



Rochester Skies

A publication of the Rochester Astronomy Club

Serving the community since 1997



Issue #29

Jul 2019

Photo by Luka Bajzer

43.9°N 92.5°W Elev. 1316'

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Go to www.RochesterSkies.com for club information and activities.

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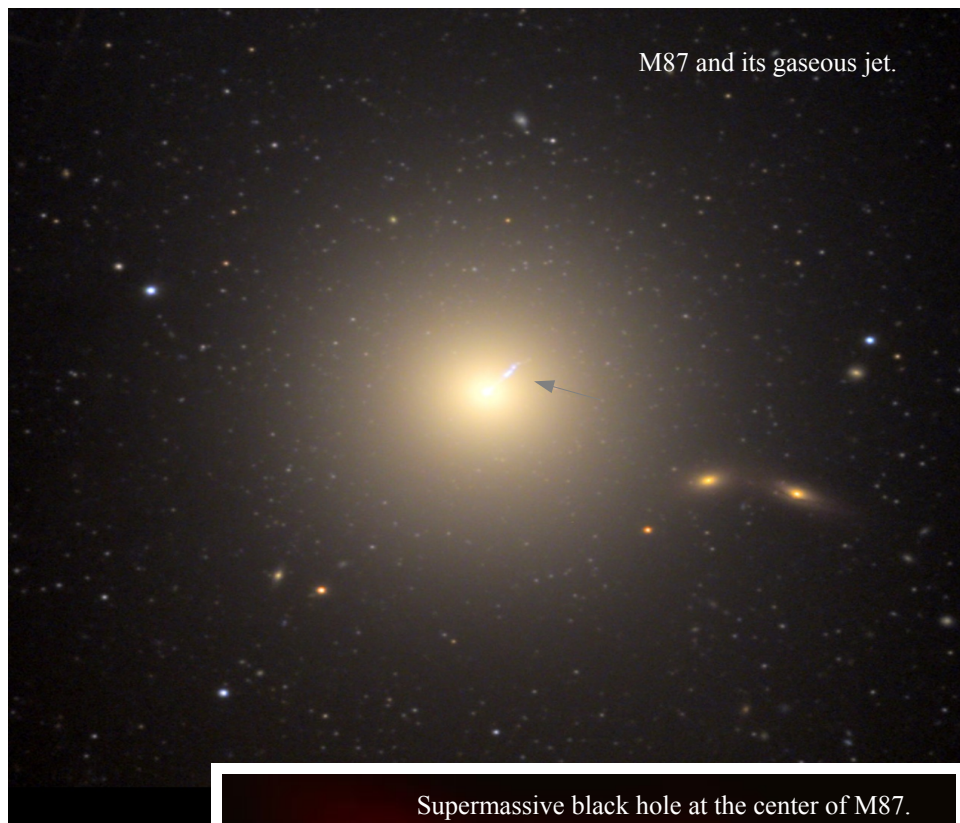




