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.
Meeting Minutes

The meeting was held on October 20th at the MAS Observatory, New Berlin and was called to order at 7:00 PM 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 Nettlesheim, 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

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

<table>
<thead>
<tr>
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<th>Starting Balance as of 9/9/2017</th>
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Respectfully Submitted,
Sue Timlin, Treasurer

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
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.”

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 – 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

The BASE experiment at the CERN antiproton decelerator in Geneva Credit: Stefan Sellner, Fundamental Symmetry Lab., Riken, Japan
## Adopt a Telescope Program - Signup Sheet

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<thead>
<tr>
<th>Adopter</th>
<th>Scope</th>
<th>Location</th>
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<tbody>
<tr>
<td>Sue Timlin/John Hammetter</td>
<td>18&quot; F/4.5 Obsession</td>
<td>Wiesen Observatory</td>
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<td>Steve Volp</td>
<td>12.5&quot; F/7.4 Buckstaff</td>
<td>B Dome</td>
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<td>Robert Burgess</td>
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<td>A Dome (Armfield)</td>
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<td>Russ Blankenburg</td>
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<td>12&quot; F/10 LX200 EMC</td>
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<td>8&quot; F/11 Celestron EdgeHD</td>
<td>Ray Zit Observatory</td>
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<td>Tamas Kriska</td>
<td>14&quot; F/1.9 F-scope</td>
<td>Jim Toeller Observatory</td>
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<tr>
<td>Paul Borchardt</td>
<td>Solar scope</td>
<td>SkyShed POD</td>
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</tbody>
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### 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**

- Scott Berg 262-893-7288
- Russ Blankenburg 262-938-0752
- Clark Brizendine 414-305-2605
- 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