
November, 2017

Inside this



# The Winter Schedule

Traditionally, the Milwaukee Astronomical Society does not have meeting in December, except the Holiday Party.

The Observatory is open on every Saturday Member's Nights and when it is announced on the Google Group.

We will return to the regular schedule in January. The program of the next meeting will be announced in the next issue of this Newsletter.

# 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. A donation of $5/person or $8/family is appreciated.

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

Also, the pre-ordered Astronomy calendars will be available for pickup

# Membership Renewal

The Membership renewal period has started in September. Thank you for those 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

Even with all the effort put into trying to resolve the leaky Solar Scope's dome we still are stuck with a dome that leaks. A new 8-foot dome manufactured by NexDome, has been purchased. This dome will fit on the walls of our existing building. The cost of the new dome is $2000, but Gene Hanson has graciously stepped up to the plate once more to donate half of the cost. Thank you very much Gene! Z-Dome gets an upgrade! The 2 old single-phase motors were replaced with three phase ones to allow fine control. They are controlled by a micro-drive that communicates through a USB4 interface and an ASCOM driver with SkyX. Thank you very much Nick Baker for your generous donation of both time and materials to make this upgrade to the Z-Dome happen. The changes of the responsibilities for keyholders regarding their Saturday night duties for member's night are now in place. Keyholders attended two meeting. The number of keyholders is now 11. Brian Ganiere met with TJ Berner from Miller Brothers Heating and Cooling to inspect the 3 electric wall heaters in the restrooms and the storage room. Other than a few adjustments to the thermostats all 3 heaters are in good shape. TJ did not charge the club for any of his time, so the Observatory Committee decided to present TJ with a gift card to Home Depot. Thank you, Brian, for taking care of this.

Respectfully Submitted,
Paul Borchardt, Observatory Director

## Treasurer's Report

| | |
|---|---|
| **$5,775.19** | ***Starting Balance as of 10/18/2017*** |
| | **Expenditures** |
| $14.91 | PayPal fees |
| $120.00 | Annual expenses |
| $98.53 | Periodic expenses |
| $3,045.83 | Observatories expenses |
| $46.82 | WE Energies |
| $32.46 | Other expenses |
| $3,358.73 | TOTAL Expenditures |
| | **Revenue** |
| $1,249.34 | Private donations |
| $703.00 | Membership dues |
| $1,952.34 | TOTAL Revenue |
| **$4,368.80** | ***Ending Balance as of 11/15/2017*** |

Respectfully Submitted,
Sue Timlin, Treasurer

## Meeting Minutes

The meeting was held on November 17th at the MAS Observatory, New Berlin and was called to order at 7:07PM by Tamas Kriska President.
**Minutes** were approved.
**Treasurer's Report** was approved.
**Observatory Director's Report** electronically submitted ahead the meeting was approved.
**Membership Committee Report** was electronically submitted by Jeff Kraehnke Committee Chair ahead the meeting. Membership application of Jeffrey Post and Mike & Evonne Hendren were approved.
**Old Business** – *Z-dome motorization*: The motorization has been completed. The 2 motors were more expensive than budgeted, but Nick Baker wrote the necessary software at no cost, so we fitted the budget. Extra expense was a SkyX dome add on ($250). *Solar Observatory*: The NexDome product has been ordered and should arrive in approximately 2 months.
**New Business** – *Quonset heating in winter*: we may start to keep the temperature at 40 °F to prevent condensation.
**Announcement** – Steve Volp announced that a new kit from the Night Sky Network has arrived.


**Program** – Danielle Berg, postdoctoral fellow at UW Milwaukee gave a talk entitled: "Stellar Women: Celebrating the women who have shed light on our universe."

Respectfully Submitted
Agnes Keszler, Secretary

## Membership Report

Since the last Report we received two new membership applications and would like to welcome Hari Raghava and Mike & Evonne Hendren and Dale Graser. We now have 173 active members.

