MILWAUKEE ASTRONOMICAL SOCIETY

FOCAL POINT

March, 2020

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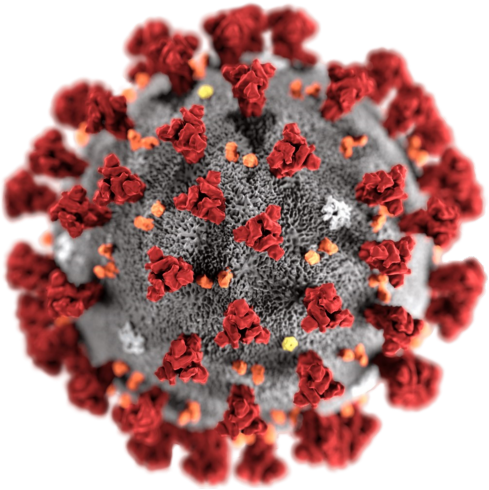
April Meetings



The COVID-19 pandemic is fundamentally affecting our way of life. The Club is also adopting to the new reality by moving all the regular meetings to online platforms. The next **Board Meeting** will be held on Friday, April 17th, from 7 PM through Zoom videoconference. If you are not a Board member but would like to attend please contact Tamas Kriska. The **Membership meeting** will be held afterwards from 8 PM also through Zoom. Invitation will be distributed thru Google Group.

The **PixInsight Focus Group** will meet on Wednesday, April 8th at 7 PM. The specific topic of the meeting will be announced on the Google Group.

To protect the health and safety of our members all activities at the Observatory are suspended until the CDC guidelines change. Therefore, the Saturday Member Nights and the First Wednesday How to Meetings are cancelled.

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.

Public Nights

As soon as the Board has finalized the schedule for the 2020 Public Night Season the news about pandemic broke out. It quickly became clear that some of the dates likely has to be cancelled. Despite this a decision was made to continue with the preparations for the Open House season to be ready if the situation improves. Realistically, we might be able to invite the public for the three autumn dates.

May 1
May 29
June 20
September 11
October 9
October 30

All events are on Friday, with exception of June 20th, which is a Saturday afternoon with the Sun as topic. According to our new tradition the theme of the October 30th night will be Halloween. Speakers of all other nights are free to chose their topic, which should involve one Moon night, and should not be duplication. We already have volunteers for June, September and October nights.

Kind help of our Members is appreciated during the nights. You can direct the traffic in the parking lot, give a tour of the Observatory, or man a telescope. The telescope viewing will occur based on printed maps.

Observatory Director Report

The 18" Dobsonian which is C-Scope has had the new finder with the larger stand-off installed. You can now use the finder without cramming your head against the scope. The connection to the guide camera on the F-Scope had become loose and was causing interrupted guiding has been repaired.

The MAS received a large donation of telescopes and related equipment from family of the late **James Drzewiecki**, who was a member. The major pieces of equipment in the donation are a 8" Celestron Schmidt-Cassegrain with a heavy duty Celestron CGE mount which has been supercharged and tripod. Also, a sky Watcher Equinox 120mm F/7.5 Doublet APO. There is a SBIG ST8300M with the FW5-8300 filter wheel and several much older CCD cameras.

Respectfully Submitted,
Paul Borchardt, Observatory Director

Treasurer's Report

$10,872.85	***Starting Balance as of 02/19/2020***
	Expenditures
$7.45	PayPal fees
$129.81	WE Energies
$137.26	TOTAL Expenditures
	Revenue
$28.52	Private donations
$316.00	Membership dues
$10.40	Grants
$354.92	TOTAL Revenue
$11,090.51	***Ending Balance as of 03/18/2020***

Respectfully Submitted,
Sue Timlin, Treasurer

Minutes

Due to the Covid-19 pandemic the meeting was held on March 21st via Zoom video conference. It was called to order at 7:05 PM by Tamas Kriska President.

Minutes, **Treasurer's Report and Observatory Director's Report** electronically submitted ahead of the meeting were approved. **Membership Committee Report** was electronically submitted by Jeff Kraehnke Committee Chair ahead of the meeting. Membership applications of David Lawson, Ken Cutts & Family, and Brian Pierson & Family were approved.

Old Business – Entrance gate: Still looking at possibilities. Public Nights: Speakers for May 1 and 29 are still needed.

New Business – The Board discussed the MAS policy regarding the COVID-19 outbreak:

Members Nights: Members Nights are cancelled. Keyholdres should show up to check the property, clean Quonset and bathrooms, and disinfect frequently used surfaces.

Observatory use: Keyholders individually still can use the observatory. Upon personal contact observation by members may be arranged. All equipment, surfaces and door knobs must be disinfected after usage.

Meetings: Board Meetings will be held via Zoom. Au lieu General Meetings we will try to offer presentations via Zoom. The PixInsight Focus group will also meet via Zoom. First Wednesday Meetings are cancelled until further notification.

Public Nights: We should be ready to resume the program once the restrictions will be lifted.

Maintenance: No work parties will be scheduled until the situation changes. We will be exploring contractors for concrete work, dome painting, and entrance gate installation.

