MILWAUKEE ASTRONOMICAL SOCIETY

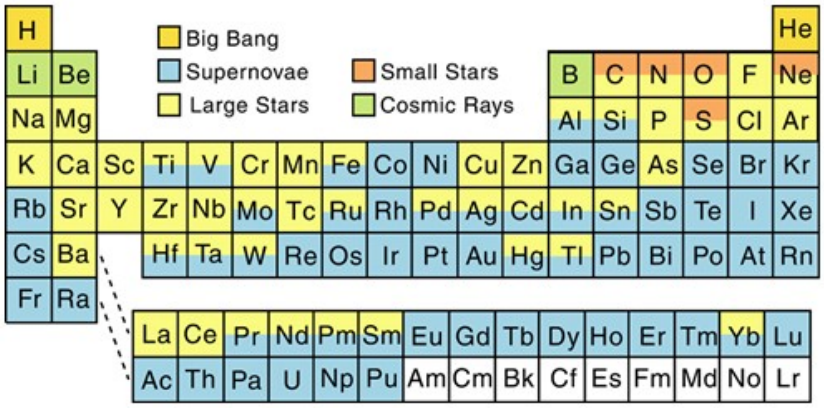
FOCAL POINT

March, 2017

Next Meeting on April 12th

The Milwaukee Astronomical Society will hold its next meeting on **Wednesday, April 12th, from 7 PM till 8:45 PM** in the New Berlin Public Library's Heritage Room. Address: 15105 W Library Lane, New Berlin, WI 53151.

According to the new format it is going to be a combined Board and Membership meeting, where during the first hour organizational and Observatory related issues will be discussed. During the second hour we will have a presentation on how the elements are formed in stars.

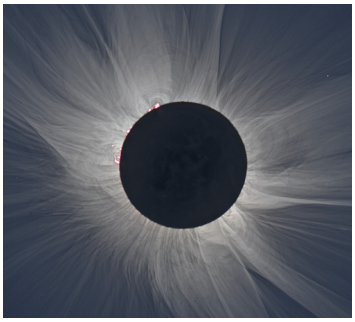


As always, the Observatory is open on Saturday nights, and also when it is posted on the Google Group.

Inside this

Solar Eclipse Campout

The MAS will have a campout for the August 21st eclipse at **St. Francois State Park** in Missouri (to the south of St Louis), which is located on the centerline of totality. We will have a star party on the night before the eclipse. All members are responsible for making a campsite reservation for themselves. More information will be posted to the MAS Google Group.



Public Nights of 2017

May 26	*20:00-23:00*
June 17	*16:00-20:00*
August 11	*20:00-23:00*
August 25	*20:00-23:00*
September 22	*19:00-22:00*
September 29	*19:00-22:00*
October 13	*19:00-22:00*

Public Night speakers are wanted. The topic of June 17th is the Sun, and the September 29th is designated to the Moon. On all other nights the presenters can choose a topic, preferably based on one of the most prominent objects visible on that night. The talk is expected to be around 30-40 minutes long. If you are interested please contact Sue Timlin.

Observatory Report

Quonset remodel continues at a good pace. There have been no used telescopic items sold this last month. Repair to the switch on the slit of the B-dome have been completed and the dome is working fine. The same can be said about the slit on the Z-dome. As to the G-scope in that dome the mount controller has been upgraded the latest hardware, a GTOCP4. Now the Astro Physics mount should be able to operate smoothly with better communication with the other software packages. A problem has been found in the image quality of the F-scope, it appears that the present light pollution filter is degrading star images on certain areas of the field. Testing with other PLFs will be conducted. Planetary imaging at the Observatory takes a step forward with the purchase of a ZWO 1.25" Atmospheric Dispersion Corrector. This device goes in the eyepiece holder first and the camera is mounted in it, by adjusting two wedges the ADC will reduce the effect of atmospheric dispersion which causes a planet to have blue and red edges. ADC can be used for visual observing too.