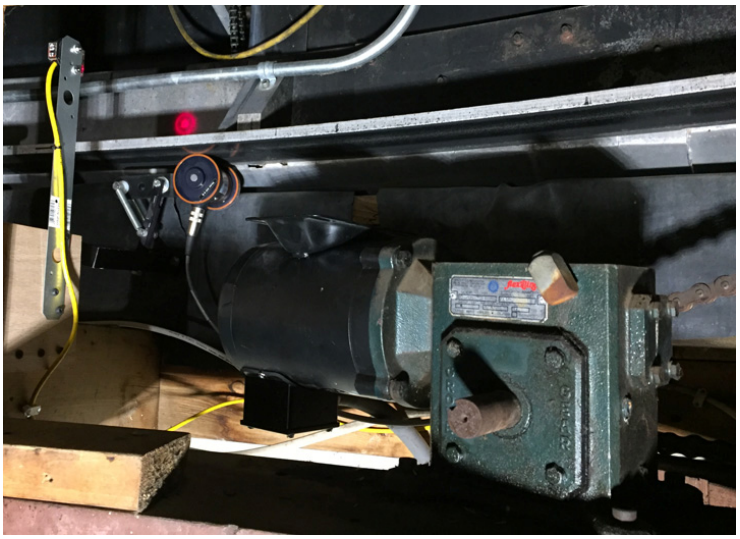
Respectfully Submitted,
Jeff Kraehnke, Committee Chair

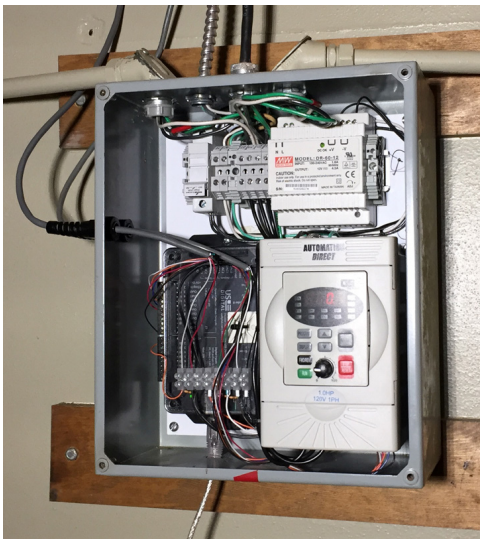
# Observatory News

## Z-dome Automation Project

Z-dome, the biggest dome at the Observatory houses a 14" Celestron EdgeHD telescope on an Astrophysics 900GTO mount. The scope is used for narrowband imaging with an STT-8300 CCD camera. For a long time we have been facing a problem that the mount's movement has not been synchronized with the dome's slit position thus required constant manual adjustment of the latter.

Recently, MAS member, Nick Baker offered his expertise to automate the dome rotation. The whole control mechanism along with old motors had to be replaced. Nick built a USB interface and wrote an ASCOM driver, also supplied many parts including an encoder and a sensor for the home position. Now the dome can be moved through a software as can be seen on the linked video: https://www.youtube.com/watch?v=eI5kRf9pKZI





Finally, the dome control was integrated into SkyX, the software controlling the telescope. During several test runs the slit successfully followed the position of the scope so the system seems fully functional. Thank you Nick, brilliant job!

# Observatory News

## New Guidelines for Saturday Member's Nights

In response to the memberships desire to learn about our Observatory, it's telescopes and the proper use of them, changes have been made to the duties of the keyholders on Saturday evenings. Your Board of Directors and myself want all members to have the opportunity to not only be able to come out to the Observatory on Saturday nights to use the club's telescopes, but to also have a keyholder in place that can teach and pass on the knowledge of how our telescopes work and how to use of them.

**HERE IS WHAT YOU CAN EXPECT ON SATURDAY NIGHTS:**

Going forward Saturday nights will be referred to as "member's night" since that's what it really is. The keyholder on duty for the evening is now your "host", who's responsibilities are not only to be on site but also to aid and guide the members in attendance on the proper use of the telescopes and be able to answer questions about our hobby.

All the Saturday hosts currently know or are being trained to operate the following equipment (please refer to the MAS website for more information):

**A-dome/A-scope**
**B-dome/B-scope**
**The 8-inch GOTO Celestron in the Z2 roll off**
**The two 18" Obsession Dobsonian Telescopes**
**Solar Scope**

Many Saturday hosts know substantially more than the operation of this equipment, but at a minimum, you can expect your host to be able to help you operate any of the above equipment.

Hosts will communicate to the members through the Google group what time the Observatory will be open, weather conditions to expect, and the Moon phase. Look for this posting as early as Friday evening and no later than early Saturday afternoon. Hosts will also post their email address and phone number so you can contact them directly.

