



January, 2016

January 15th: Membership Meeting at Charles Z. Horwitz Planetarium

The upcoming General Membership Meeting of the MAS is going to be held on January 15th, at 8:00 PM at the Charles Z. Horwitz Planetarium of the Retzer Nature Center, which is located at S14 W28167 Madison St. Waukesha, WI 53188 (see the map below).

David DeRemer, planetarium director will give us a brief tour of the sky and present a planetarium show entitled “**Chasing the Ghost Particle**”.

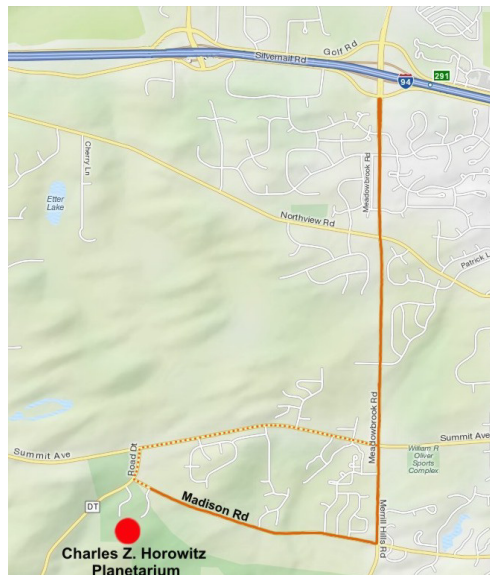
Deep in the ice at the heart of Antarctica, the biggest and strangest detector in the world waits for mysterious messengers from the cosmos. Scientists are using tiny and elusive particles called neutrinos to explore the



interiors of stars and galaxies. These ghostly neutrinos give us an exclusive look into exploding stars and black holes. The General Meeting will be preceded by a Board Meeting from 7:00 PM, which is open for anybody who is interested.

Inside this issue:

January Meeting	1
Winter Schedule	1
Observatory News	2
In the News	4
Adopt a Scope	5
Officers/Staff	5
Keyholders	5



The MAS Winter Schedule

The winter meetings from January through April will be held at the Charles Z. Horwitz Planetarium at the Retzer Nature Center, S14 W28167 Madison St in Waukesha. Starting from May the meetings will return to the MAS Observatory.

Directions to Charles Z. Horwitz Planetarium: take I-94 West to Pewaukee/Waukesha (exit 291) and go south on Meadowbrook Rd. Turn right onto Madison Rd. The driveway to the planetarium will be on the left side of the road (see solid line on the map). Alternatively, turn right onto Hwy. 18 (Summit Ave), turn left onto Hwy DT and follow the signs to Retzer Nature Center (dotted line on the map).

Membership Report

Five members renewed their membership in the month of December. We also received a total of 7 new applications and would like to welcome Russell and Naomi Blankenburg, Ross and Melissa Buchholz, Matthew and Kathleen Mattioli, Andria Ostovich, Joel and Celleste Kopp, Richard and Gail Wojcik, Joshua Zurawski and Family.

Unfortunately, 23 MAS members did not renew their membership by December 31st, thus the total number of active memberships stand at 86.

Respectfully Submitted,
Jeff Kraehnke, Membership Chair

Observatory News



G-scope images by Jeff Kraehnke. On the left LRGB (2x30min each) image of NGC6946 or the Firework Galaxy that produced 9 supernovae in the last 100 years. NGC 6946 is highly obscured by interstellar matter of the Milky Way, as it is quite close to the galactic plane in the constellation Cepheus and Cygnus. To the right IC 434 the Horsehead nebula, which is a dark nebula in the constellation of Orion. The nebula is located just to the south of the star Alnitak, which is farthest east on Orion's Belt, and is part of the much larger Orion Molecular Cloud Complex.



F-scope images by Paul Borchardt were made of 25 two minute long subs. The preprocessing and stacking didn't reveal much detail of the nebula due to the bright background in the image. But with using both Nebulosity and Photoshop Elements he was able to bring out some nice details. NGC 281 the Pacman Nebula on the left, and NGC 2237 the Rosette Nebula on the right.

In the Astronomical News

Visible Light from a Black Hole Spotted by Telescope

For the first time, astronomers have seen dim flickers of visible light from near a black hole. In fact, the light could be visible to anyone with a moderate-size telescope.

