Focal Point

November, 2014

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Membership Meeting on November 21st

Bill Hirsch

The last Membership Meeting of 2014 will be on **November 21st at 8:00 PM** at the MAS Observatory. (No meeting in December!)The speaker of the night will be Dr. Bill Hirsch, an Assistant Professor at the Physics Department at the Marquette University. Bill will talk about the General Theory of Relativity.

100 years of Einstein's General Relativity

Albert Einstein radically updated Sir Isaac Newton's laws of motion, and subsequent implications, with his Special Theory of Relativity in 1905, forever changing the way physicists view time and space. At the time though, Einstein knew that a more fundamental theory of nature must exist, since Special Relativity restricts observers to non-accelerating points of reference. It took him 10 whole years to include the accelerations caused by the fundamental force of gravity and hence, in 1915 Albert Einstein put forth one of the grandest achievements of the human mind, his General Theory of Relativity. My talk will focus on important milestones in the theory and how it is fundamental to our understanding of the cosmos. I will start by discussing the theory's controversies, bazaar predictions and experimental triumphs. Then I will highlight various astrophysical phenomena explained or predicted by the theory including black holes, wormholes, neutron stars, gravitational waves, the big bang, and the overall structure and evolution of the universe.

X-MAS Party

The Milwaukee Astronomical Society is organizing the annual Christmas Party on December 6th at 4:00 PM at the Observatory. Pizza and beer/soda will be served. Donations of $5/person, or $ 8/family will be collected. You also can bring a dish to share.

Please, join us and bring your family to celebrate together!

Observatory Report

We continue to make great progress regarding the addition of the two telescopes going into the Ray Zit Observatory. The pedestal is now completely bolted and further polar alignment is needed. We have learned that syncing the telescope does require some care in that you should not align on a star that is close to the meridian and it is imperative to get the daylight savings value right or the scopes GOTO results near the meridian can be horribly wrong.

We ordered and received a dew cap and heater for the C14 and the boxes to having a USB connection from that observatory to Z Dome. We have to make a trench to bury the Cat-5 cable.

Scott tried some quick imaging with the C14 with great results. The tracking was off because of the needed polar alignment tweaking.

Scott trimmed the bushes at the Albrecht Observatory and the D-Shed so the roofs now can be fully opened.

I should also make a call out to the great job of Brian Ganiere for both securing a burning permit and then spending 4 hours watching to make sure it didn't get out of control.

We hosted the last open house of the year at the observatory, and despite cloudy weather once again, we had a great turnout. Sue Timlin has started her yearly spreadsheet for possible 2015 dates to finalize those as early as possible because the Public Night Schedule page is very popular on our website.

Respectfully Submitted,

Gene Hanson, Observatory

Meeting Minutes

Held on October 17th at the MAS Observatory, New Berlin. The meeting was called to order at 8:02 PM by President, Scott Jamieson.

Minutes of the September Meeting were read and approved.

New Business - New members Frank Kenley, Dick Hodgson, and Linda Dobogai introduced themselves.

The Program Brian Ganiere introduced the speaker of the night, Laleh Sadeghian Postdoctoral Research Associate from the Center of Gravitation, Cosmology and Astrophysics of the Department of Physics UWM. Laleh gave a presentation entitled "The Mystery of the Dark Matter".

The meeting was adjourned at 9:00 PM.

Respectfully Submitted,

Agnes Keszler, Secretary

Membership Report

So far we received 47 membership renewals. Four of these members did not yet sent payment or I was not notified.

Since last meeting three new Membership Application arrived from David & Cathy Piek, Linda Fleischen Dobogai and Dick Hodgson. No applications were received via the website since the last report.

Current Membership number is at 66.

Respectfully Submitted,

Tamas Kriska, Committee Chair

Treasurer's Report

$4,224.02	***Starting Balance as of 9/17/2014***
	Expenditures
$51.72	WE Energies
$551.84	Equipment
$11.57	Paypal Fees
$100.00	Dr. DeCesar Stipend
$443.00	Magazine Subscriptions
$34.00	Culp Subscription Refund
$9.00	City of New Berlin
$340.10	Cintas (fire extinguishers)
-$1,541.23	TOTAL Expenditures
	Revenue
$139.00	Cash Donation
$1,121.00	Membership Dues
$0.00	Paypal Account
$1,260.00	TOTAL Revenue
$3,942.79	***Ending Balance as of 10/13/2014***

The Winter Meeting Location

During the winter months the access to the Observatory is limited due to snow. Meetings from January to April are held in alternative locations. In the last couple of years meetings were held at UWM, Physics Building. The downside of this is the heavy Friday night downtown traffic.