A host will be at the observatory on every Saturday, clear or cloudy. On clear nights the host can be expected to be at the Observatory all evening, but on cloudy nights the host will only be on site for about an hour after sunset unless members show up for training. If you would like to come out to the Observatory later than these times you will need to communicate either by phone or email with the evenings host as to what your needs are. It is also a great help to the host if you let them know approximately when you're planning on coming out that evening.

I hope these changes in our Saturday nights will help more members become familiar with the Observatory's equipment and its proper use so that you can learn and enjoy all that our club has to offer.

Don't forget I run a meeting on the first Wednesday each month that the focus is teaching members the ins and outs of our hobby. The topics for discussion are picked by the people attending and with the more experienced members and myself we go into the topics and explain what we can. Meetings start at 7:00pm and run one or two hours.

Paul Borchardt,
Observatory Director

# Observatory News

An article was published in a local Waukesha newspaper, The Freeman, about the MAS Observatory on November 25th, 2017. It was written based on the interview conducted with Observatory Director, Paul Borchardt.

Photos courtesy of Milwaukee Astronomical Society

Stargazing on a summer night at the Milwaukee Astronomical Society Observatory.

## Reaching for the stars and more

### The sky is no limit for New Berlin observatory

**By Karen Stokes**
Special to The Freeman

NEW BERLIN — Down a slightly winding road on a hilltop in New Berlin sits the ideal location for stargazing and discovering astronomy.

The Milwaukee Astronomical Society Observatory provides every aspect of astronomy, from solar, lunar, planetary, comets, meteors, variable stars, double stars, nova, supernova, deep sky objects such as nebulas and galaxies, and many more. There is an entire universe to view.

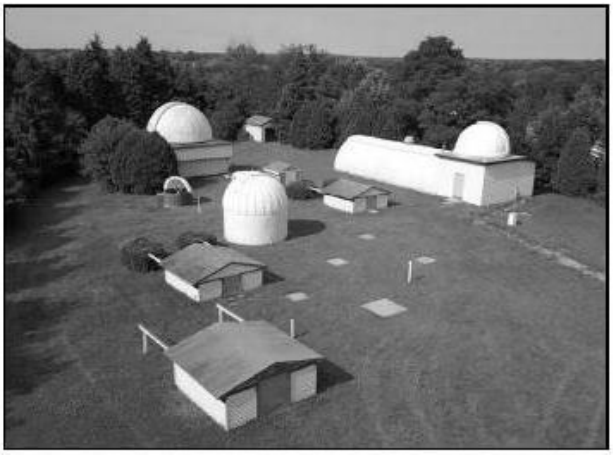
"I think it's a sense of pride for the community," said Paul Borchardt, observatory director. "It's something that not every community has the opportunity to have. We do public outreach on Friday nights throughout the summer and it brings people in from other communities."

The MAS observatory is one of eight astronomy club observatories in Wisconsin and also the largest.

A nonprofit organization, the observatory was first established in 1936 with a small roll-off shed.

Construction of the first observatory building and dome was started the following year. Carroll College donated the first acre of land.

Solar Observatory is the home of two solar telescopes.



The Milwaukee Astronomical Society Observatory occupies three acres in New Berlin.

Over the decades that followed, the observatory has grown into a quality research facility. All of the buildings and domes along with most of the telescopes were built by the members. The members also provide the labor for maintaining the equipment on the hill, according to the MAS.

"There is no monetary help from a government agency or a foundation or a university. The whole observatory is run through dues and other donations," Borchardt said.

There are two tiers of membership. The first tier is a general membership, the second tier are the key holders. The key holders have keys to the facility and rotate to host events for members to teach them how to use the equipment and answer questions about astronomy. There are currently 165 members.

Recently a solar observatory was built with two solar telescopes so the sun may be observed safely. The observatory was available for the solar eclipse last August.

"The future's looking bright for the club. Membership has been on the rise in the last two years," said Borchardt. "The eclipse we had last summer sparked a lot of interest."

The Milwaukee Astronomical Society Observatory is located at 18850 Observatory Road in New Berlin. For more information, go to milwaukeeastro.org.