Respectfully Submitted,
Paul Borchardt, Observatory Director

Treasurer's Report

$13,647.23	***Starting Balance as of 2/06/2017***
	Expenditures
$1,902.96	CP4 & ICRON 2204
$14.24	PayPal fees
$54.95	Prime focus adapter
$49.21	Camera adapter
$128.95	ZWO ADC
$137.28	WE Energy
$28.93	Z-dome repair
$30.75	B-dome repair
$52.98	MAS Brochures
$1,901.23	Quonset project
$4,301.38	TOTAL Expenditures
	Revenue
$30.00	Donations
$1,501.00	Equipment sales
$598.00	Membership dues
$2,129.00	TOTAL Revenue
$11,474.85	***Ending Balance as of 3/13/2017***

Respectfully Submitted,
Sue Timlin, Treasurer

Meeting Minutes

The meeting was held on March 14th at the Public Library, New Berlin, and was called to order at 7:00 PM by Tamas Kriska President.

Minutes of the February Board Meeting submitted electronically by Agnes Keszler Secretary ahead the meeting were approved. **Treasurer's Report** submitted electronically by Sue Timlin Treasurer were approved.

Observatory Director's Report electronically submitted by Paul Borchardt Observatory Director ahead the meeting was approved. Paul said he bought an adaptor for canon DSLRs.

Membership Committee Report was electronically submitted by Jeff Kraehnke Committee Chair ahead the meeting. Membership application of Grant Tillman, Daniel Schlei, Luke Zimmerman & Family, Derek Rickert, Thomas Guhl & Family, Ricardo Lima-Martinez, Francesco Columbu Howard & Family, Alicia Grinwald, and Thomas Maxwell & Family were approved.

Old Business – The electric service upgrade is done. *Quonset Hut remodeling*: Everything is according to schedule. *Water pump switch*: The switch was not purchased yet. *Public Night schedule:* The program was finalized and put on the website. Speakers are needed. New business cards and brochures were designed and printed. *G-scope*: the new interface (CP4) between the mount and the computer was installed and tested. The first test showed a satisfactory guiding. We are on the Astrophysics waiting list for checking the declination drive. Z-dome slit was fixed. The chain brackets should be greased annually to keep them functional. *B-dome*: The new switch was installed, the slit opening is working.

New Business – Due to the increasing interest for imaging, Paul suggested to buy a second modified canon DSLR camera with a light pollution filter. A motion was made and carried to allocate $400 for this purpose.

Program – Jeff Kraehnke gave a presentation about Solar Eclipse.

Respectfully Submitted,
Agnes Keszler, Secretary

Membership Report

Since the last Report we received one renewal and five new membership applications and would like to welcome Francesco Columbu Howard & Family, Alicia Grinwald, Thomas Maxwell & Family, Daniel Herrman, and Livia Romanov. We now have 130 active members.

Respectfully Submitted,
Jeff Kraehnke, Committee Chair

Website Report—March 2017

Our annual hosting fee at DiscountASP is due this month and I will again cover that cost. We still have sufficient storage for all our content and photos I've been posting, especially to the Showcase area. We're now maintaining a Google site for all other photos.

Our domain registration for milwaukeeastro.org was going to in a few months, so I have renewed it for another 5 years. Again, I have covered that cost. Unless someone sees a good reason, I'm going to let our other domains which have been basically unused, milwaukeeastro.com and milwaukeeastronomy.com, expire in June. I don't see anyone really taking and then causing us a problem.

Respectfully Submitted,
Gene Hanson, Webmaster

Swap-n-Sell in Sheboygan

The Sheboygan Astronomical Society organized and hosted its 10th Annual Swap-n-Sell on Saturday, March 25th at the Sheboygan Airport Aviation Heritage Center. The event included a presentation and an astronomy trivia.

The Swap-n-Sell always presents an excellent occasion to meet fellow amateur astronomers, and have a good time while finding new place for old astro-gear. Second year in a raw we took advantage of this opportunity to expand our fundraising effort by selling some old unused equipment.

