The Focal Point

The Atlanta Astronomy Club
Established 1947
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Editor: Tom Faber

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Charlie Elliott March Meeting

This Month — A double-feature for you this month as we meet at 6 p.m., on Saturday, April 22, 2023 at the Charlie Elliott Wildlife Center Campbell Aquatics Building when we present Greg Bragg, a longtime supporter of amateur astronomy here in metro Atlanta as specialty accounts sales manager for Celestron, and Georgia State University graduate student Aman Kar!

Meeting Agenda — First, we'll have opening remarks and general introductions by our club director Steve Siedentop for the benefit of newcomers. Then another most informative presentation of what's up in the sky this (and part of next) month by Observing Supervisor Dennis Ruzeski. And we're also open to those who wish to share any of their own observing experiences or questions.

Following that will be Greg Bragg, whose presentation about the newly released Sky-Watcher "CQ350 Pro" telescope mount is sure to whet the appetite of those in the market for this extremely desirable piece of equipment. Note that Sky-Watcher is a sister company to Celestron and has designed the CQ350 Pro Mount to be a serious contender for beginning and experienced astro-imagers alike. This observatory-class powerhouse of a mount is portable enough for field use while also delivering top-quality performance so you can capture the beauty of the night sky. If you are looking for a mount that can support large OTAs and accessories like guiders, filters, cameras and more, then look no further! The Sky-Watcher CQ350 Pro mount has an impressive 77 lb. payload capacity with built-in USB PC control and a hand controller for versatile mount control options. Get the most out of your imaging sessions with the CQ350 Pro GoTo Equatorial mount from Sky-Watcher!

March was Membership Renewal Month

The AAC has moved to a "one-date-for-all" membership renewal. ALL CLUB MEMBERS, with certain exceptions, should submit their $30 dues for 2023 by the end of March. Please, if you have not already done so, send your renewals to AAC Treasurer Sharon Carruthers, or renew online using PayPal. For more information see:

http://atlantaastronomy.org/?page_id=22

Thank You for your support of the AAC!

Greg himself has appeared at many CE astronomy club meetings in the past and is a familiar face to longtime attendees of the club. His professional career started off in the 1970s selling cameras at a K-Mart; in 1978 he joined Wolf Camera and later went on to positions with Meade Telescopes, Explore Scientific, Pentax, and (since 2019) Celestron. Greg has attended a total of 112 star parties across the United States, including our own Peach State Star Gaze.

Following Greg will be Aman Kar, a third year astronomy graduate student at GSU. whose presentation will cover potential stars that may host exoplanets. In his own words, Aman says the following: "My interest in astronomy started at a very young age when Indian-American astronauts like Kalpana Chawla flew on the Space Shuttle Program. During my early education stages, images from the Hubble Space Telescope were widespread and extremely popular in India and this had me fascinated and intrigued. Before I even started high school, I knew that I wanted a career in Astronomy. I spent many nights during my undergraduate years taking images of stars and identifying potential candidates that may host exoplanets around them. Now in the era of missions like TESS, there have been several thousand exoplanets discovered which begs the need to find those that have potential to sustain life. My research in graduate school has been focused on finding these habitable systems that are within our solar neighborhood."

Following the close of Aman's talk (and weather-permitting), we'll head out (by car) to the nearby Jon Wood Astronomy Field; all are invited to bring your own telescopes or binoculars or at least your interest in astronomy. Sunset on our meeting night will be at 8:12 p.m. and the Elliott Trail sliding gate for incoming traffic closes at 7 p.m., so be sure to be on the observing field before then. The sooner, the better. Club members already have the Elliott Trail gate lock digital combination, others should be on the field by 7 p.m. The gate opens automatically for all exiting traffic no matter what time it is.

Location, Location, Location — To find the Jon Wood Astronomy Field: Head to Mansfield on Hwy 11, Turn off Hwy 11 onto Marben Farm Road (just south of Mansfield), Turn right onto Elliott Trail, Go a short distance, then turn right onto the dirt driveway that leads up to the Jon Wood Astronomy Field.