## In the Astronomical News

# First Interstellar Asteroid is Like Nothing Seen Before

On Oct. 19, 2017, the Pan-STARRS 1 telescope in Hawaii picked up a faint point of light moving across the sky. It initially looked like a typical fast-moving small asteroid, but additional observations over the next couple of days allowed its orbit to be computed fairly accurately. The orbit calculations revealed beyond any doubt that this body did not originate from inside the Solar System, like all other asteroids or comets ever observed, but instead had come from interstellar space.

Although originally classified as a comet, observations from ESO and elsewhere revealed no signs of cometary activity after it passed closest to the Sun in September 2017. The object was reclassified as an interstellar asteroid and named 1I/2017 U1 (`Oumuamua)

"We had to act quickly," explains team member Olivier Hainaut from ESO in Garching, Germany. "'Oumuamua had already passed its closest point to the Sun and was heading back into interstellar space."

This artist's impression shows the first interstellar asteroid: `Oumuamua. Credit: ESO/M. Kommesser

ESO's Very Large Telescope was immediately called into action to measure the object's orbit, brightness and color more accurately than smaller telescopes could achieve. Speed was vital as `Oumuamua was rapidly fading as it headed away from the Sun and past the Earth's orbit, on its way out of the Solar System. There were more surprises to come.

Combining the images from the FORS instrument on the VLT using four different filters with those of other large telescopes, the team of astronomers led by Karen Meech (Institute for Astronomy, Hawai`i, USA) found that `Oumuamua varies dramatically in brightness by a factor of ten as it spins on its axis every 7.3 hours.

Karen Meech explains the significance: "This unusually large variation in brightness means that the object is highly elongated: about ten times as long as it is wide, with a complex, convoluted shape. We also found that it has a dark red color, similar to objects in the outer Solar System, and confirmed that it is completely inert, without the faintest hint of dust around it." These properties suggest that `Oumuamua is dense, possibly rocky or with high metal content, lacks significant amounts of water or ice, and that its surface is now dark and reddened due to the effects of irradiation from cosmic rays over millions of years. It is estimated to be at least 400 meters long.

Preliminary orbital calculations suggested that the object had come from the approximate direction of the bright star Vega, in the northern constellation of Lyra. However, even travelling at a breakneck speed of about 95,000 kilometers/hour, it took so long for the interstellar object to make the journey to our Solar System that Vega was not near that position when the asteroid was there about 300,000 years ago. `Oumuamua may well have been wandering through the Milky Way, unattached to any star system, for hundreds of millions of years before its chance encounter with the Solar System.

Astronomers estimate that an interstellar asteroid similar to `Oumuamua passes through the inner Solar System about once per year, but they are faint and hard to spot so have been missed until now. It is only recently that survey telescopes, such as Pan-STARRS, are powerful enough to have a chance to discover them.

"We are continuing to observe this unique object," concludes Olivier Hainaut, "and we hope to more accurately pin down where it came from and where it is going next on its tour of the galaxy. And now that we have found the first interstellar rock, we are getting ready for the next ones!"

by ScienceDaily

## 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

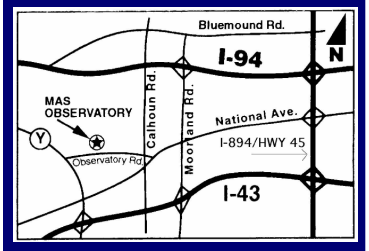
| | | |
|---|---|---|
| President | Tamas Kriska | 414-581-3623 |
| Vice President | Sue Timlin | 414-460-4886 |
| Treasurer | Sue Timlin | 414-460-4886 |
| Secretary | Agnes Keszler | 414-581-7031 |
| Observatory Director | Paul Borchardt | 262-781-0169 |
| Asst. Observatory Director | Jeff Kraehnke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

### Board of Directors

| | |
|---|---|
| Scott Berg | 262-893-7268 |
| 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 |

### December Keyholders

| | | |
|---|---|---|
| 12/2 | Tamas Kriska | 414-581-3623 |
| 12/9 | Paul Borchardt | 262-781-0169 |
| 12/16 | Brian Ganiere | 414-961-8745 |
| 12/23 | Lee Keith | 414-425-2331 |
| 12/30 | Frank Kenney | 414-510-3507 |




**MAS Observatory**

18850 Observatory Rd
New Berlin, WI 53146

www.milwaukeeastro.org