



Charlotte Amateur Astronomers Club
www.charlotteastronomers.org

CAAC February 2022 Meeting

<p><u>Next Meeting:</u> Friday February 18th, 2022</p> <p><u>Time:</u> 7pm ET</p>	<p><u>Place:</u> <i>Virtual Meeting - From the comfort of your home</i></p> <p><u>Address:</u> Zoom web conference link (See newsletter info below)</p>
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Measuring the Universe with Exploding Stars

Type Ia supernovae are a special class of stellar explosions that can be used to measure distances in the universe. Although their applications to cosmology have led to Nobel-Prize-winning research, we still do not understand their progenitor systems or the conditions necessary for detonation. This talk will present an overview of type Ia supernovae, their history and use in cosmology, and a profile of one of the most exciting fields in observational astronomy today.

Speaker: Joshua Reding

Josh Reding is PhD candidate in astrophysics at UNC-Chapel Hill working under Dr. Chris Clemens. He completed his BA in astrophysics and philosophy at Colgate University in 2015. Josh's doctoral research focuses on the remnants of double-white-dwarf mergers as "failed" type Ia supernovae, and he hopes to soon begin a career in astronomical instrument design and mission planning. Josh is passionate about outreach and education, and helped to establish Astronomy on Tap in the Triangle, our local branch of the worldwide event series. Check out our [YouTube channel](#) for more talks about ongoing astronomical research right here in North Carolina!



CAAC Virtual Meeting Login Instructions

1. If you have not used Zoom before go to Zoom.com and download the Zoom program onto your computer.
2. **To Log In:**

Click on the meeting link below:

<https://us06web.zoom.us/j/85169643345?pwd=eEhMcGJpTXpPRWlrSmhCbkhNa3dMdz09>

If needed Meeting ID: **851 6964 3345**

Passcode: **2022**

This manual “log in” rather than invitation to everyone prevents all the emails showing up on the invite. This is a security issue for your privacy.

3. When on the Zoom screen to prevent chaos and overloading bandwidth:
 - a. Mute your microphone-icon lower left of screen
 - b. Mute Video icon on the lower left of screen.
 - c. You will be able to see and hear leaders of the meeting when they are speaking
4. If you wish to ask questions of the speaker after the main presentation:
 - a. Submit on the chat feature which is at the bottom of the screen. You will then type out your question and hit enter.
5. Excellent Zoom tutorials are available on You Tube:
 - a. <https://www.youtube.com/user/ZoomMeetings>

From the President:

Greetings -

As our nation celebrates Black History Month, I would like to highlight the work of NASA's Katherine Johnson, Dorothy Vaughan and Mary Jackson who were the subject of the 2016 film "Hidden Figures". The work of these three African-American mathematicians helped ensure that the Mercury-Atlas 6 program was a success.

Speaking of cool rocket programs ... the Artemis rocket launch is delayed again but has been rescheduled for April 23rd. You can follow the updates on NASA's website and it will launch from the Kennedy Space Center. Artemis is the first moon mission since Apollo.

We continue to monitor the Covid situation and hope to have an announcement on a return to in person meetings very soon.

As always, please feel free to reach out with any questions.

Best,
Joel Levy
CAAC President

CAAC Treasurer's Report as of 1/31/2022

Operating Fund

Purpose: Enable the CAAC to pursue our non-profit goals, maintain our facilities, and run our programs.

*Funds are acquired through ongoing receipts of dues, fees, and annual Southern Star income (or expense).

*Funds are expended to meet operating obligations of the club.

1	Operating Fund Balance: 12/31/2021	\$11,405.38
2	Income: Sale of CAAC owned equipment \$100.00 Dues and Fees \$480.00 GHRO Infr. Improv. Expenses: X-fer \$1,017.09 Expenses: GHRO Utilities (alarm, elec, internet) \$402.90 GHRO Facility \$84.02 GHRO Infrastructure Improvements \$1,017.09 Service fee to accept credit cards \$16.64	
3	Operating Fund Balance: 1/31/2022	\$11,481.82

Non-Operating Funds

Purpose: Administer gifts and donations for designated use.

1	Non-Operating Fund Balance: 12/31/2021 Scholarship Fund \$1,489.36 CAAC Self Insurance Fund \$20,000.00 Contingency Fund \$7,364.12 GHRO Infrastructure Improvement \$14,666.85	
2	Income: Interest \$0.37	
3	Expenses or Transfers: GHRO Infr. Improv. Expenses \$1,017.09	
4	Non-Operating Funds Balance: 1/31/2022 Scholarship Fund \$1,489.36 CAAC Self Insurance Fund \$20,000.00 Contingency Fund \$7,364.49 GHRO Infrastructure Improvement \$13,649.76	

Scott Goforth
CAAC Treasurer

News from GHRO

- 1) I am pleased to announce that Rick Bassham has signed on as Assistant Observatory Director effective immediately. Please welcome Rick in his new role.
- 2) Telescope training is scheduled for February 19, starting at 5 PM. Please sign up for this training by e-mailing me at jegaiser@gmail.com. Our next star party is February 26, starting at dusk.
- 3) As always, please clean up after yourself in the warm up room and the restrooms. Please take the extra minute to wipe out the sink after handwashing and carrying our trash and recycling when you leave. If everyone does their part we'll have a better experience for all.