Relatively Strong

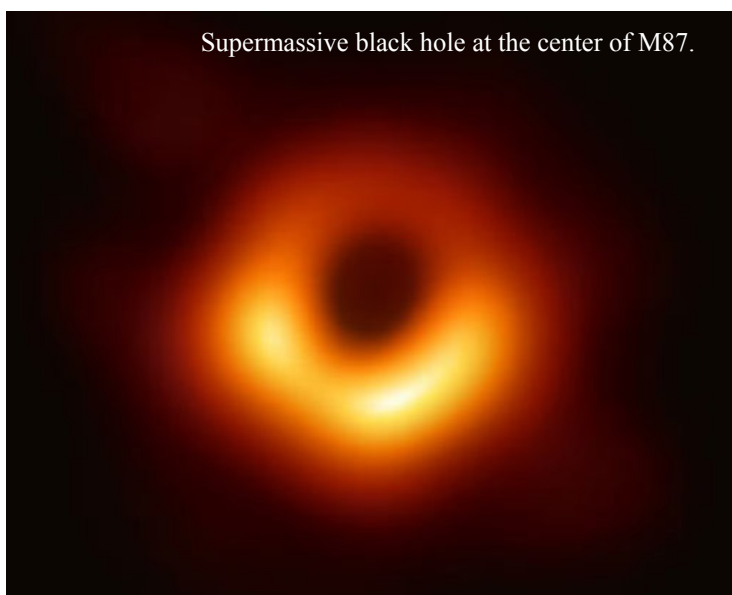
Randy Hemann

At our recent annual NCRAL meeting, several talks centered around Einstein's theory of general relativity, perhaps not so coincidental to the recent media release of the supermassive black hole image in the center of galaxy M87, lying 56 million light-years (3.75 sextillion miles) away from us. The picture, with the likeness of a glowing doughnut, is the result of years of work by scientists who synchronized 8 radio telescopes around the world to essentially use the diameter earth to simulate one giant telescope. This observing array produced enough power to resolve the event horizon of the black hole subtending only an angle of 40 microarcseconds. If our eyesight was that sharp, we would be able to read the print of this newsletter from a pub in Dublin, Ireland!



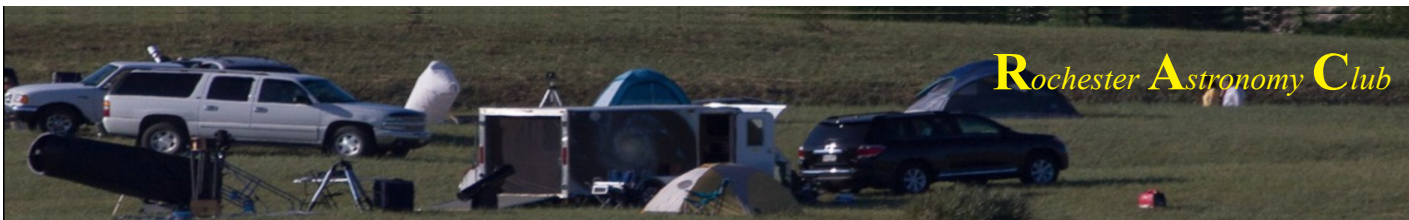
M87 and its gaseous jet.

Technologically, what the 200 scientists had done was impressive, but why is this image so important? The reason is that it is yet another victory for Einstein's general relativity theory. And this a great example of the strength of what the scientific method can do. The scientific method involves first, from observations or thoughts, an idea is proposed, called a hypothesis. The hypothesis, if true, would predict the results of other experiments and observations – sort of an “if this, then that” statement. If it doesn't predict accurately, the theory weakens or is replaced a better one.



Supermassive black hole at the center of M87.

What did Einstein predict that is noted by this image? We know from other visible light observations of M87, it has a black hole with a gaseous jet pointing nearly directly at us. That means we are looking at the black hole at almost but not quite face-on, similar as the



face-on image we see when looking at the Whirlpool Galaxy, M51. With this orientation, Einstein's theory predicted what we should see: an asymmetric arc of the plasma swirling around the blackhole with a brighter and dimmer rim. The brighter areas are showing the return of light beams that were bent around the black hole and are coming back at us. The dimmer part of the arc is actually the light from the backside, which we would normally not see, but do, since those light beams emerge from the back and are bent around to the front. So, we see the front, sides, and the back of the black hole simultaneously, which is how the theory predicted we would.

What are other predictions from this theory? A few of the talks we heard at NCRAL reviewed the famous 1919 Arthur Eddington solar eclipse findings, where the Sun's gravity twisted the light path from nearby stars ever so slightly. This was Einstein's famous first triumph. Similarly, gravitational lensing, where light bends around a foreground massive object rendering the farther object as several images, is replete in many deep sky photographs. At the Okie-Tex Star Party, several of us were able to see this phenomenon by confirming at least two of the four images of a gravitational lensed quasar, Q2237+030, that sits directly behind galaxy ZW 2237+030 (Einstein's Cross, image below).



