MILWAUKEE ASTRONOMICAL SOCIETY

FOCAL POINT

October, 2017

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Next Meeting on November 17th

The Milwaukee Astronomical Society will hold its next meeting on Friday, November 17th, at 8 PM at the Observatory.

Danielle Berg, postdoctoral fellow at UW Milwaukee will give talk entitled: **Stellar Women: Celebrating the women who have shed light on our universe**. We've all heard of the "greats" in astronomy: Kepler, Copernicus, Hubble, etc. Instead of focusing on these prominent figures, let's celebrate the women scientists whose contributions to modern astronomy have all too often been overlooked. From revelations in dark matter to pulsars, and from the classification of stars themselves to astronauts who have traveled to space, these women's contributions to astronomy and science have been nothing short of stellar, and have changed the way we understand the universe around us.

The meeting will be preceded by a Board Meeting from 7 PM that is open for everybody who interested in organizational and Observatory related issues.

Annual Holiday Party

The MAS is hosting the 2017 Christmas Party on Saturday, December 2nd at 4:00 PM at the Observatory in New Berlin.

Pizza and soda will be served. Please bring a side dish or dessert to share. Donations of $5/person or $8/family is appreciated.

Please join us and bring along your family to celebrate together.

Membership Renewal

The Membership renewal period has started. Thank you everybody who already responded and renewed their memberships.

There are several renewal methods you can choose from. If you prefer to do it online just follow this link: http://www.milwaukeeastro.org/sendmsg/onlineRenew.asp. The renewal form can also be printed out and send it back along with a check made payable to The Milwaukee Astronomical Society.

If you are wondering whether you need to renew your MAS membership, simply look for your name on this list: http://www.milwaukeeastro.org/membership/membersRenewed.asp. If your name is there, your membership is active through 2018.

Thank you for being a member of the Milwaukee Astronomical Society.

Observatory Report

Work is progressing on the leaky solar dome by putting several inches of top soil around the entire base of the walls and planting grass seed on top. Using the old pickup truck from Vector Industries several loads of dirt were gotten for free from Action Landscaping just down Observatory Rd. to smooth out the scar left from WE Energies laying of the underground power line earlier this year. A nice size crew showed up to remove the rocks, shovel and rack dirt, and spread seed and straw.

There have been changes to the responsibilities for keyholders regarding their Saturday night duties. All keyholders have been notified by mail about these changes and two meetings have been set so the changes can be discussed and questions answered. Saturday evening needs to be a resource where the experienced members can reach out to others and pass their knowledge and experience of the equipment on to them. Progress is being made on the Messier Chart Project, 17 more images have been added to the temporary chart. All members are encouraged to add their images to the project. Contact me if you have any images you'd like to submit.

Respectfully Submitted,
Paul Borchardt, Observatory Director

Treasurer's Report

$3,782.06	***Starting Balance as of 9/9/2017***
	Expenditures
$37.99	PayPal fees
$200.00	Stipend Jean Creighton
$326.29	Fire extinguisher service
$44.83	Camera cases
$43.76	WE Energies
$36.00	Water/sewer
$688.87	TOTAL Expenditures
	Revenue
$208.00	Donations
$2,016.00	Membership dues
$458.00	Public Nights
$2,682.00	TOTAL Revenue
$5,775.19	***Ending Balance as of 10/18/2017***

Respectfully Submitted,
Sue Timlin, Treasurer

Meeting Minutes

The meeting was held on October 20th at the MAS Observatory, New Berlin and was called to order at 7:00PM by Tamas Kriska President.

Minutes, **Treasurer's Report, and Observatory Director's Report** submitted electronically ahead the meeting were approved.

Membership application of Jeff Fitzsimmons & family, Thomas Nettesheim, Jason Schober & family, Brad Felber & family, Michael Robinson & family, Shariff Attaya, Arun Hedge, Greg Cebasek & family, John Zabkowitz & family, Banu Santebennur & family, and Claire Stevlingston were approved. The membership renewal has been started, 31 renewals arrived.

Old Business – *Keyholder duties*: letter was sent to Keyholders and Meetings will be held. *Questionnaire about membership satisfaction*: The "First Wednesday" event was a great idea.

New Business – *Z-dome motorization*: Nick Baker volunteered to automate the Z-dome rotation. $600 was allocated to cover the expenses. *Solar Observatory*: In order to resolve the permanent leaking problem a motion was made and carried to replace the dome of the POD with a NextDome product ($1700). Gene Hanson offered to donate half of the price. *Christmas Party*: was scheduled for December 2nd at 4 PM.

Program – Jean Creighton PhD, Director of the Manfred Olson Planetarium at UW Milwaukee gave a presentation entitled "My adventure in the stratosphere".

Respectfully Submitted
Agnes Keszler, Secretary

Membership Report

Since the last Report we received seven new membership applications and would like to welcome Shariff Attaya, Arun Hedge, Greg Cebasek & family, John Zabkowitz & family, Banu Santebennur & family, Claire Stevlingston, and Jeffery Post. We now have 170 active members.

Respectfully Submitted,
Jeff Kraehnke, Committee Chair

Observatory News

Public Nights

The three fall Public Nights were held on September 22nd and 29th, and on October 13th with the speakers Sue Timlin, Paul Smith, and Lee Keith, respectively. The main features were Deep Skye Objects, the Moon, and Pluto. The generous weather and our public outreach drew record number of guests in September, while we said good bye to the 2017 Open House season on a rainy October night. Even then several brave visitors were curious enough to attend the presentation and the tour of the Z-dome.