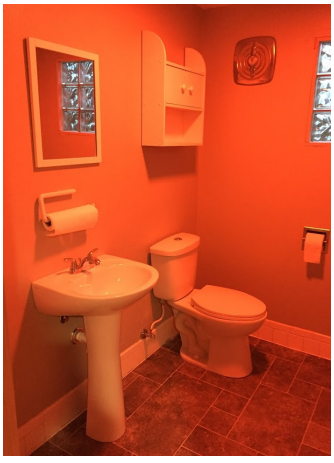
Observatory News

The Quonset Hut Remodeling

The Quonset remodeling work continued and we managed to stay right on schedule. After finishing hanging the wall panels, the new projector, a screen, and a whiteboard were mounted.

In the A building the walls were covered with the same kind of panels and sidings that were used in the Quonset room. The bathrooms were repainted, new toilets and sinks were installed. Big thank you goes to Janice Edwards and the Best Carpet for installing the new vinyl floor. The old bathroom lights were also replaced.

The new breaker box installation is finally complete and is ready for the service upgrade.

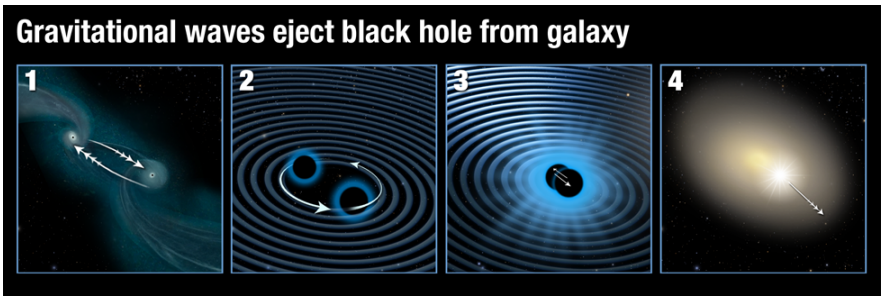


In the Astronomical News

Gravitational Wave Kicks Monster Black Hole Out of Galactic Core

Astronomers have uncovered a supermassive black hole that has been propelled out of the center of a distant galaxy by what could be the awesome power of gravitational waves. Weighing more than 1 billion suns, the rogue black hole is the most massive black hole ever detected to have been kicked out of its central home.

Researchers estimate that it took the equivalent energy of 100 million supernovas exploding simultaneously to jettison the black hole. The most plausible explanation for this propulsive energy is that the monster object was given a kick by gravitational waves unleashed by the merger of two hefty black holes at the center of the host galaxy.



Credits: NASA, ESA, and A. Feild (STScI)

The images taken in visible and near-infrared light provided the first clue that the galaxy was unusual. They revealed a bright quasar, the energetic signature of a black hole, residing far from the galactic core. Black holes cannot be observed directly, but they are the energy source at the heart of quasars - intense, compact gushers of radiation that can outshine an entire galaxy. The quasar, named 3C 186, and its host galaxy reside 8 billion light-years away in a galaxy cluster. The team discovered the galaxy's peculiar features while conducting a Hubble survey of distant galaxies unleashing powerful blasts of radiation in the throes of galaxy mergers. The team calculated the black hole's distance from the core by comparing the distribution of starlight in the host galaxy with that of a normal elliptical galaxy from a computer model. The black hole had traveled more than 35,000 light-years from the center, which is more than the distance between the sun and the center of the Milky Way.

Based on spectroscopic observations taken by Hubble and the Sloan survey, the researchers estimated the black hole's mass and measured the speed of gas trapped near the behemoth object. They calculated that the black hole is moving so fast it would travel from Earth to the Moon in three minutes. That's fast enough for the black hole to escape the galaxy in 20 million years and roam through the universe forever.

The Hubble image revealed an interesting clue that helped explain the black hole's wayward location. The host galaxy has faint arc-shaped features called tidal tails, produced by a gravitational tug between two colliding galaxies. This evidence suggests a possible union between the 3C 186 system and another galaxy, each with central, massive black holes that may have eventually merged.