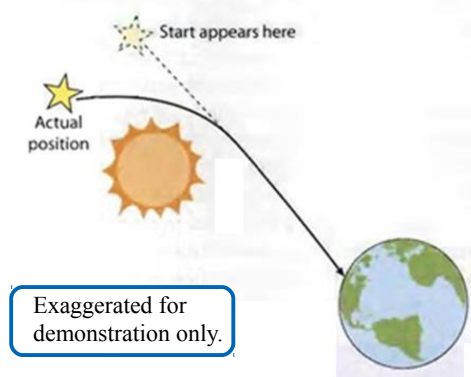
When he was alive, one of Einstein's proudest accomplishments was his theory exactly predicted the quirky precession of the planet Mercury's orbit around the sun, which previously baffled astronomers for years.



Whirlpool Galaxy, M51

Probably the one that affects us personally is the Global Positioning System. If our GPS satellites didn't tack on 4 microseconds each day due to fact earth clocks tick slower than satellite clocks, because they orbit in a weaker gravitational field, then our GPS maps would drift off target 5 miles every day!

Above are just a few examples of experiments and observations that support relativity theory. Although it remains strong due to its predictive prowess, we do have a hint that it may be something missing, since it lies at great odds with quantum theory, at least at the microscopic level. But for the larger picture it has allowed us to better understand the machinery of the cosmos, and will likely stay strong for many more years.





FOR A DETAILED SUMMARY OF THE 2019 NCRAL CONFERENCE GO TO *NCRAL 2019 SUMMER [NEWSLETTER](#)*
OR *PAC SPECIAL EDITION [NEWSLETTER](#)*



RAC members who traveled to the Quad Cities:

Bob Fealey, Randy Hemann, John Martin, John Attewell and Bill Davidson.



Moline, Illinois: The **Popular Astronomy Club (PAC)** performed admirably in hosting the 73rd NCRAL Regional Conference, May 3rd to 5th, amidst the historic record flooding of the mighty Mississippi River, thanks to a harsh winter and late snow melt from the northern tier states. There were 87 registrants at the conference including 5 students.

The Popular Astronomy Club of the Quad Cities was established in 1936 as a result of public enthusiasm in outreach programs. Under the leadership of the club's first president, Carl Gamble, **PAC** organized the creation of the Astronomical League and **PAC** became one of the first members of this national organization in 1941. In 1953 they hosted the Convention of the NCRAL.

Among the outstanding accomplishments made by **PAC** was an expedition of the 1954 solar eclipse, organized and highlighted in a national magazine. A three-day Seminar on Space Exploration, held by the college in February 1972, drew some big names, including Dr. C.W. and Edna Sorensen, Regina Holmen Fryxell, Dr. Fritiof M. Fryxell, Neil Armstrong and Dr. James Van Allen. In 2006 member Stephan Saber first notes a very thin crescent moon's striking resemblance to Solar eclipse contacts. The rare 'string-of-pearls' Lunar phenomenon is dubbed 'Saber's Beads.'

With such rich history **PAC** provided a venue of topics centered on discoveries: Past, Present and Future. Registrants were able to visit the John Deere Planetarium and Carl Gamble Observatory on its 50th anniversary at the campus of Augustana College in Rock Island, IL, which features a Celestron C14 (*continues on page 6*)



Rochester Astronomy Club



Finally Spring, 2019!!

73rd NCRAL Conference In Pictures



Hotel's parking lot.

Lobby before going into the planetarium.



Main conference room.



Carl Gamble Observatory



FOOD!!!



PACMO



(continued from page 4) computer-driven 14-inch SCT. The observatory is opened for faculty and students and has schedule public outreach programs.

PAC did not dissappoint those attending the conference. **MANY** door prizes were awarded which included, but not limited to, an R2 imager, DGM Optics NPB-125/200 filter set, Vortex 10x50 Diamondback Binoculars, Celestron Sky-Master Pro 15x70 binoculars and the Simulation Curriculum Starry Night Pro-Plus 8 software package.