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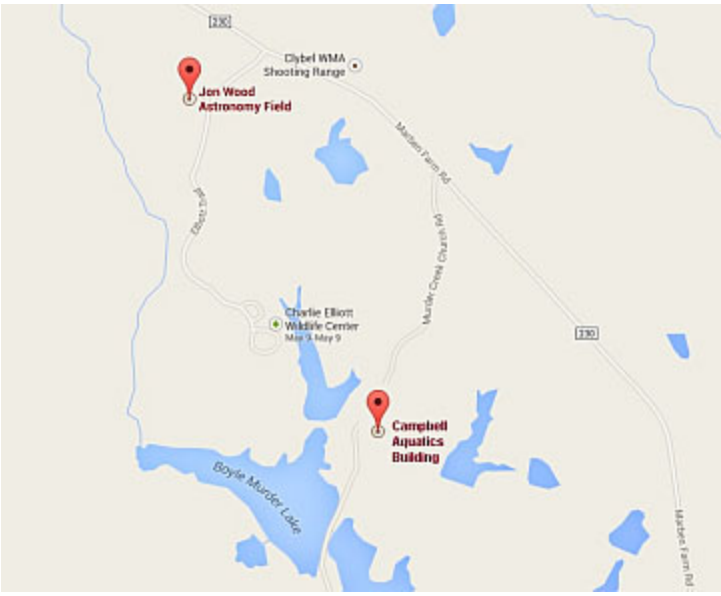

Credit: Google Maps

Observing on the Jon Wood Astronomy Field

Please refrain from using white lights on the observing field to preserve night vision. Red lights are readily available at department and sporting goods stores in the Atlanta area. As stated above all are invited, however, to bring their own telescopes or binoculars or at least their interest in astronomy. For more information about Charlie Elliott Wildlife Center, visit: https://georgiawildlife.com/charlie-elliott-wildlife-center

A Few Items to Note…

Plan to treat this outing like you would a camping trip and be prepared. Dress appropriately for the weather and the environment, bring snacks and drinks if needed, and plan to take your garbage with you. There is a regularly serviced Porta-Potty on Jon Wood Astronomy Field.

The main gate on Elliott Trail closes to new entry at 7 p.m., but will automatically open for exiting traffic at all times. Therefore, if you plan to observe on the Jon Wood Astronomy Field, please arrive before 7 p.m. or else make arrangements with a club member for access.

Our Monthly Meetings and Public Observing Nights

Our monthly meetings and public observing nights are free and open to the public. Visit the "Our Calendar" tab at the top of the page for our 2023 meeting, observing, and outreach schedule. Start times vary through the year so please check back for details.

View our Full Calendar of all meetings & outreach events here:

http://ceastronomy.org/blog/outreach/charlie-elliott-astronomy-calendar

It's easy to become a member of Charlie Elliott Astronomy!

Pay dues with PayPal here: http://atlantaastronomy.org/membership/

Bizarre 200,000-Light-Year-Long Bridge Links a Galaxy to Its Escaping Black Hole

NASA/STScI News Release - April 06, 2023

There's an invisible monster on the loose, barreling through intergalactic space so fast that if it were in our solar system, it could travel from Earth to the Moon in 14 minutes. This supermassive black hole, weighing as much as 20 million Suns, has left behind a never-before-seen 200,000-light-year-long "contrail" of newborn stars, twice the diameter of our Milky Way galaxy. It's likely the result of a rare, bizarre game of galactic billiards among three massive black holes. Rather than gobbling up stars ahead of it, like a cosmic Pac-Man, the speedy black hole is plowing into gas in front of it to trigger new