Finally, if you have difficulty using or closing down any of the club telescopes, please let me know via e-mail or phone call. Recently I found that the 8" telescope was left in an unusual state. As a user, you should always leave the telescope so the next user will have an enjoyable experience.

2020 Capital Campaign update

Here's a snapshot of where we are with the capital campaign. There were 7 items on the initial list, you can see the proposed funds, with their current status below. **Completed projects are shown in RED.**

- Fence along the road, reducing headlight glare \$4200 (Pending)
- New parking lot across the road \$4000 (Scheduled)
- **Electrical upgrade to southern observing field \$1000 (Completed)**
- **Network infrastructure upgrade \$1000 (Completed)**
- Storage container for member telescope storage \$5500 (In progress)
- New road, sidewalk extension and gate \$2500 (Road and sidewalk complete)
- **Hi-definition video security system \$1800 (Completed)**

- 1) The fence is pending a possible land donation which may make the fence moot.
- 2) The parking lot across the road is scheduled for tree removal beginning in March.
- 3) **The electrical upgrade to the southern observing field (the South 40) is complete.**
- 4) **The network infrastructure upgrade is complete.**
- 5) The storage container/building for member telescope storage may be completed and ready by the time you read this!! The original intent was to use a 20 ft shipping container, those plans have changed to erecting a free standing building that will not interfere with anyone's view.
- 6) The new road has been completed, additional railroad ties will be added in the corner to prevent washout. The sidewalk has been extended and additional 20 ft.
- 7) **Hi-def video security system is completed.**

GHRO Information

GHRO is located at [1427 Bloomwood Drive, Lancaster, SC](#). (some GPS show city as Pageland). Gravel road leading to the observatory is located 5.22 miles east of the "522 Grill" on Taxahaw, Rd.

Facebook FAQ

<https://www.facebook.com/CharlotteAstronomers/> scroll down to NOTES, then Frequently Asked Questions page for more information about GHRO. Be sure to share your astronomy photos and observing tips.

Night Sky Network -- "Heading to GHRO"

For updates on GHRO, be sure to join the <https://nightsky.jpl.nasa.gov/index.cfm> "Heading to GHRO" message group.

Jim Gaiser, Director GHRO.

As always, we care about the safety and security of all visitors to our observing facility, the GHRO. To keep us all mindful for the need to keep alert while visiting the observatory, we provide the following reminder. Please share this with your family and any visitors who may join you at the observatory. Thank you.

*** WARNING ***

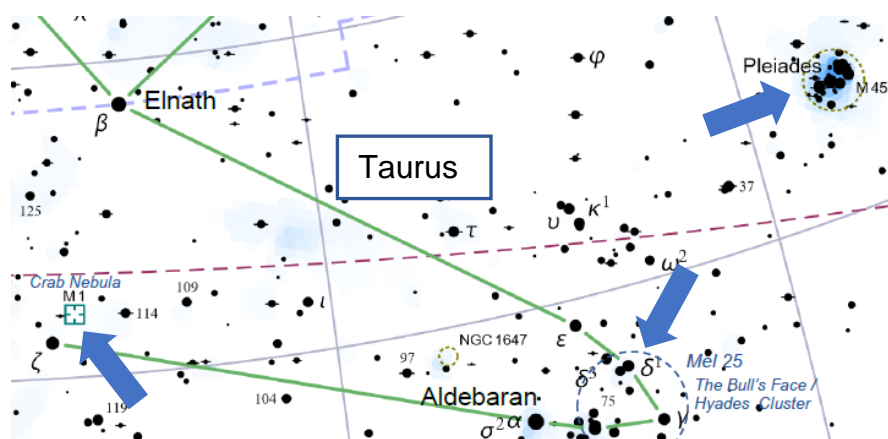
This facility (GHRO) and adjoining area may contain uneven terrain, dangerous wildlife, low light conditions, and dangerous man-made obstacles.

By using this facility, users assume the risk of personal injury, and loss or damage to personal property. All persons should use extreme caution at all times.

Users of this facility agree to hold harmless the Charlotte Amateur Astronomers Club, its Directors, and its members for any and all injuries sustained while participating in club activities or using this facility.

February Sky Challenge

Are you looking for something to discover in the night sky? Try these with a modest size telescope, with some patience and persistence! Or come down to the GHRO and get a really fine look! See the wonders of an ancient nebula and two star clusters.



Have you ever seen the remains of a star in its old age? If not, take out your scope on a clear night and point it towards the constellation Taurus. Locate the 2nd-magnitude star Zeta Tauri, and from here move your telescope one degree northwest.

M1, the famous **Crab Nebula** will be right in the center of your eyepiece's field.