Wanda Gacioch



Terry Dufek



NCRAL 2019 Speakers

For detail information on the speakers and their topics, click [NCRAL2019](#)

PRESENTATION #1:

[A Relativistic Century:
Eddington, Einstein, and the
Great Eclipse](#)

by Dr. Lee Carkner



PRESENTATION #2:

[Voyages of Discovery](#)

by Carl Wenning

(continues on following page)



PRESENTATION #3:

Discussion of Historical Tests of General Relativity Theory

by Dr. Robert Mutel

PRESENTATION #4:

Meteorites: Messengers from Space and Time

by Dr. Paul Sipiera

PRESENTATION #5:

Voyages of Discovery in Radio Astronomy: Past, Present and Future

by Dr. Esteban Araya

PRESENTATION #6:

Gravitational Waves

by Dr. Robert Mitchell

PRESENTATION # 7:

Our Coolest Stellar Neighbors: the Role of M Dwarf Stars in the Search for Earth 2.0

by Katie Melbourne

PRESENTATION #8:

Tweeting to the stars with the Burke– Gaffney Observatory and learning about galaxy evolution using simulations.

By Tiffany Fields

PRESENTATION #9:

The Large Synoptic Survey Telescope (LSST):
Your personal 8.4 meter telescope

by Dr. Mike Solontoi

KEYNOTE PRESENTATION:

Different Views of the Sky; American Indian Views of Astronomy (and a look at where we are going in the future)

by Dr Steven Spangler



Dr. Mutel



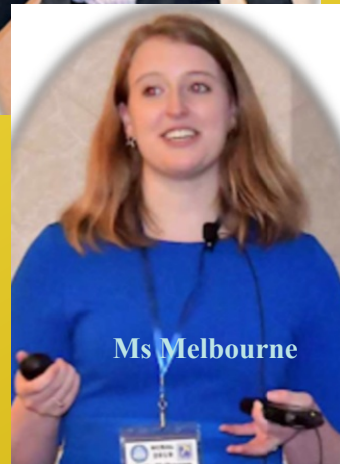
Dr. Sipiera



Dr. Araya



Dr. Mitchell



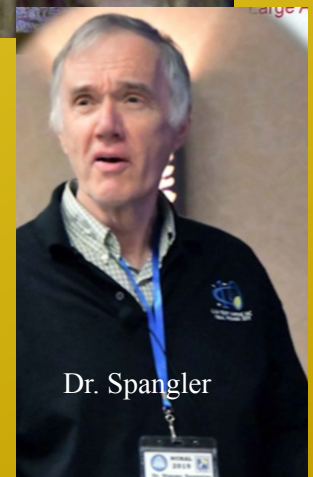
Ms Melbourne



Ms Fields



Dr. Solontoi



Dr. Spangler



THE NCRAL 2019 REGIONAL BUSINESS MEETING

The NCRAL Chair, Carl Wenning, conducted the annual meeting for the region as directed by the NCRAL by-laws. There was a quorum and the meeting officially opened. There was a call for nominations for Chair and Vice-Chair. Carl accepted another 2-year term as Chair and Bill Davidson accepted the position of Vice-Chair for a 2-year term as John Attewell's term expired.

Carl Wenning placed into discussion his Astronomical Bucket List Program that had been defeated by the National Council of the Astronomical League last year in Minneapolis during ALCON 2018. This "bucket list of 300" would consist of objects that an amateur observer should observe in their passion of astronomy. It was agreed that Carl should resubmit his early proposal to the AL for approval with him serving as coordinator. If the AL rejects the program for a second time for "not being an observing program," NCRAL will consider adopting the program as its own.

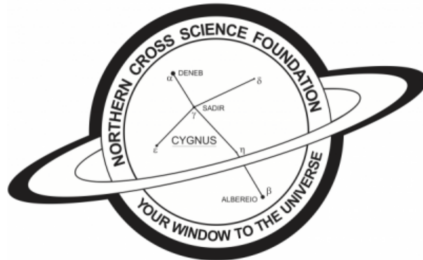
It was agreed that Carl should move ahead with developing an NCRAL seasonal Messier marathon, possibly including the use of GOTO telescopes. It was further moved and seconded to give pins as well as certificates for this seasonal marathon.