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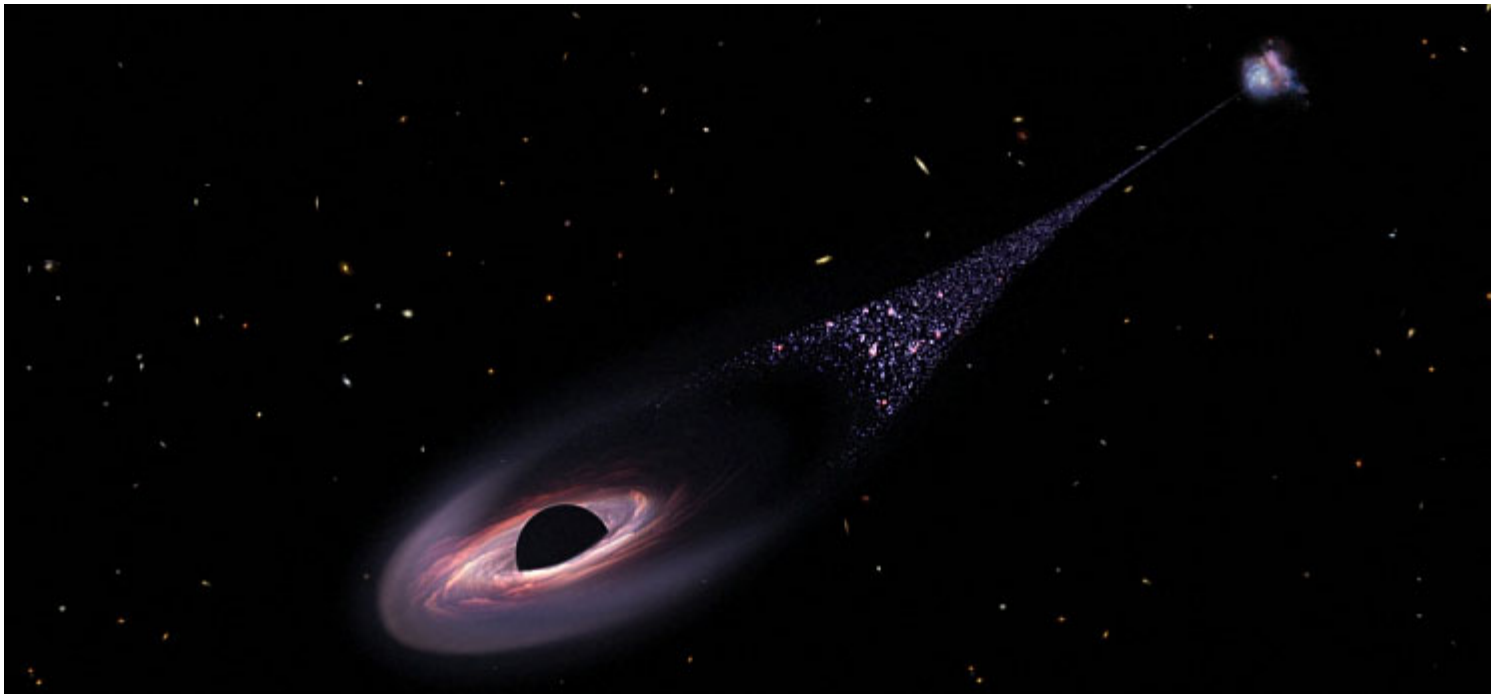
An artist's impression of a runaway supermassive black hole that was ejected from its host galaxy as a result of a tussle between it and two other black holes. As the black hole plows through intergalactic space it compresses tenuous gas in front to it. This precipitates the birth of hot blue stars. This illustration is based on Hubble Space Telescope observations of a 200,000-light-year-long "contrail" of stars behind an escaping black hole.Artwork: NASA, ESA, Leah Hustak (STScI)



Markarian's Chain by Clay Turner

Clay took this image with a RASA 11 on a CGX mount. Focal length is 619mm, F ratio is 2.2. Field of view is 3 deg 17' by 2 deg 12' North is up and East (increasing RA) is left. He used an OSC, ASI2400 MC Pro, and the image is a stack of 48 by 300 sec. Image taken on Jan 28, 2023. See the next page for a wider field view of this image.

The two brightest galaxies are M86 and M84. Below them are NGC4387, NGC4388, and NGC4413. To the lower left of M86 is NGC4425. To the left of M86 is the NGC4438 and the smaller NGC4435. This pair of interacting galaxies are is referred to as Arp 120.

See: https://en.wikipedia.org/wiki/Markarian's_Chain

Markarian's Chain by Clay Turner

Here is a wider field view of Markarian's Chain. The bright galaxy to the lower left is M87 and the two smaller galaxies just to its right are NGC 4476 and NGC 4478. See: https://en.wikipedia.org/wiki/Markarian's_Chain

star formation along a narrow corridor. The black hole is streaking too fast to take time for a snack. Nothing like it has ever been seen before, but it was captured accidentally by NASA's Hubble Space Telescope.

