MILWAUKEE ASTRONOMICAL SOCIETY

FOCAL POINT

September, 2021

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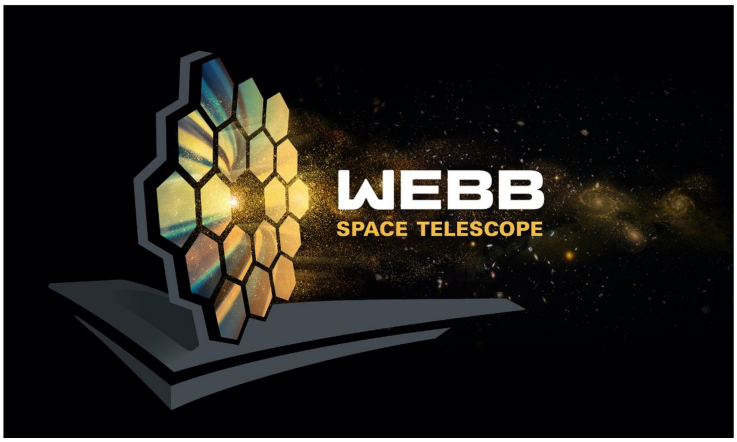
October Meetings

The next **Membership Meeting** will be on Monday, October 18th from 8 PM via Zoom videoconference. The program will be a Webb Telescope Community Event hosted by fellow MAS member **Dennis Roscoe.**



The James Webb Space Telescope (Webb) will be the largest, most powerful and complex space telescope ever built and launched into space. It will launching from French Guiana on December 18, 2021. Webb is an orbiting infrared observatory that will complement and extend the legacy of earlier space-based telescopes to push the boundaries of human knowledge even further, to the formation of the first galaxies and the horizons of other worlds. Dennis Roscoe will discuss the engineering and science behind the Webb.

As always, the **Board Meeting** will be held right before the Membership Meeting, from 7 PM, and is open to every MAS member who is interested in organizational and Observatory related issues.

A **First Wednesday** informal conversation meeting will be held through Zoom videoconference on Wednesday, October 6th, from 7:30 PM. Here we usually discuss technical aspects of astronomy, however, any astronomy-related topic can be brought up. New members are especially encouraged to attend this meeting. It is a chance to receive tips on how to get started and/or get more involved in the Club's activities.

The **Astrophotography Interest Group** will meet on Wednesday, Octoer13th at 7 PM trough Zoom videoconference.

Invitations will be sent out prior to meetings.

The MAS Google Group is as active as ever. Learn about the astronomical news, follow equipment related discussions, or just check out the latest images taken by fellow Club members.

Membership Renewal

The Membership renewal period has started. There are several renewal methods you can choose from. If you prefer to do it online just follow this link:

http://milwaukeeastro.org/membership/masRenewal.asp

The renewal form can also be printed out and sent 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://milwaukeeastro.org/membership/membersRenewed.asp

If your name is there, your membership is active through 2022.

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

COVID-19: The Milwaukee Astronomical Society follows the CDC Guidance in all our activities.

Observatory Director Report

Gene Hanson has finished the work on the two Obsession 18" telescopes (for details see the article on page 4). Thank you, Gene, for all of your work on these two scopes!

All the new camera equipment for the upgrade to both the "G" and "F" Scope has been ordered. Except for the off-axis guider for "G" Scope, which was in stock, all the other pieces of the puzzle are on back order and should be here in mid-October.

With the "better for astronomy" weather that Wisconsin has had lately, activity at the Observatory has picked up nicely. Even some of the member's nights have been clear this last month and have been well attended by the members.

Respectfully Submitted,
Paul Borchardt, Observatory Director

Treasurer's Report

$14,562.97	***Starting Balance as of 08/14/2021***
	Expenditures
$12.26	PayPal fees
$16.336	Z/F scope cameras
$5,160.00	Rubber Roofing A-dome
$78.00	WE Energies
$21,586.26	TOTAL Expenditures
	Revenue
$33.67	Amazon Smiley
$524.00	Membership dues
$2.21	Grants
$10,439.33	Close Invesco Account
$10,999.21	TOTAL Revenue
$3,975.92	***Ending Balance as of 09/18/2021***

Respectfully Submitted,
Sue Timlin, Treasurer

Membership Report

Since the last Report we received 13 new membership applications. We welcome Milica Rodriguez & Family, Brandon Henander & Family, Peter Lakatos & Family, Mark Waltz, Ashley and Erich Roeder & Family, Judy and Jerry Roeder & Family, Ryan Rosmann & Family, Elaine Kubicki, Jim Nelson & Family, Michael W Kennedy, Aaron Feest, Chris Willey, and Rob Carman & Family. The total number of active members is 224.

