the universe.

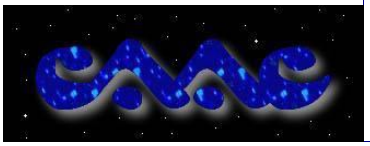
As their mass is pulled into the black hole, the disks heat up and powerful radiation is released that makes them glow incredibly bright. However, most of these are so far away from us on Earth that astronomers have a very hard time directly observing their structure.



Hubble Telescope Catches Never-Before-Seen Look at Black Hole's Maw www.space.com . The Hubble Space Telescope has used gravitational lensing to observe details of an accretion disk of glowing matter being sucked into a black hole, called a quasar. This Hubble picture shows a quasar that has been gravitationally lensed by a galaxy in the foreground, which can be seen as a faint shape around the two bright images of the quasar. CREDIT: "Image of image-description courtesy of Space.com, NASA, ESA and J.A. Muñoz (University of Valencia)

Brian Greene is presenting 4 one hour shows on NOVA starting in the middle of this coming week. Time, Space, Quantum mechanics and Multiverses will be covered. "The Fabric of the Cosmos"-- title from one of his books. 4 programs to watch are explained at this PBS site: Link: http://www.pbs.org/wgbh/nova/physics/fabric-of-cosmos.html .
Thank you,
John Dennis

Nov 19th 2011 CAAC Regular Meeting 6:00PM at First United Methodist Church in Clarksburg, WV.



Dark Energy and Dark Matter

Scientists believe that only 4 percent of the universe is made up of "normal" material that we can see. The rest is strange stuff called dark energy and dark matter.
Though dark matter is thought to dominate the universe, scientists still have not observed the stuff directly, instead inferring its existence through gravitational effects on the matter they can see.
The new study could help scientists get a better handle on what dark matter is, researchers said. They simulated what would happen if a primordial black hole passes through a star. Primordial black holes are theoretical remnants of the Big Bang, the explosive event that created the universe. These odd objects, which have yet to be observed, are one of various cosmic structures that may be the source of dark matter, researchers said.
Primordial black holes are much smaller than "normal" black holes and thus would not swallow up a star and all of its light. Rather, their collisions with stars would cause noticeable vibrations on the stars' surfaces.
"If you imagine poking a water balloon and watching the water ripple inside, that's similar to how a star's surface appears," said lead author Michael Kesden of New York University. "By looking at how a star's surface moves, you can figure out what's going on inside. If a black hole goes through, you can see the surface vibrate." [Video: Sifting Through the Cosmic Sands for Dark Matter]
The researchers' simulations also put some numbers on just how large a primordial black hole would have to be to cause a noticeable ripple. They found that an object about the mass of a decent-size asteroid would do the trick.
If primordial black holes are for real, scientists should be able to spot one at some point, researchers said.
"Now that we know primordial black holes can produce detectable vibrations in stars, we could try to look at a larger sample of stars than just our own sun," Kesden said. "The Milky Way has 100 billion stars, so about 10,000 detectable events should be happening every year in our galaxy if we just knew where to look." The researchers published their results this month in the journal Physical Review Letters.

Congratulations in Order

Jane Lynn, David and I wanted to share a bit of good news we received Friday with all of you. The three of us have been selected to present two sessions at the Space Exploration Educators Conference in February. This is a huge honor for us. Janie and I will be the lead on How to Start an Astronomy Club in Your School and David will be the lead on buying and using Telescopes in your classroom. We have compiled all the fun lessons that we have used during our Astronomy Days and SQ for ours. David utilized our Telescopes kit from Night Sky Network. We are super excited about being chosen. We know Dad is up there celebrating with us. He had been trying to get us to do this for the past couple of years. The three of us just want to say THANK YOU for all the support the club shows us. We promise to do you proud. ….Cyndi, Jane Lynn and David