The next Open House series will start in the spring of 2018.

Maintenance Work on the Hill

We organized a landscaping work party on a sunny October day to fill the holes WE left behind when covering the trench after the electric upgrade. We also seeded grass and kept it watering every day on the following weeks.

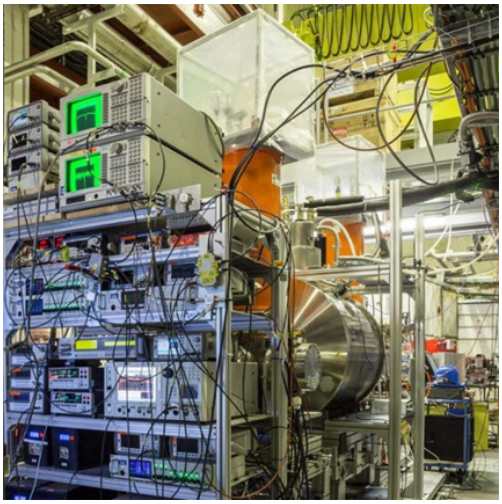
The garden faucet has been leaking for a long time and badly needed a repair. It was disassembled, cleaned, given new gaskets, and reinstalled.

In the Astronomical News

Universe Shouldn't Exist: One of the Great Mysteries of Modern Physics

One of the great mysteries of modern physics is why antimatter did not destroy the universe at the beginning of time. To explain it, physicists suppose there must be some difference between matter and antimatter – apart from electric charge. Whatever that difference is, it's not in their magnetism, it seems.

Physicists at CERN in Switzerland have made the most precise measurement ever of the magnetic moment of an anti-proton and found it to be exactly the same as that of the proton but with opposite sign. "All of our observations find a complete symmetry between matter and antimatter, which is why the universe should not actually exist," says Christian Smorra, a physicist at CERN's Baryon–Antibaryon Symmetry Experiment (BASE) collaboration. "An asymmetry must exist here somewhere but we simply do not understand where the difference is."



The BASE experiment at the CERN antiproton decelerator in Geneva Credit: Stefan Sellner, Fundamental Symmetry Lab., Riken, Japan

Antimatter is notoriously unstable – any contact with regular matter and it annihilates in a burst of pure energy that is the most efficient reaction known to physics. The standard model predicts the Big Bang should have produced equal amounts of matter and antimatter – but that's a combustive mixture that would have annihilated itself, leaving nothing behind to make galaxies or planets or people.

To explain the mystery, physicists have been searching for some discrepancy that might explain why matter came to dominate. So far they've performed extremely precise measurements for all sort of properties: mass, electric charge and so on, but no difference has yet been found. Last year, scientists at CERN's Antihydrogen Laser PHysics Apparatus (ALPHA) experiment probed an atom of anti-hydrogen with light for the first time, again finding no difference when compared with an atom of hydrogen. But one property was known only to middling accuracy compared to the others – the magnetic moment of the antiproton.

Ten years ago, Stefan Ulmer and his team at BASE collaboration set themselves the task of trying to measure it. First they had to develop a way to directly measure the magnetic moment of the regular proton. They did this by trapping individual protons in a magnetic field, and driving quantum jumps in its spin using another magnetic field. Next, they had to perform the same measurement on antiprotons – a task made doubly difficult by the fact that antiprotons will immediately annihilate on contact with any matter. To do it, the team used the coldest and longest-lived antimatter ever created.

After creating the antiprotons in 2015, the team were able to store them for more than a year inside a special chamber about the size and shape of a can of Pringles. Since no physical container can hold antimatter, physicists use magnetic and electric fields to contain the material in devices called Penning traps. Usually the antimatter lifetime is limited by imperfections in the traps – little instabilities allow the antimatter to leak through.

But by using a combination of two traps, the BASE team made the most perfect antimatter chamber ever – holding the antiprotons for 405 days. This stable storage allowed them to run their magnetic moment measurement on the antiprotons. The result gave a value for the antiproton magnetic moment of $-2.7928473441\ \mu_N$. (nuclear magneton.) Apart from the minus sign, this is identical to the previous measurement for the proton.

The new measurement is precise to nine significant digits, the equivalent of measuring the circumference of the Earth to within a few centimeters, and 350 times more precise than any previous measurement.

The universe's greatest game of spot the difference goes on. The next hotly anticipated experiment is over at ALPHA, where CERN scientists are studying the effect of gravity of antimatter – trying to answer the question of whether antimatter might fall 'up'.

by Cathal O'Connell, cosmosmagazine.com

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
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Webmaster	Gene Hanson	262-269-9576

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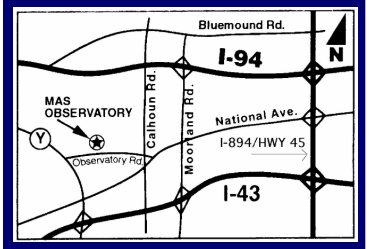
Robert Burgess	920-559-7472
Jason Doyle	414-678-9110
John Hammetter	414-519-1958
Lee Keith	414-425-2331
Frank Kenney	414-510-3507
Jeff Kraehnke	414-333-4656
Sue Timlin	414-460-4886
Steve Volp	414-751-8334

November/December Keyholders

11/04	Herman Restrepo	414-702-2842
11/11	Tom Schmidtkunz	414-352-1674
11/18	Jeff Kraehnke	414-333-4656
11/25	Jill Roberts	414-587-9422
12/02	Tamas Kriska	414-581-3623



MAS Observatory

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www.milwaukeeastro.org