Future NCRAL conventions will be held as follows:

2020	Northern Cross Science Foundation in Port Washington, Wisconsin, to be held May 2 – 3.
2021	Neville Public Museum Astronomical Society in Green Bay, Wisconsin
2022	Opened
2023	Twin City Amateur Astronomers in Blooming/Normal, Illinois

Jim Small from Mid-States Region of the Astronomical League (MSRAL), St. Louis, said they are considering copying NEAF, the 2-day New York convention with 5000 attendees and 180 vendors, in the near future. More details are in the works.

NCRAL 2020



Thanks, John, for your time and talents in helping with the operations of the NCRAL for the north-central U.S. amateurs.



NCRAL Awards

2018 NCRAL Regional Member Award	Roy Gustafson (PAC)
2019 NCRAL Regional Member Award	John Heasley (Iowa County Astronomers)
2019 NCRAL Newsletter Editor of the Year	Bill Davidson (RAC)



RAC Public Outreach

Josef Chlachula

RAC outreach program continues into its third year. Once a month, after dusk, the public is invited to observe with volunteers of **RAC** when the Moon is around its first quarter phase. These events mostly occur from the Watson Soccer Field in NW Rochester, east of 52. This winter we found the soccer field parking lot not plowed for our use due to a record amount of snowfall. Fortunately club member Dustin Ebert offered to host this event from his plowed parking lot at Salem Glen Vineyard, outside of SW Rochester. Visitors could warm up in his winery, and a large screen television is available for any presentation in case of inclement weather. During the outreach events at Salem Glen, people came with their genuine interests in the night sky while fighting to keep warm in the frigid weather. Sometimes they came with their own telescope asking for advice or sharing their passion.



The public was invited on April 12 at the Watson Soccer Fields but due to cloudy skies it was canceled. The first public observing in warm weather occurred on Friday, May 10th. It was a success with people of all ages showing up ready to learn and to be shown something new. More than seven club members had come with their telescopes for the public to view through.

Keep informed for the latest news on public observing at www.rochesterskies.org

Bamber Valley Science Night

Bamber Valley Elementary School invited **RAC** to participate in their science night activities for 2nd and 3rd graders on February 22nd. Astronomy activities included a disassemble Galileoscope showing how a simple refractor telescope works with "Big Red," a 6.25 inch refractor, disassembled near by. Randy Hemann and Jay McLaren setup a telescope and pointed it at two pictures, Pluto and a galaxy, taped to a basketball rim across the auditorium, for the kids to view. With an adapter, parents took pictures with their phones. They made constellations from pretzel sticks and marshmallows and created planispheres from printed card stock. Mike Carlin demonstrated orbits with marbles on the surface of a large stretched black fabric while Bill Davidson and John Martin help explain to the parents and kids the exhibits. Unfortunately, no night sky observing due to clouds and snow flurries.



Remaining Friday Evening Public Observing in 2019

Month	Date	Start Time	End Time	Moon's Age	Planets to observe
Aug	9	9:00	11:00	9.7	Jupiter Saturn Ceres
Sep	6	8:00	10:00	8.3	Jupiter Saturn Neptune Ceres
Oct	4	7:00	9:00	6.7	Jupiter Saturn Neptune
Nov	1	6:00	8:00	5.1	Jupiter Saturn Neptune
Dec	6	6:00	7:00	9.8	Venus Saturn Neptune Uranus



ALCon 2019: Commemorating the 50th Anniversary of Apollo 11



The Astronomical League was organized on November 15, 1946 under the leadership of Dr. Harlow Shapley. At present, the Astronomical League is a federation of 280-plus astronomical societies throughout the United States and several foreign countries. It is one of the largest general astronomical organizations in the world.



National Conventions take place yearly in various locations throughout the country over a four-day period starting on Wednesday and usually end with an awards banquet on Saturday. There are lectures/presentations and workshops scheduled mornings and afternoons each day, astronomy related tours of nearby facilities, and a vendor area. These conventions provide a unique opportunity for professional astronomers to intermingle with knowledgeable amateurs; gathering together to learn from each other and exchange ideas.