Now the Board is exploring an alternative location. The most possible candidate is the Retzer Nature Center/Planetarium in Waukesha. Your feedback would be appreciated.

Z2 Update

As you may be already aware, the 14" f/5 reflector that was in the Ray Zit Observatory (the rolloff roof building closest to the parking lot which we informally call the Z2), was decommissioned and we have placed two telescopes, an 8 inch and a 14 inch Celestron, in its place, both with full GOTO capability. For details, see the article in the September Focal Point, Page 2.

At this point the Celestron VX-8 is fully operational, but work has remained on the C14. Our first problem was the GOTO from the hand paddle was acting up, sometimes pointing the telescope below the horizon. It turned out to be a corrupted database which was the result

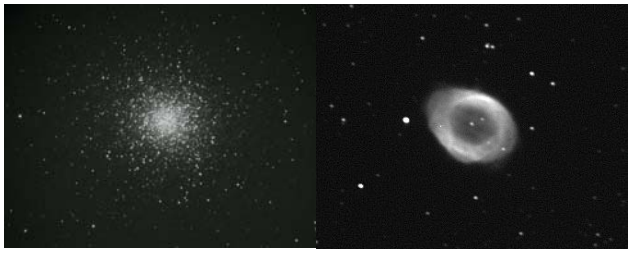
of a dead battery. With the battery replaced and the database restored, it now functions perfectively. The next test went smoothly when we tried controlling the scope from TheSkyX software. Finally, you can't have a Schmidt-Cassegrain without having issues with dew so a dew cap and heater have been installed.

A minor issue was with our ST-8300 camera attached the counterweights weren't quite enough to balance the

scope. To solve this problem an extension arm was ordered through Astro -Physics. We have also noticed some slop in the main mirror which needs to be tightened if we are to get consistence GOTO pointing.

Our biggest ongoing challenge is getting the telescope to image using the focal reducer to get us at f/7. We got a custom tube manufactured so we can have one piece between the back of the scope to the focal reducer and focuser,

but the vignetting we're seeing is not permitting any light getting to the off-axis imaging chip. So for the time being we will be limited to f/11. We have made a number of test images, however, and we're encouraged that our results will be excellent.



Though the telescope can be run locally within the Z2, our real desire is to remotely control everything from the control room in the Z Dome. This required a trench to be dug between the Z2 and the Tangney Observatory, then using the existing conduit from the Tangney into the Z Dome. We then laid a pair of Cat-5 and Coax cables (the second ones for redundancy or future use). Though a Cat-5 cable is normally used for network type

connections, we are using it with a pair of converters to give us a near 250 foot USB connection. The coax will be used to connect a camera so the telescope can be viewed from the control room.

My thanks to Scott Jamieson for all his work on this project plus his donations. Also, Jill Roberts for coordinating the digging of the trench, and Dennis Roscoe for the donation of the Cat-5 cabling.

Gene Hanson

MAS Membership Renewal

The online renewal process went smoothly this year. Most of the MAS members renewed their membership during the months of September and October. However, we hope to receive a couple more renewals by the end of the year.

To renew online open the For Members menu on the MAS website and scroll down to the Renew Membership tab on the left side, or just follow this link: www.milwaukeeastro.org/renew.

You can also print out a form from the last page of this newsletter issue.

Remember, if you joined the MAS after January 1st, 2014 your membership is active till the 2015 renewal period.

Milwaukee Astronomical Society Renewal Form

Please return this form with your payment (no cash please). Your continued support for the activities of the Milwaukee Astronomical Society are greatly appreciated. You can also fill out a renewal form and pay online at: **www.milwaukeeastro.org/renew**

Name: _____

Address: _____

City, State Zip: _____

Phone: _____

E-mail Address: _____

MAS Google Group: Add/Keep ____ Remove/No ____

Any comments you wish to share?

Membership (select one of the following)

___ $46.00 - Resident Individual
___ $52.00 - Resident Family
___ $23.00 - Resident Student
___ $28.00 - Non Resident Individual
___ $32.00 - Non Resident Family
___ $20.00 - Non Resident Student

A resident is defined as a person who lives in Milwaukee, Waukesha, Ozaukee, or Washington counties. Non-residents are all other locations. Keyholders must pay resident dues.

Subscriptions

The club is no longer administering the subscriptions for Sky & Telescope and Astronomy magazines. However, you can still get the discounts. Contact us at subscriptions@milwaukeeastro.org or call Gene Hanson at 262-354-0138.