"We think we're seeing a wake behind the black hole where the gas cools and is able to form stars. So, we're looking at star formation trailing the black hole," said Pieter van Dokkum of Yale University in New Haven, Connecticut. "What we're seeing is the aftermath. Like the wake behind a ship we're seeing the wake behind the black hole." The trail must have lots of new stars, given that it is almost half as bright as the host galaxy it is linked to.

The black hole lies at one end of the column, which stretches back to its parent galaxy. There is a remarkably bright knot of ionized oxygen at the outermost tip of the column. Researchers believe gas is probably being shocked and heated from the motion of the black hole hitting the gas, or it could be radiation from an accretion disk around the black hole. "Gas in front of it gets shocked because of this supersonic, very high-velocity impact of the black hole moving through the gas. How it works exactly is not really known," said van Dokkum.

"This is pure serendipity that we stumbled across it," van Dokkum added. He was looking for globular star clusters in a nearby dwarf galaxy. "I was just scanning through the Hubble image and then I noticed that we have a little streak. I immediately thought, 'oh, a cosmic ray hitting the camera detector and causing a linear imaging artifact.' When we eliminated cosmic rays we realized it was still there. It didn't look like anything we've seen before."

Because it was so weird, van Dokkum and his team did follow-up spectroscopy with the W. M. Keck Observatories in Hawaii. He describes the star trail as "quite astonishing, very, very bright and very unusual." This led to the conclusion that he was looking at the aftermath of a black hole flying through a halo of gas surrounding the host galaxy.

This intergalactic skyrocket is likely the result of multiple collisions of supermassive black holes. Astronomers suspect the first two galaxies merged perhaps 50 million years ago. That brought together two supermassive black holes at their centers. They whirled around each other as a binary black hole.

Then another galaxy came along with its own supermassive black hole. This follows the old idiom: "two's company and three's a crowd." The three black holes mixing it up led to a chaotic and unstable configuration. One of the black holes robbed momentum from the other two black holes and got thrown out of the host galaxy. The original binary may have remained intact, or the new interloper black hole may have replaced one of the two that were in the original binary, and kicked out the previous companion.

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M 78 & NGC 2071 by Dan Llewellyn

These are reflection nebula in the constellation Orion. This group belongs to the Orion B molecular cloud complex and is about 1,350 light-years distant from Earth. This images is composed of a stack of 25 - 88 second subs using a C14 Edge f 7 with a Sony a7s and Orion LPR. This image was taken on February 19, 2023.

For more information about M78 see: https://en.wikipedia.org/wiki/Messier_78

When the single black hole took off in one direction, the binary black holes shot off in the opposite direction. There is a feature seen on the opposite side of the host galaxy that might be the runaway binary black hole. Circumstantial evidence for this is that there is no sign of an active black hole remaining at the galaxy's core. The next step is to do follow-up observations with NASA's James Webb Space Telescope and the Chandra X-ray Observatory to confirm the black hole explanation.

NASA's upcoming Nancy Grace Roman Space Telescope will have a wide-angle view of the universe with Hubble's exquisite resolution. As a survey telescope, the Roman observations might find more of these rare and improbable "star streaks" elsewhere in the universe. This may require machine learning using algorithms that are very good at finding specific weird shapes in a sea of other astronomical data, according to van Dokkum.

The research paper (https://doi.org/10.3847/2041-8213/acba86) will be published on April 6 in The Astrophysical Journal Letters.

The Hubble Space Telescope is a project of international cooperation between NASA and ESA. NASA's Goddard Space Flight Center in Greenbelt, Maryland, manages the telescope. The Space Telescope Science Institute (STScI) in Baltimore conducts Hubble science operations. STScI is operated for NASA by the Association of Universities for Research in Astronomy, in Washington, D.C.

M100 and Friends by Richard Jakiel

Richard took this image of the grand design spiral galaxy M100 and the nearby galaxies NGC 4323 and NGC 4328, using a 6-inch Ritchey–Chrétien telescope at the Deerlick Astronomy Village. To the upper right of the image is the near edge-on spiral galaxy NGC 4312. Near the top center is the small fuzzy lenticular galaxy IC 783.