Announcement – The next meeting will be on Friday, April 17th via Zoom videoconference.

The meeting was adjourned at 7:55 PM.

Respectfully Submitted,
Agnes Keszler, Secretary

Membership Report

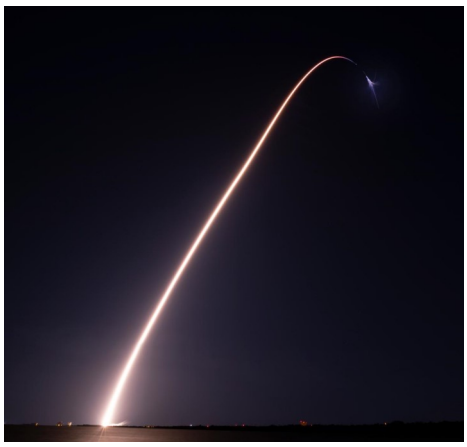
Since the last Report we received 3 renewals and 11 new applications. We welcome David Lawson, Ken Cutts & Family, Brian Pierson & Family, Christine Pilacek, and Lora Blasius. The total number of active members is 162.

Respectfully Submitted,
Jeff Kraehnke, Committee Chair

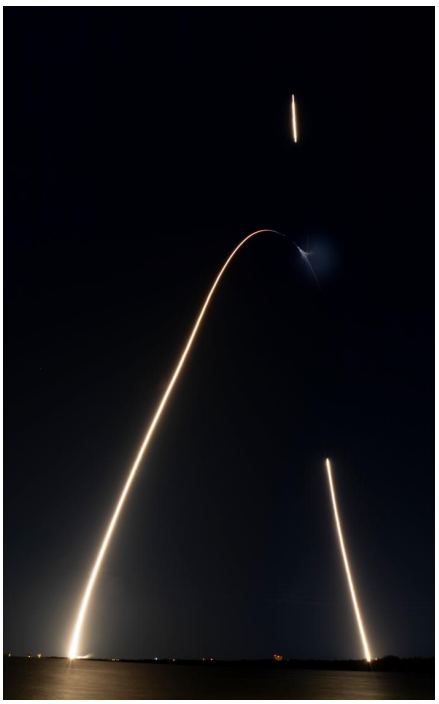
Member's Story

Watching Launch of Space X's Falcon

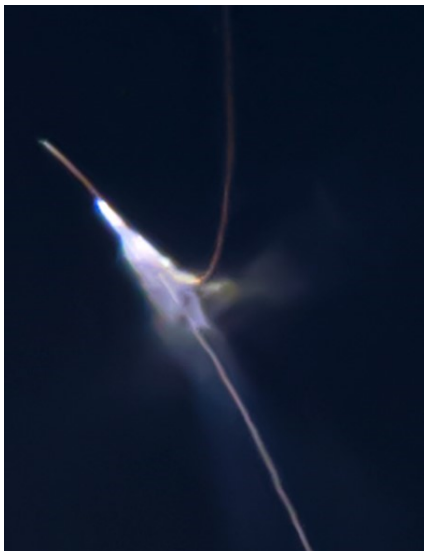
My wife and I witnessed our first night launch from Cape Canaveral - Space X's Falcon 9 CRS 20 on a resupply mission to the International Space Station. We were 10.5 miles away on a very windy night (gusts over 20 mph). Thus we thought Space X was going to scrub the launch for the second time that week. (Really had to rearrange our plans.) But we later found out that Space X purposely pushed the envelope to see if they could accomplish the launch and booster landing under such windy conditions.



The attached pictures do not do justice to the experience. The separation of the first and second stage produced an awesome 4 sided kaleidoscope-like exhaust cloud that in the pictures, you only get a partial glimpse of. Then the booster's return to earth produced a delayed, extremely loud sonic boom that made me think there was an explosion. Also - the 2 return burns of the first stage was pretty amazing. It does come down faster than you would expect.



The first picture is from my Canon 16-35mm F 4 at 16mm, ISO 100 stopped down to F 19 for 2 minutes. The second picture is the combination of 2nd images including the booster return to Earth. In the third image I took a stab at blowing up the booster separation. Had to reduce noise because of grain and pixelation since it was taken with a wide lens at a distance of about 60 miles. Seems like there is a difference between the burn color of exhaust between the first stage vs the second (the descending arc).