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"To infinity ... and beyond!" Cyndi, Jane Lynn, and David--an excellent chance to show off some homegrown, well conceived, youth centered educational offerings.
Also, you always make us proud !!
John & Debbie
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THANK YOU
Joe Gonzalos, Dafts, Connie Ahrens, John & Debbie Dennis, Rodney Waugh, and Cyndi Shaver, for all your info for the CAAC newsletter. Please if anyone has articles, pictures or info that they would like to pass on please email it to me Tonya Daft at rebeld4h @yahoo.com
NEXT DEADLINE NOVEMBER 15

December 3rd, 2011 CAAC Christmas Party 6:00PM at the Good Hope Observatory Complex in Good Hope, WV. Please bring a covered dish. Enjoy the Friendship

Primitive Black Holes Could Shine Light on Dark Matter SPACE.com Staff Date: 26 September

Scientists may be able to spot evidence of elusive dark matter by watching for ripples on the surfaces of stars, a new study suggests.
Such vibrations could indicate that a strange, hypothetical dark-matter object known as a primordial black hole has passed through the stars, according to the study. The ripples could thus provide observable proof of dark matter, which is thought to make up more than 80 percent of all matter in the universe but has thus far evaded direct detection.
"There's a larger question of what constitutes dark matter, and if a primordial black hole were found it would fit all the parameters," study co-author Shravan Hanasoge of Princeton University said in a statement. "Identifying one would have profound implications for our understanding of the early universe and dark matter." [Photos: Black Holes of the Universe]

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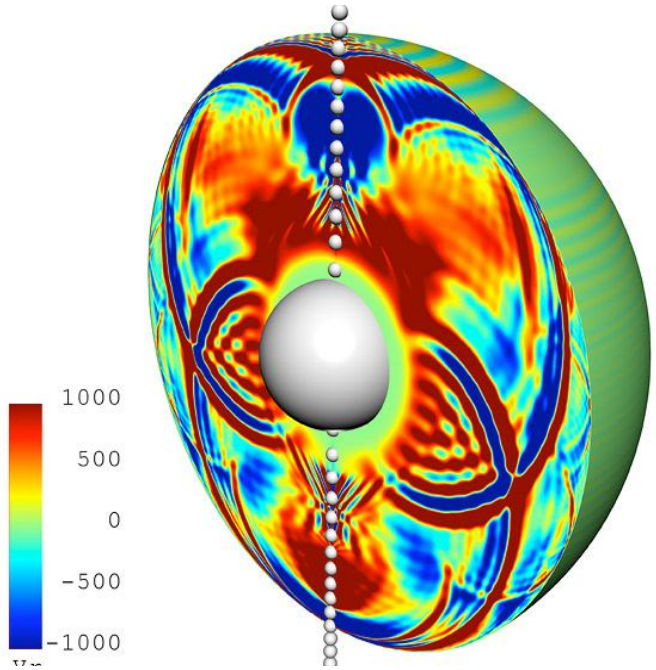

Researchers have simulated the effect of a primordial black hole — an object hypothesized to make up dark matter — passing through a star. This image illustrates the resulting vibration waves as a primordial black hole (white dots) passes through the center of a star. The different colors correspond to the density of the primordial black hole and strength of the vibration. CREDIT: Princeton University/Tim Sandstrom

NOVEMBER ASTRO HAPPENINGS

All Month, evening Comet Garradd (C/2009 P1)
Tue., November 1, dusk Mercury and Venus 2 degrees apart
Thu., November 10, 3 a. m. Mars close to Regulus
Sat., November 12, dusk Mercury and Venus 2 degrees apart
Thu., November 17, 11 p.m. EST Leonid meteors peak Mercury is well placed in the western sky after sunset for the first half of the month. It is very close to Venus, making it easy to spot. Venus is low in the evening sky after sunset all month. Mars spends all of November in Leo. It now outshines nearby Regulus and reaches 7 arc seconds by the end of the month, large enough to reveal its polar cap and dark surface markings in a 6-inch (150-mm) telescope. Jupiter was in opposition in Aries in October 28, so is well placed in the evening sky all month. Jupiter and Venus are the brightest objects in the night sky other than the Moon. Saturn reappears just before dawn in the eastern sky close to Spica in Virgo. Uranus is well placed in Pisces all month. Neptune is well placed in Aquarius all month.