For more information on M100 see: https://en.wikipedia.org/wiki/Messier_100

Clouds in the Martian Sky

NASA's Perseverance Mars rover used one of its navigation cameras to take a series of images of drifting clouds just before sunrise on March 18, 2023, the 738th Martian day, or sol, of the mission. One of those images is shown here. Credit: NASA/JPL-Caltech

To see the video of the drifting clouds:

https://mars.nasa.gov/resources/27363/perseverance-views-drifting-clouds/

The **Atlanta Astronomy Club, Inc**., one of the South's largest and oldest astronomical society, meets at **3:00 P.M.** on the 3rd Saturday of each month at the Fernbank Science Center in Decatur, or occasionally at other locations or times. Membership fees are **$30** for a family or single person membership. College Students membership fee is **$15**. These fees are for a one year membership.

Magazine subscriptions to ***Sky & Telescope*** or ***Astronomy*** can be purchased through the club for a reduced rate. The fees are **$33** for Sky & Telescope and **$34** for Astronomy. Renewal forms will be sent to you by the magazines. Send the renewal form along with your check to the Atlanta Astronomy Club treasurer.

The Club address: Atlanta Astronomy Club, Inc., P.O. Box 76155, Atlanta, GA 30358-1155. AAC Web Page: **http://www.AtlantaAstronomy.org.** Send suggestions, comments, or ideas about the website to webmaster@AtlantaAstronomy.org. Also send information on upcoming observing events, meetings, and other events to the webmaster.

Atlanta Astronomy Club Online

While this newsletter is the official information source for the Atlanta Astronomy Club, it is only up to date the day it is posted. So if you want more up to date information, go to our club's website. The website contains pictures, directions, membership applications, events, updates, and other information. http://www.atlantaastronomy.org You can also follow the AAC on Facebook by joining the AAC group, and on Twitter at http://twitter.com/atlastro.

AAC Officers and Contacts

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Woodruff Observ. Coordinator: Sharon Carruthers Treasurer@AtlantaAstronomy.org

AAC Webmaster: Daniel Herron

The Focal Point

Newsletter of The Atlanta Astronomy Club, Inc.

We're here to help! Here's how how to reach us:

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P.O. Box 76155
Atlanta, GA 30358-1155
www.atlantaastronomy.org
On Twitter at http://twitter.com/atlastro

www.beetagg.com

FIRST CLASS

Calendar by Tom Faber (Times EDT/EST unless noted)

AAC Events are listed in BOLD

Apr 6th, Thursday: Full Moon.
Apr 10th, Monday: Venus near Pleiades evening.
Apr 11th, Tuesday: Jupiter conjunction with Sun.
Apr 13th, Thursday: Moon Last Quarter.
Apr 15th, Saturday: **CEA Chapter Members Observing Night.**
Apr 16th, Sunday: Venus near Hyades evening.
Apr 20th, Thursday: New Moon.
Apr 22nd, Saturday: **CEA Chapter Meeting at 6:00 PM.** Lyrids Meteor Shower peaks. Moon below Venus evening.
Apr 23rd, Sunday: Moon above Venus evening.
Apr 25th, Tuesday: Moon near Mars evening.
Apr 27th, Thursday: Moon First Quarter.
Apr 29th, Saturday: Astronomy Day at Tellus Science Museum - 1PM to 11PM.
May 1st, Monday: Mercury at Inferior Conjunction.
May 5th, Friday: Full Moon. Eta Aquariids Meteor Shower peaks.
May 12th, Friday: Moon Last Quarter.
May 19th, Friday: New Moon.
May 20th, Saturday: **CEA Chapter Meeting.**
May 27th, Saturday: Moon First Quarter.
June 3rd, Saturday: Full Moon.
June 10th, Saturday: Moon Last Quarter.
June 18th, Sunday: New Moon.

For more event listings and updates see the calendar at www.atlantaastronomy.org

Atlanta Astronomy Club Listserv

Becasue of the shutdown of Yahoo Groups, the Atlanta Astronomy Club Mailing List has been moved to IO Groups. You can visit the group, start reading messages and posting them here: https://groups.io/g/AtlantaAstronomyClub.

Focal Point Deadline and Submission Information

Please send articles, pictures, and drawings in electronic format on anything astronomy, space, or sky related to Tom Faber at focalpoint@atlantaastronomy.org. Please send images separate from articles, not embedded in them. Articles are preferred as plain text files with images separate but Word documents or PDFs are okay. **The deadline for May is Sunday, April 30. Submissions received after the deadline will go in the following issue**.