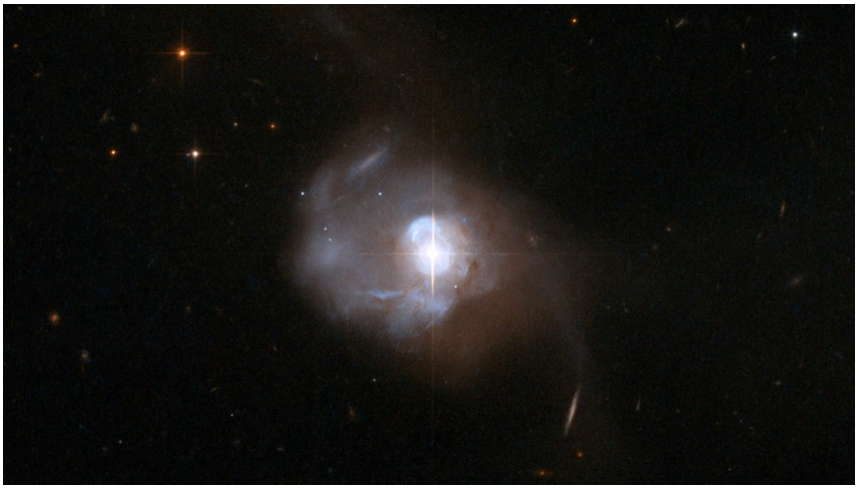
It is odd that the booster rocket appears higher on its initial return to Earth burn than the arc of the climbing second stage and capsule. It is a bit of an illusion because the second stage is headed downrange while it gains altitude, so the arc looks like it goes down. Said another way, the first stage returns by first gaining altitude and then falling back down, but it's much closer to where we were so it looks like it is higher overhead than the remaining climbing rocket that is, in fact, much higher but arcing away from us.

by Nolan Zadra

In the Astronomical News

Molecular Oxygen Spotted Beyond the Milky Way for the First Time

For the first time, astronomers have found molecular oxygen — the same gas humans need to breathe — in a galaxy outside the Milky Way. Oxygen is the third most common element in the cosmos, after hydrogen and helium. So, astronomers once thought molecular oxygen, O_2, would be common in the space between the stars. But despite repeated searches, no one had ever seen molecular oxygen beyond our galaxy — until now. Junzhi Wang, an astronomer at Shanghai Astronomical Observatory in China, and his colleagues spotted the molecule's calling card in a galaxy named Markarian 231.



Markarian 231, image from the Hubble Space Telescope. Credit: NASA, ESA, The HUBBLE Heritage Team (STSCI/AURA)-ESA/HUBBLE collaboration, and A. Evans (UVA/NRAO/STONY BROOK Univ.)

Lying 560 million light-years away in the constellation Ursa Major, Markarian 231 is the nearest galaxy to Earth that contains a quasar, where gas whirls around a supermassive black hole and gets so hot that it glows brilliantly. (*SN: 8/31/15*). Using radio telescopes in Spain and France, the astronomers saw radiation at a wavelength of 2.52 millimeters, a signature of O_2's presence, the team reports in the Feb. 1 *Astrophysical Journal*. "This is the first detection of molecular oxygen in an extragalactic object," Wang says.

It's also the most molecular oxygen ever seen outside the solar system. Previously, astronomers had seen the molecule in just two star-forming clouds within the Milky Way, the Orion Nebula and the Rho Ophiuchi cloud (*SN: 1/28/20*). Astronomers think the shortage of interstellar O_2 is due to oxygen atoms and water molecules freezing onto dust grains, locking up the oxygen. In these stellar nurseries, though, shocks from bright newborn stars can rip water ice from the dust, freeing oxygen atoms to find each other and form molecules.

But even in the Orion Nebula, molecular oxygen is rare, with hydrogen molecules outnumbering oxygen molecules a million to one. Hydrogen also dominates in Markarian 231. But molecular oxygen spans the outskirts of the galactic disk at abundances more than 100 times greater than in the Orion Nebula.

That's "very high," says Gary Melnick, an astrophysicist at the Harvard-Smithsonian Center for Astrophysics in Cambridge, Mass., who was not involved in the work. "There is no known explanation for an abundance of molecular oxygen that high." To confirm that the radiation really arises from O_2, Melnick says the observers should look for a second wavelength from the molecule. That won't be easy, Wang says, because other molecules also emit radiation at those wavelengths. To shore up the case for O_2, the scientists went through the many molecules that give off wavelengths similar to the one detected and found that nobody had ever seen any of those molecules in space — except for O_2.

"It is guilt by elimination, if you will," says team member Paul Goldsmith, an astronomer at the Jet Propulsion Laboratory in Pasadena, Calif. One possible explanation for all the O_2 is that Markarian 231 goes through a more vigorous version of the Orion Nebula's oxygen-forming process. The galaxy is a prolific star factory, spawning new stars 100 times as fast as the Milky Way and spewing out 700 solar masses of gas per year. High-speed gas from the galaxy's center may slam into gas in the disk, shaking water ice from dust grains so that molecular oxygen can form.

In turn, that oxygen could keep the galaxy hyperactive: Radiation the molecule emits helps cool the gas so that some of it can collapse and create even more new stars in the galaxy.

by Ken Croswell
sciencenews.org

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/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

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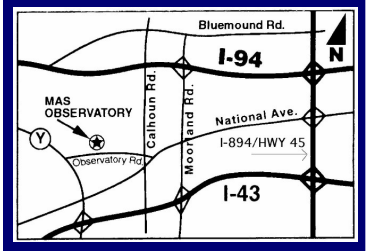
Steve Volp	414-751-8334
Mike Wagner	262-547-3321



MAS Observatory

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www.milwaukeeastro.org

April Keyholders

04/04	Lee Keith	414-425-2331
04/11	Jeff Kraehnke	414-333-4656
04/18	Tamas Kriska	414-581-3623
04/25	Tom Schmidtkunz	414-352-1674