Visit us on the web at caacwv.com

Check Out These Astronomy Web site

CENTRAL APPALACHIAN ASTRONOMY CLUB WWW.CAACWV.COM

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KANAWHA VALLEY ASTRONOMY SOCIETY www.kvas.org

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http://www.rap.ucar.edu/weather/satellite/

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http://www.greenbankstarquest.org/

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http://www.astroleague.org/al/astroday/astroday.html

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http://www.nrao.edu/

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Hubblesite.org

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http://eclipse.gsfc.nasa.gov/eclipse.html

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http://nightsky.jpl.nasa.gov/

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EXPLORE. DISCOVER. UNDERSTAND.

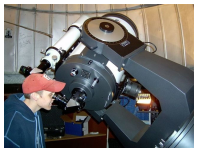
About CAAC

Founded in 2001, The CAAC mission statement is to provide help and support to anyone who is interested in the wonderful world of astronomy. The main base of operations for CAAC is the Good Hope Observatory, owned and operated by the President of CAAC. Meetings are held at the First United Methodist Church located in downtown Clarksburg and sometimes scheduled at the Good Hope Observatory in the Spring and Summer months. We are partners in education with various schools, Fairmont State University, West Virginia University, Glenville State University, and the National Radio Astronomy Observatory (Green Bank). We have the latest state of the art astronomical equipment at our observatory, (Good Hope) available to our members and associates.

Educational programs are funded in part by Dominion Resources Inc. and other charitable contributions. We also have a Junior Astronomy Club Program. New members are welcome. The CAAC is family oriented and applications for membership are online at www.caacwv.com. Come join the experience and adventure of a life time. The Central Appalachian Astronomy Club is a 501c(3) Non-Profit Organization.

The Good Hope Observatory is owned and operated by Joe Gonzalez, President of the Central Appalachian Astronomy Club, who are partners in education with many Educational Institutions. The Observatory is available to anyone interested in astronomy and education including but not limited to science clubs, amateur astronomers, and educators. Arrangements for project or visitations can be made by contacting Joe Gonzalez at (304) 626-5012 or you can email the webmaster. The Observatory is located in southern Harrison County in the community of Good Hope, WV, on US Rt. 19, about 10 miles south of Clarksburg. This offers a good dark sky location. Coordinates of the observatory site:

North American Datum (83) 39º 10' 04.45" N, 80º 26' 24.15" W at average mean sea level of 1125.6 feet. The Observatory has a 15 foot diameter dome with a 45 inch shutter that offers an excellent aperture from 5º off the horizon to 24 inches beyond Zenith. It is manufactured by Ash Manufacturing Co. who has a long history in dependable observatory domes of all sizes. The dome is powered by two heavy duty electrical motors for 360º rotation on azimuth in either direction, and to for shutter operation, along with a lower fold out panel. The dome is located on a 16x16 foot building with 5 ft. walls with one door. The observatory interior is finished with insulated walls, carpeted floor and four corner desks and independent lighting in white and red. The telescope is a Meade 16" F/10



LX 200 GPS Schmidt-Cassegrain with a Takahashi 4" FS-102 II, and a Williams Optics Zenithstar 80mm F/6 riding piggy-backed. The scope is pier mounted on a special fully adjustable pier with a super wedge. Other scopes; 14" F/10 LX 200 GPS Schmidt-Cassegrain, 6.5" William Mogey & Sons Refractor (Under Restoration). Coronado Max Scope 60 (0.5 A) for SAFE solar observing! The telescope is complemented with a large assortment of lenses ranging from 50mm to 6mm with many other accessories for visual observing of the Solar System and Beyond! For Astronomical Imaging we have a wide variety of cameras and accessories including. Astrovid Cameras for Video Imaging; Planet Cam , Stellcam II ; Astrovid 2000. All of this makes the Good Hope Observatory a truly state-of-the-art facility for the amateur astronomer and the serious researcher! Call and come visit us.