Respectfully Submitted,
Jeff Kraehnke, Committee Chair

Minutes

Due to the COVID-19 the September Board Meeting was held via Zoom videoconference on September 20th. The meeting was called to order at 7:02 PM by Tamas Kriska President.

Minutes, **and Treasurer's Report** electronically submitted ahead of the meeting were approved with a correction (motion was made and carried to withdraw...).

Observatory Director's Report electronically submitted by Paul Borchardt Observatory Director ahead of the meeting was amended and approved. Amendment: the malfunctioning fan in the Quonset was fixed.

Membership Committee Report was submitted electronically ahead of the meeting. Membership application of Philip Wheatley & family, Robert Davis, Slade Klawikowski & family, Judy Salus, Christopher Braeger & family, Milica Rodriguez & family, Brandon Henander & family, Peter Lakatos & family, Mark Waltz, Ashley and erich Roeder & family, Judy and Jerry Roeder & family were approved.

Old Business – *Rubber roofing of A-dome*: The work was completed. The place where the roof was collapsed is still soft even after a rotten wood was replaced. *Public Nights*: The October 1st event is on. Volunteers are needed manning the scopes and organizing the traffic in the parking lot and on the ground. There will be no presentation, no inside activity. Mask is required inside of the buildings, domes included. Limited number of people will be allowed indoors. In case of rain the event will be canceled. *Equipment upgrade*: Cameras and accessories were ordered, most of them is on back order. *Website migration*: Is going. *Membership due modification*: A motion was made and carried to eliminate the PayPal fee. A motion was made and failed to eliminate the family membership and allow individual members to bring along immediate family and occasionally a guest. A motion was made and carried to keep the current membership structure and to introduce an option for additional contribution.

New Business – Dennis Roscoe wrote and read a letter to the Board suggesting holding the future presentations in person instead of Zoom. The discussion will be continued online before making a final decision.

Announcement – The next meeting will be on October 18th, 2021, via Zoom videoconference.

Program – Jeff Kraehnke gave a presentation entitled: Exoplanets: My Journey So Far.

Respectfully Submitted,
Agnes Keszler, Secretary

Public Nights

Due to the COVID-19 situation, the 2021 Public Nights season have been delayed until October. Currently, there are two events scheduled. One is for Friday, **October 1st** between 6:30 and 9:30 PM, and another one for **October 29th** between 6:00 and 9:00 PM. We will not have presentations this year, which might pose a challenge in case of cloudy weather. The night will only be cancelled if heavy rain is expected.

In September-October, if the weather is good, we usually have 100+ guests. Help is needed with directing people, directing the traffic in the parking lot so cars are parked efficiently, and manning telescopes.

No matter what is your experience level, you can help! So even if you don't feel confident running a telescope, there are other tasks to do!

If the night is cloudy and viewing will not be possible, the open house is still on. We can still show visitors the Observatory, its various telescopes, tell them about MAS and what we do.

Please try to be there a little earlier, around 6 PM to help get the buildings and grounds ready. There are some portable lights and signs to be set up. These will need to be put away after the visitors have left.

Thank you for your kind help.

Update on Membership Categories and Fees

The Board of Directors has considered a proposal to reduce the MAS's membership categories from four to three and to eliminate the $2 surcharge for paying through PayPal. Currently, new applicants or renewing members choosing to pay via PayPal are charged $2 more than those who pay by check or cash.

The proposal was to combine the resident individual and resident family categories into a single resident member category with understanding that members can bring along family members and occasionally may invite people outside of their immediate family to visit the Observatory. We would keep the Non-Resident and Youth membership categories.

After a long discussion the Board has determined that keeping the current membership structure would be more beneficial for the Club. However, the $2 PayPal fee was eliminated without raising the dues.

MAS members are encouraged to make a tax deductible donation during the renewal process to help offset the lost revenue and to support the Club in general.

The current membership categories are:

- Resident Individual - $46
- Resident Family - $52
- Non-resident - $28
- Youth (up to 20 years old) - $23

Observatory News

Overhauling the Obsessions

I got the primary work done on both Obsession telescopes, but we're still working on the digital setting circles for the Kyle Baron telescope (aka, the current D Scope as it sits in the D Shed) and applying the adhesive for the Teflon strips. With the proper eye bolts now on each of the wheelbarrow handles, they can now be quickly attached or detached without the need for any tools. On the Weisen telescope (now in the G-Dome hallway) I installed the 8" pneumatic tires so moving that scope can be done with adequate shock absorption.

Here's the Kyle Baron scope utilizing the wheelbarrow handles to move the scope out of the D-Shed for unobstructed viewing:

Important note: You do not *have* to take the scope out of the shed. It can be operated as it always was. Also, it is not absolutely necessary to remove the wheelbarrow handles when viewing. The scope works just fine. However, I think this is only a good idea when there is a single observer. If there are multiple observers, it's too easy for someone to walk into the handles so it's a good idea to remove them.