Based on this visible evidence, along with theoretical work, the researchers developed a scenario to describe how the behemoth black hole could be expelled from its central home. According to their theory, two galaxies merge, and their black holes settle into the center of the newly formed elliptical galaxy. As the black holes whirl around each other, gravity waves are flung out like water from a lawn sprinkler. The hefty objects move closer to each other over time as they radiate away gravitational energy. If the two black holes do not have the same mass and rotation rate, they emit gravitational waves more strongly along one direction. When the two black holes collide, they stop producing gravitational waves. The newly merged black hole then recoils in the opposite direction of the strongest gravitational waves and shoots off like a rocket.

An alternative explanation for the offset quasar, although unlikely, proposes that the bright object does not reside within the galaxy. Instead, the quasar is located behind the galaxy, but the Hubble image gives the illusion that it is at the same distance as the galaxy. If this were the case, the researchers should have detected a galaxy in the background hosting the quasar.

If the researchers' interpretation is correct, the observations may provide strong evidence that supermassive black holes can actually merge. Astronomers have evidence of black-hole collisions for stellar-mass black holes, but the process regulating supermassive black holes is more complex and not completely understood. The team hopes to use Hubble again, in combination with the Atacama Large Millimeter/submillimeter Array (ALMA) and other facilities, to more accurately measure the speed of the black hole and its gas disk, which may yield more insight into the nature of this bizarre object.

by NASA /Hubble

Adopt a Telescope Program - Signup Sheet

	Adopter	Scope	Location
1	Sue Timlin/John Hammetter	18" F/4.5 Obsession	Wiesen Observatory
2	Steve Volp	12.5" F/7.4 Buckstaff	B Dome
3	Robert Burgess	12.5" F/9 Halbach	A Dome (Armfield)
4	Russ Blankenburg	18" F/4.5 Obsession	Albrecht Observatory
5	Jeff Kraehnke	14" F/7.4 G-scope	Z Dome
6	Lee Keith/Tom Kraus	12" F/10 LX200 EMC	Tangney Observatory
7	Herman Restrepo/Matt Mattioli	8" F/11 Celestron EdgeHD	Ray Zit Observatory
8	Tamas Kriska	14" F/1.9 F-scope	Jim Toeller Observatory
9	Paul Borchardt	Solar scope	SkyShed POD

At Your Service

Officers / Staff

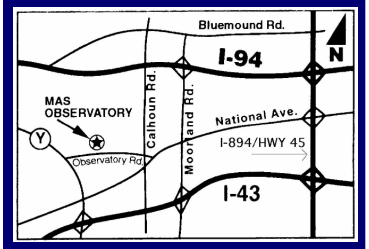
President	Tamas Kriska	414-581-3623
Vice President	Sue Timlin	414-460-4886
Treasurer	Sue Timlin	414-460-4886
Secretary	Agnes Keszler	414-581-7031
Observatory Director	Paul Borchardt	262-781-0169
Asst. Observatory Director	Jeff Kraehnke	414-333-4656
Newsletter Editor	Tamas Kriska	414-581-3623
Webmaster	Gene Hanson	262-269-9576

Board of Directors

Paul Borchardt	262-781-0169
Robert Burgess	920-559-7472
Clark Brizendine	414-305-2605
Steve Volp	414-751-8334
John Hammetter	414-519-1958
Lee Keith	414-425-2331
Frank Kenney	414-510-3507
Jeff Kraehnke	414-333-4656
Agnes Keszler	414-581-7031
Tamas Kriska	414-581-3623
Sue Timlin	414-460-4886

April/May Keyholders

4/1	Jill Roberts	414-587-9422
4/8	Tom Schmidtkunz	414-352-1674
4/15	Paul Borchardt	262-781-0169
4/22	Scott Berg	262-893-7268
4/27	Susan Timlin	414-460-4886
5/6	Steve Volp	414-751-8334



MAS Observatory

18850 Observatory Rd
New Berlin, WI 53146

www.milwaukeeastro.org