The nebula is all that is left of a supernova that erupted nearly one thousand years ago. Ancient Chinese records indicate that the supernova exploded on July 4, 1054. For several weeks it shone far brighter than Venus and was even visible in daylight. This spectacular event was also recorded by Anasazi Indians, in pictographs on the rock walls of canyons in Navaho and White Mesa (Arizona).

Taurus, the Bull, is an ancient constellation that dates back to when bulls were worshipped in the Middle East. His face is marked by the V-shaped cluster of stars called **The Hyades**, his glinting red eye is the bright star Aldebaran and his long horns are tipped by the stars Zeta and Beta Tauri. Because the Hyades are so scattered, telescopes cannot take the cluster all in at once; even some binoculars cannot squeeze its full extent into their fields of view. The best view of the Hyades will be through binoculars that have fields of view between 8° and 10° in diameter. Anything less and the clustering effect will be lost. To astronomers, the Hyades are one of the most important star groups in the sky, because all of the cluster's stars share a common motion. They drift slowly through space toward a point a few degrees east of Betelgeuse in Orion, a fact first demonstrated by the American astronomer Lewis Boss in 1908.

The **Pleiades**, also known as the "Seven Sisters", is the most famous of all star clusters. The group is very conspicuous, and has been known and regarded with reverence since early times. It was first mentioned by the Chinese in their annals of about 2300 BC, but the earliest European references are somewhat later, in a poem by Hesiod about 1000 BC and in Homer's *Odyssey*.

To a casual glance, the Pleiades appear as a misty patch, but good eyesight reveals six or seven individual stars and some observers with exceptional eyesight have recorded ten or more under excellent conditions. In all, twenty Pleiads shine at sixth magnitude or brighter. Try your luck at Pleiades stalking and see how many you can count!

Acknowledgements:

NightSkyInfo www.nightskyinfo.com/archive for target descriptions, adapted.

Mag Star 7 Star Atlas Project © 2005 Andrew L. Johnson for star maps (clipped)

Edited by Mark Hoecker

What's Up in the Sky?

Highly Recommended Download and print a good *FREE* star map (including interesting objects to look for) monthly from:

Skymap <http://www.skymaps.com/downloads.html>

[You'll also find a good monthly sky map in each issue of *Sky & Telescope* or *Astronomy* magazines.](#)

New to the Night Sky?

Are you puzzled by folks in the club who point up in the sky and say “There’s Gemini... and you can see Leo rising over there...and doesn’t Regulus look clear tonight”? Are you trying to figure out where those darn constellations are? Those large star atlases are pretty intimidating... confusing... and expensive.

A good starting point could be called, *My First Star Atlas*... but in reality it is 4 simple but very helpful *FREE* star chart pages from the Stephen F. Austin State University – called **SFA Star Charts**. Pages 2 & 3 show you about 90% of everything you need to get started. There are even a couple pages that explain how to use a star chart. Clear and straight-forward.

Go to this link and print out the pdf file on the largest paper you have available, though standard letter paper is fine:

<http://observe.phy.sfasu.edu/SFAStarCharts/SFAStarChartsAll.pdf>

While these charts do not show the myriad of deep sky objects, they DO show the constellations and brightest stars – a good introduction to the night sky!

Happy Observing!

An **ENHANCED** Star Atlas – **FREE!**

Our CAAC member, Mark Hoecker, has used the *Mag 7 Star Atlas – Color Milky Way version* (available on the internet) and added some enhancements including:

- A star map index to quickly identify the individual star chart you are looking for.
- Blue directional arrows at the edge of each chart guiding you to the adjacent chart. Also large page numerals were added in the lower right corner, helpful when thumbing through the charts.
- Finally, he manually added common star names and a selection of deep sky object names to the star charts, helpful in finding your way around the sky.

Such enhancements are allowed under the Creative Commons License by Andrew L. Johnson, author of the original charts.

SUGGESTION: While printing at the largest paper size you have available is helpful, a great alternative if you have a “letter size” color printer with a manual auxiliary feed slot, is to print on “legal size” (8½ x 14-inch) heavy paper or even “card stock”. You could also punch holes and place in a legal-size report cover available at office supply stores. You would then have a wonderful star atlas to help you through the night skies!

If you have access to a color printer that can print on 11 x 17-inch paper (or card stock), you can print a magnificent copy whose readability will rival that of very nice, commercially available atlases.

To download your **Mag-7 Star Atlas Milky Way version – ENHANCED**, go to the CAAC website and scroll down the left column to “Mag 7 Star Atlas” and follow the link.

Happy Observing!

Endowment Corner

Matching Gifts:

Matching gifts from your employer can double and sometimes triple the value of your gift to the CAAC Endowment and your support of the astronomical programs important to you. To find out whether your employer offers a matching charitable gift program, please contact your human resources officer.

To make a contribution or learn more, please visit
<http://charlotteastronomers.org/endowment.htm>

Ken Steiner
Chair, CAAC Stewardship Foundation

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