There is a substantial dip at the doorway which makes it tricky to get it past the threshold in either direction. I've got a piece of wood that makes it a lot better (you just put it there when you're moving the scope in or out), but maybe in the long term we do something else.

Currently the Weisen Obsession is sitting in the hallway of the Z-Dome. It can now be easily rolled out for use.

Now this is not an optimal location, and it would be best if it were sitting on a concrete pad, but it functions adequately. Much of the sky cannot be viewed outside the Z-Dome, but that will have to be addressed in the future. I also need to install the counterweight on this scope so the 2 lb Nagler's can be used.

By the way this is exactly how I operated my Obsession in Arizona.

Gene Hanson

Member's Story

Almost a year ago, I joined the Milwaukee Astronomical Society, a club I intended to join since 6th grade (4-5 years ago). My grandfather, Bill Collins, was the President of the club from 1969-1973, and his passion for astronomy passed down to me; however, I did not join the club until last September.

When I first joined, I sent a message to the Google Group asking about modified cameras. Through that message, I spoke to MAS members for the first time. A week later, a clear Saturday night inspired me to travel to the observatory with my parents. There, I met Lee Keith, Jeff Kraehnke, and Tamas, Agnes. Taking my first tour, I was shocked; never before had I seen such an incredible observatory.

I was very inclined to use the telescopes, so I asked Jeff if I could learn how to use one. With a clear October Saturday night, free time for a keyholder is impossible. Thus, I was unable to learn a scope that night. The next day, however, Jeff emailed me, asking me if I wanted to learn B-scope. I, of course, accepted, and the next day, Monday, I went to the observatory to learn B-scope. That night, I imaged Messier 27, the Dumbbell Nebula, for around 30 minutes. The first telescope I learned at the Milwaukee Astronomical Society Observatory was B-scope; the first image I ever took through a telescope (not including handheld iPhone images) was of the Dumbbell Nebula. The color image to the left is the image I took in October 2020 with B-scope.

I regard that Monday night in October as one of the best nights of my life. That night, I became convinced that a career and a life in astronomy were my destiny.

Consequently, I have a particular disposition toward the picture I took that night and the object I imaged. Recently, I learned a new scope: G-scope (thank you, Tamas and Agnes!). Finding a connection between learning B-scope and G-scope (and the fact that G- and B- are 2/3 of my favorite telescopes at the observatory), I decided to add sentiment: I would image the Dumbbell Nebula.

After erring several times, I finally was able to image. I took nine 20-minute exposures for a total of 180 minutes, or 3 hours, of integration. The filter I used was the Astrodon 3nm OIII filter. Even with only 3 hours of integration, the results were divine. The monochrome image to the right is the work-in-progress on the Dumbbell Nebula, an object I intend to image for 16 hours.

The monochrome image is significantly better than the B-scope image taken last year. In my mind, the improvement is a testament to an undying love for astronomy and unrelenting excitement to learn. I am ever proud and grateful to be a member of the Milwaukee Astronomical Society, and I am ever grateful for the unprecedented help I have received in my astronomical (literally and figuratively) pursuits. The full-resolution of both images is on Astrobin (link): https://www.astrobin.com/hj1fa5/

William Gottemoller

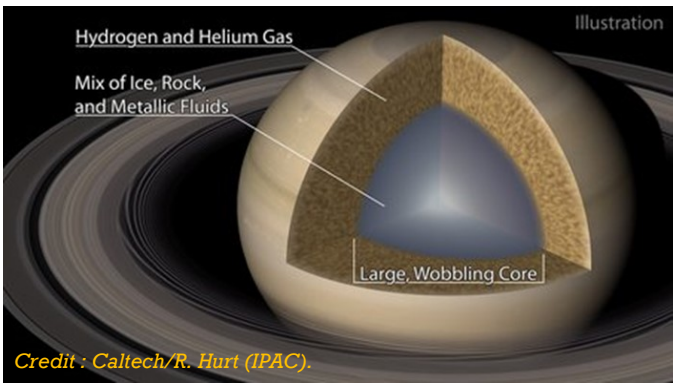
In the Astronomical News

Saturn's Rippling Rings Point to Massive, Soupy Core Hidden Inside

Saturn's rings aren't just a beautiful adornment — scientists can use the feature to understand what's happening deep inside the planet.

By using the famous rings like a seismograph, scientists studied processes in the planet's interior and determined that its core must be "fuzzy." Instead of a solid sphere like Earth's, the core of Saturn appears to consist of a 'soup' of rocks, ice and metallic fluids that slosh around and affect the planet's gravity.