ALCon 2017 was held in Casper, Wyoming, to witness the 'Great American Eclipse' in mid-August. ALCon 2018 was hosted by the Minnesota Astronomical Society in Minneapolis. This year, July 24th through 28th, the Astronomical League is commemorating the 50th anniversary of the first moon landing. ALCon 2019 is being held at the Holiday Inn Titusville-Kennedy Space Center, in Titusville Florida. The itinerary of lectures/presentations includes a Star-B-Q and the Gala Awards Banquet. Tours of the Kennedy Space Center and a three-day cruise to the Bahamas on a ship by Royal Caribbean are part of the convention with a binocular observing program of the southern sky up on the ship's heliport.

ALCon 2020 will be held in Albuquerque, New Mexico, on July 16 – 18. The following page provides a sneak preview.



ALCON 2020

July 16 – 18

EMBASSY SUITES HOTEL

1000 Woodward Pl. NE

Albuquerque, New Mexico 87102

<https://alcon2020.astroleague.org/>

(Website available by January 1, 2020)



Hosted by:

The Albuquerque Astronomical Society

www.TAAS.org



REMEMBER?

FROM THE EDITOR

Bill Davidson

It was an honor to have received the recognition as the *Inaugural 2019 NCRAL Newsletter Editor of the Year* but it was a humbling experience too. Many members of **RAC** worked hard creating and distributing **RochesterSkies** in the past; **Duane Deal**, **Scott Regener**, **Dean Johnson**, just to name a few but there were many others writing articles, taking photos and getting the newsletter out to mail. For six years the newsletter operation successfully published quarterly editions from 2006 to 2012. There were a few years that it became difficult as individuals moved out of town and the time commitment increased with less individuals, especially getting quarterly news-letters published. Also, the cost of material goods necessary to print and mail began to increase in cost. Today I have an easier time distributing the newsletter, via electronically. However, I want to expand this to mailings (greyscale) for those without the availability of WiFi or computers or for any personal reason. However, there's always the concern in obtaining articles (or poems, photos, observation notes, drawings, anything you, the reader, would like to share with our club) from our membership. Randy Hemann has lifted my spirits up many times when he writes an article for the next edition.



Bill Davidson and Carl Wenning

Randy suggested, when I volunteered to take the reigns of the newsletter, that there were no deadlines, no set number of editions and no expectations. Release an edition when there's material to share. Thus, I release a new edition when there's material to share with the membership. John Martin informed me our newsletter archive will soon be available on our website. **RAC**'s newsletter department is staffed by one but others are welcomed to join, no experience necessary. Two or three more 'reporters' could gather more material to create a quarterly newsletter.

Josef Chlachula once told me that a newsletter is like writing the history of the club, "Websites are busy with the here and now but never providing a history."

I really hope you, the reader, find some enjoyment with your newsletter. It got recognized in an official capacity and the members of **RAC** made it happen. Without you we wouldn't have **RochesterSkies**.

"Keep looking UP! And share what you saw."

Established in 1978, the Lowell National Historical Park preserves and interprets the role of Lowell, Massachusetts, in the Industrial Revolution in America, mainly during the 1820s and 1830s. Congress and the U.S. Mint commemorated the park in one of this year's U.S. quarters.

The city of Lowell, Massachusetts, is named after the industrialist Francis Cabot Lowell, the great-granduncle of Percival Lowell. He built the Lowell Observatory on Mars Hill near Flagstaff, Arizona, to investigate Giovanni Schiaparelli's 'canalis' (English translation 'canals') on Mars and to later search for the notorious Planet X. In 1930, astronomer Clyde Tombaugh would later discovered the planet Pluto (later to be reclassified as a dwarf planet) at the same observatory.



Thanks to "Captain" Kirk for sharing this information.



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Star Party Coordinator Rochester: Luka Bazje
Newsletter Editor, AL Rep to the NCRAL, NCRAL Vice-Chair: Bill Davidson

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RAC Social Media



[rochesterastronomy](https://www.facebook.com/rochesterastronomy)

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