$_____ Total due. **Make checks payable to The Milwaukee Astronomical Society**

Please complete and mail form with payment to:
Dennis Roscoe
S41W32492 Spring Ridge Ln
Waukesha, WI 53189

In the Astronomical News

Touchdown! Rosetta's Philae Probe Lands on Comet

ESA's ambitious Rosetta mission has secured a place in the history books: not only is it the first to rendezvous with and orbit a comet, but it is also the first to deliver a lander to a comet's surface.

Rosetta has soft-landed its Philae probe on a comet, the first time in history that such an extraordinary feat has been achieved. After a tense wait during the seven-hour descent to the surface of Comet 67P/Churyumov–Gerasimenko, the signal confirming the successful touchdown arrived on Earth at 16:03 UT on November 12.

Rosetta is a spacecraft on a 10-year mission to catch a comet and land a probe on it. Launched in 2004, the spacecraft arrived at its target, Comet 67P/Churyumov-Gerasimenko, on Aug. 6, 2014

Rosetta is named for the Rosetta Stone, a block of black basalt that was inscribed with a royal decree in three languages — Egyptian hieroglyphics, Egyptian Demotic and Greek. The spacecraft's robotic lander is called Philae, named after a similarly inscribed obelisk found on an island in the Nile River. Both the stone and the obelisk were key to deciphering ancient Egyptian hieroglyphs. Scientists hope the mission will provide a key to many questions about the origins of the solar system and, perhaps, life on Earth.

The landing site, called Agilkia after an island in the Nile River in Egypt, is located on the "head" of the comet, the smaller of the two lobes that make up Comet 67P/C-G.

Comet 67P/Churyumov-Gerasimenko was first observed in 1969 by Klim Churyumov and Svetlana Gerasimenko, astronomers from Kiev, Ukraine, who were working at the Alma-Ata Astrophysical Institute in the area that is now Kazakhstan. Churyumov was studying photographs of Comet 32P/Comas Solá, taken by Gerasimenko and determined that it was a new comet.

This comet makes regular visits to the inner solar system, as it orbits the sun every 6.5 years between the orbits of Earth and Jupiter. It is among several short-period comets that have orbital periods of less than 20 years and a low orbital inclination. Because Jupiter's gravity controls their orbits, they are called Jupiter Family comets.

These comets are thought to originate in the Kuiper Belt, a region of space beyond Neptune's orbit filled with icy bodies. As these bodies collide, some are knocked out of the Kuiper Belt and fall toward the sun. Jupiter, with its massive gravitational pull, grabs some of them and changes their orbit.

Scientists say Comet 67P's perihelion — its closest approach to the sun — used to be 4 AU (Earth-sun distances), or 373 million miles (600 million km). Close encounters with Jupiter over time have decreased the comet's perihelion to 1.24 AU, or 116 million miles (186 million km).

Most of the time, Comet C-G is very faint and hard to find with Earth-based telescopes. The comet has been observed by ground-based telescopes seven times: in 1969, 1976, 1982, 1989, 1996, 2002 and 2009. The Hubble Space Telescope also photographed the comet in 2003, which enabled scientists to estimate that the comet is about 2 miles wide and 3 miles long (3 km by 5 km).

Rosetta and Philae will accompany Comet 67P to its perihelion in August 2015 and travel with the comet around the sun and back into deep space until the mission ends in December 2015.

ESA/Space.com

Adopt a Telescope Program - Signup Sheet

	Adoptee	Scope	Location
1	Sue Timlin	18" F/4.5 Obsession	Wiesen Observatory
2	Neil Simmons	12.5" F/7.4 Buckstaff	B Dome
3	Russell Chabot	12.5" F/9 Halbach	A Dome (Armfield)
4	Dan Yanko	18" F/4.5 Obsession (Kyle Baron)	Albrecht Observatory
5	Tamas Kriska	25" F/3.4 Zemlock	Z Dome
6	Henry Gerner	12" LX 200	Tangney Observatory
7	Vacant	8"/14" Celestrons	Ray Zit Observatory
8	Vacant	10" LX 200	Jim Toeller Observatory

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Dennis Roscoe	608-206-0909
Michael Smiley	262-825-3981
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Dan Yanko	262-255-3482

November/December Keyholders

11/22	Lee Keith	414-425-2331
11/29	Henry Gerner	414-774-9194
12/6	Tamas Kriska	414-581-3623
12/13	Mike Smiley	262-825-3981
12/20	Tom Schmidtkunz	414-352-1674
12/27	Dan Yanko	262-255-3482

MAS Observatory

18850 Observatory Rd
New Berlin, WI

www.milwaukeeastro.org

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