The new study used data from NASA's Cassini mission, which orbited Saturn and its moons for 13 years between 2004 and 2017. In 2013, data from the mission revealed for the first time that Saturn's innermost ring, the D-ring, ripples and swirls in ways that cannot be entirely explained by the gravitational influences of the planet's moons. The new study looked at these motions in Saturn's rings in greater detail to gain insight into the processes in its interior. "We used Saturn's rings like a giant seismograph to measure oscillations inside the planet," Jim Fuller, assistant professor of theoretical astrophysics at Caltech said. "This is the first time we've been able to seismically probe the structure of a gas giant planet, and the results were pretty surprising."



Not only does the planet's core seem sludgy, it also appears to extend across 60% of the planet's diameter, making it much larger than previously estimated. The analysis showed that Saturn's core might be about 55 times as massive as the entire planet Earth. Of the total mass of the core, 17 Earth masses are made of ice and rock, with the rest consisting of a hydrogen and helium-based fluid, the study suggests.

Christopher Mankovich, a postdoctoral scholar research associate in planetary science who works in Fuller's group, explained that the motions in the core cause Saturn's surface to constantly ripple. These surface waves create minuscule changes in the planet's gravity that subsequently affect the rings. Saturn is always quaking, but it's subtle," Mankovich said. "The planet's surface moves about a meter every one to two hours like a slowly rippling lake. Like a seismograph, the rings pick up the gravity disturbances, and the ring particles start to wiggle around."

According to the scientists, the nature of those ring ripples suggests that the core, despite its sloshing, is composed of stable layers of various densities. Heavier materials sit around the center of the planet and don't mix with the lighter materials closer to the surface. "In order for the planet's gravitational field to be oscillating with these particular frequencies, the interior must be stable, and that's only possible if the fraction of ice and rock gradually increases as you go in toward the planet's center," Fuller said.

Mankovich compared the material in the core to sludge, adding that the layered but liquid nature of the core is akin to the salinity of Earth's oceans, which increases with depth. "The hydrogen and helium gas in the planet gradually mix with more and more ice and rock as you move toward the planet's center," he said.

The findings might challenge some of the established models of the formation of gas giants, planets with no hard surface, which are composed mainly of hydrogen and helium, the study suggests. These models assume that the rocky cores of these planets formed first and then attracted large envelopes of gas. If the cores of the planets are, however, fuzzy as the study indicates, the planets might instead incorporate gas earlier in the process.

Recent findings by NASA's Juno mission suggest that another of the solar system's gas giants, Jupiter, might also have a similarly fuzzy core. "Christopher [Mankovich] and Jim [Fuller] were able to show that one particular ring feature provided strong evidence that Saturn's core is extremely diffuse," said Matt Hedman, a planetary scientist at the University of Idaho, who was part of the team that first discovered that the motions in Saturn's rings can't be fully explained by the gravity of its moons. "I am excited to think about what all the other ring features generated by Saturn might be able to tell us about that planet," added Hedman.

Teresa Pultarova space.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	9-1/4" F/10 Celestron	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	Colin Boynton	10" F/6.3 LX200	Ray Zit Observatory
8	Tamas Kriska	Stellarvue SVQ 100 F/5.8	Jim Toeller Observatory
9	Paul Borchardt	Solar scope	SkyShed POD

At Your Service

Officers / Staff

President	Tamas Kriska	414-581-3623
Vice President	Jeff Kraehnke	414-333-4656
Treasurer	Sue Timlin	414-460-4886
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Observatory Director	Paul Borchardt	262-781-0169
Asst. Observatory Director	Russ Blankenburg	262-938-0752
Newsletter Editor	Tamas Kriska	414-581-3623
Webmaster	Gene Hanson	262-269-9576

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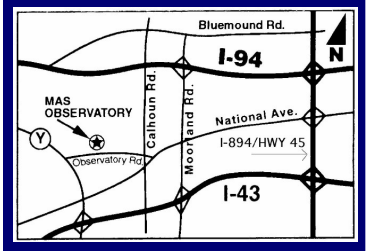
Mike Bauer	262-894-1253
Jill Roberts	262-765-7092
Clark Brizendine	414-305-2605
Jason Doyle	414-678-9110
Dennis Roscoe	608-206-0909
Lee Keith	414-425-2331
Jim Schroeter	414-333-3679
Gabe Shaughnessy	262-893-4169
Steve Volp	414-751-8334
Mike Wagner	262-547-3321



MAS Observatory

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www.milwaukeeastro.org

October Keyholders

10/02	William Gottemoller	262-442-3686
10/09	Lee Keith	414-425-2331
10/16	Jeff Kraehnke	414-333-4556
10/23	Tamas Kriska	414-581-3623
10/30	Tom Schmidtkunz	414-352-1674