These dramatically variable fluctuations of light are yielding insights onto the complex ways in which matter can swirl into black holes. The researchers also released a video of the black hole's light seen by a telescope. In a statement, they added that such light from an active black hole could be spotted by an observer with a 20-cm telescope.

Anything falling into black holes cannot escape, not even light, earning black holes their name. However, as disks of gas and dust fall or accrete onto black holes — say, as black holes rip apart nearby stars — friction within these accretion disks can superheat them to 10 million degrees Celsius or more, making them glow with extraordinarily brightly. Scientists discovered

accreting black holes in the Milky Way more than 40 years ago. Previous research suggested that the accretion disks of black holes can have dramatic effects on galaxies. For instance, streams of plasma known as relativistic jets that spew out from accreting black holes at near the speed of light can travel across an entire galaxy, potentially shaping its evolution. However, much remains unknown about how accretion works, since matter can behave in very complex ways as it spirals into black holes.

To learn more about the mysterious process of accretion, researchers in the new study analyzed V404 Cygni, a binary system composed of a black hole about nine times the mass of the sun and a companion star slightly less massive than the sun. Located about 7,800 light-years away from Earth in the constellation Cygnus, the swan, V404 Cygni possesses one of the black holes closest to Earth. After 26 years during which the system was dormant, astronomers detected an outburst of X-

rays from V404 Cygni in 2015 that lasted for about two weeks. This activity from the accretion disk of V404 Cygni's black hole briefly made it one of the brightest sources of X-rays seen in the universe.

Following this outburst, the researchers detected flickering visible light from V404 Cygni, whose fluctuations varied over timescales of 100 seconds to 150 minutes. Normally, astronomers monitor black holes by looking for X-rays or gamma-rays.

Astronomers find that activity in the vicinity of a black hole can be observed in optical light at low luminosity for the first time without high-spec



This image still from a video by scientists studying the black hole V404 Cygni located about 7,800 light-years from Earth shows visible light that could be viewable by stargazers with a medium-size telescope. Credit: Michael Richmond/Rochester Institute Of Technology

X-ray or gamma-ray telescopes. Similar variable flickering was seen in the X-ray emissions from another black hole system, GRS 1915+105, located about 35,900 light-years away from Earth in the constellation Aquila, the eagle. GRS 1915+105 experiences high levels of accretion. As such, researchers previously

suggested the system's variable flickering was due to instabilities that can occur in accretion disks when they get very massive. However, the accretion rates at V404 Cygni are at least 10 times lower than those seen at other black hole systems that have similar oscillations. This suggests that high accretion rates are not the main factor behind this variable flickering.

Instead, the scientists noted that in both V404 Cygni and GRS 1915+105, the black holes and their companion stars are relatively far apart, which permits a large accretion disk to form. In such large disks, matter from the outer disk might not flow in a steady manner to the inner disk near the black hole. The accretion onto these black holes can become unstable and fluctuate wildly. This sporadic activity could then explain the oscillating patterns of light from these black holes.

More details can be found [in the January 7 issue of the journal Nature](#).

by Charles Q. Choi, [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	14" F/7.4 G-scope	Z Dome
6	Henry Gerner	12" F/10 LX200 EMC	Tangney Observatory
7	Vacant	8" F/11 Celestron EdgeHD	Ray Zit Observatory
8	Vacant	14" F/1.9 F-scope	Jim Toeller Observatory

At Your Service

Officers / Staff

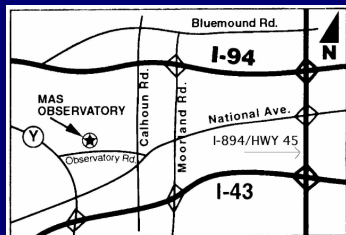
President	Tamas Kriska	414-581-3623
Vice President	Brian Ganiere	414-961-8745
Treasurer	Dennis Roscoe	608-206-0909
Secretary	Agnes Keszler	414-581-7031
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Asst. Observatory Director	Jill Roberts	414-587-9422
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Webmaster	Robert Burgess	920-559-7472

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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

January/February Keyholders

1/9	Dan Yanko	262-255-3482
1/16	Brian Ganiere	414-961-8745
1/23	Scott Berg	262-893-7268
1/30	Gene Hanson	262-269-9576
2/6	Paul Borchardt	262-781-0169
2/13	Jill Roberts	414-587-9422
2/20	Tim Hoff	262-662-2212



MAS Observatory

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