



Charlotte Amateur Astronomers Club  
[www.charlotteastronomers.org](http://www.charlotteastronomers.org)

**Next Meeting:** Friday June 15th, 2018

**Time:** 7:00 PM

**Place:**

Myers Park Baptist Church

Education Building ☐ Shalom Hall (Basement)

1900 Queens Road

Charlotte, NC 28207

### CAAC June 2018 Meeting

#### Program:

#### *The Day Without Yesterday: Cosmology and the Beginning of the Universe*

Our most fundamental questions always concern beginnings ☐ where did we come from and how do we understand that origin. We will discuss the shocking nature of Big Bang cosmology, and see how that view was discovered, verified, and interpreted. We will look at the effects on our view of ourselves that Big Bang cosmology affords and will discuss alternatives to it.

#### Speaker:

Steve Danford taught physics and astronomy at the University of North Carolina at Greensboro for 38 years before his retirement in 2014. He is an observational astronomer, and he served as Physics Department Chair for eight years and as Director of Observatories with responsibilities for UNCG telescopes and planetarium. He has worked with the 0.8-meter telescope at the Three College Observatory and was instrumental in its founding in 1977. He was born in the Midwest, raised in Wisconsin, and educated at Dartmouth College (physics) and Yale University (physics and astronomy). He and wife Linda have three grown children and two grandchildren. He enjoys biking, reading, and anything connected with telescopes. He is the author of numerous publications in the areas of A- and B-type stars, stellar variability, and Population II stars.

---

## FROM THE PRESIDENT:

### Book Recommendation:

I would like to recommend a book by Neal DeGrasse Tyson entitled "Astrophysics for People in a Hurry". It does an excellent job of explaining various aspects of Astrophysics in easy to understand language. The easy read chapters are short (about 20 minutes) but very comprehensive.

### Carl Sproles Items:

Carl Sproles, a longtime member, has several astronomical items we have for sale. I plan to have several eyepieces (9.7 mm to 40 mm), barlows and a polarization filter at the club meeting. These items pictured below are priced economically for quick sale.



Also for sale is a 17.5 inch Dobsonian telescope for which Gayle Riggsbee has constructed new tube mounts for easy breakdown for transport. It has a 2 inch focuser. This telescope pictured below is priced at \$1,500.00. Please contact Gayle if interested in this telescope.



Ken Steiner, President

**CAAC Treasurer's Report as of 5/31/18**

Part 1 of 2

**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 net Southern Star income (or expense).
- Funds are expended to meet operating obligations of the club.

<b>1</b>	<b>Operating Fund Balance: 4/30/2018</b>		\$16,132.42
<b>2</b>	<b>Income</b>		
	Dues & Fees		350.00
	Prepaid Subscriptions		0.00
	Donation		0.00
<b>3</b>	<b>Expenses</b>		
	GHRO Expenses		0.00
	Admin, Miscellaneous		
	GHRO Utilities	60.00	
	Fees for Credit Card Service		313.11
	Meeting Expense (Room Rent)		12.56
	Southern Star Expenses		236.25
	Transfer to Savings		494.10
			0.00
<b>4</b>	<b>Operating Fund Balance 5/31/2018</b>		\$15,366.40

Part 2 of 2

**Non-Operating Funds**

Purpose: Administer gifts and donations for designated use.

<b>1</b>	<b>Balance 4/30/2018: Non-Operating Funds</b>		
	Scholarship Fund		3,315.00
	Contingency Fund		27,933.94
	Long-Term Fund		7201.82
<b>2</b>	<b>Income</b>		
	Donation: Microsoft, BofA, Other		0.00
	Transfer from Checking		0.00
	Interest		
<b>3</b>	<b>Expenses or Transfers</b>	.98	
	<b>Balance 5/31/2018: Non-Operating Funds</b>		
	Scholarship Fund		3,315.00
	Contingency Fund		27,933.94
	Long-Term Fund		7202.80

Benton Kesler  
CAAC Treasurer

---

## CAAC Outreach Updates

*CAAC Outreach needs boots on the ground (with telescopes) for upcoming public events:*

*Check the CAAC Night Sky Network Events calendar for more details.*

*If you are interested in getting more involved with CAAC Community Outreach please contact*

*Kevin Moderow, [kevinmoderow@gmail.com](mailto:kevinmoderow@gmail.com)*

---

### **FROM THE SECRETARY:**

#### **ATTENTION:**

If you are a former CAAC member and have not been keeping up with your membership dues, firstly please come back! We'd love to reconnect you with the love of astronomy through our club, use of GHRO observatory, and the camaraderie of our members.

Please also remember to return your badges on the table near the exit at the end of the meeting before you leave! Doing this will significantly reduce the chances of badges getting lost and reduce the amount of time (and cost) of having to re-create your name tag if it is lost. Thank you!

Register with the **Night Sky Network!** It is imperative that all members of the CAAC join the Night Sky Network (NSN). Many of the clubs outreach activities are managed by the NSN, as well as club communications (newsletters, event notifications, general email). The NSN is a wonderful tool specifically designed for amateur astronomy clubs like ours. Membership allows you to contact other members via email, and receive last minute updates for outreach events via text message: [http://nightsky.jpl.nasa.gov/club-apply.cfm?Club\\_ID=1468&ApplicantType=Member-Pre-Monthly](http://nightsky.jpl.nasa.gov/club-apply.cfm?Club_ID=1468&ApplicantType=Member-Pre-Monthly)

Meeting Gathering - Several CAAC members gather at Panera Bread (601 Providence Road, just a few blocks from our meeting place) at 5:30 prior to the monthly meeting. Anyone interested in sharing a meal with them is welcome.

---

## News from GHRO

1. There will be telescope training for the solar, 8" refractor and the 16" reflector on Saturday night, July 21 (1st quarter moon) beginning at 6 PM. If you haven't been trained, or want a refresher, come one down

2. The July star party will on Saturday, July 7 (last quarter moon) with a backup of July 14 (new moon), come on down!!!

### GHRO Information (see <http://1drv.ms/1m2wPUj>)

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.

### SkyMaps

Check out <http://skymaps.com/downloads.html> for a printable PDF map of the night sky.

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 \*\*\*

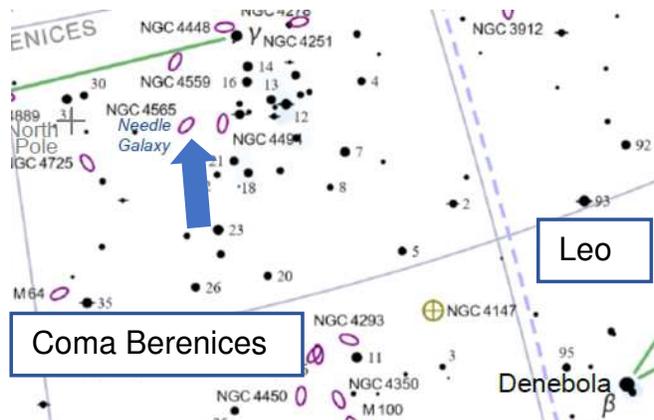
This facility and adjoining area may contain uneven terrain, dangerous wildlife, low light conditions, and dangerous man-made obstacles.

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

# June Sky Challenge

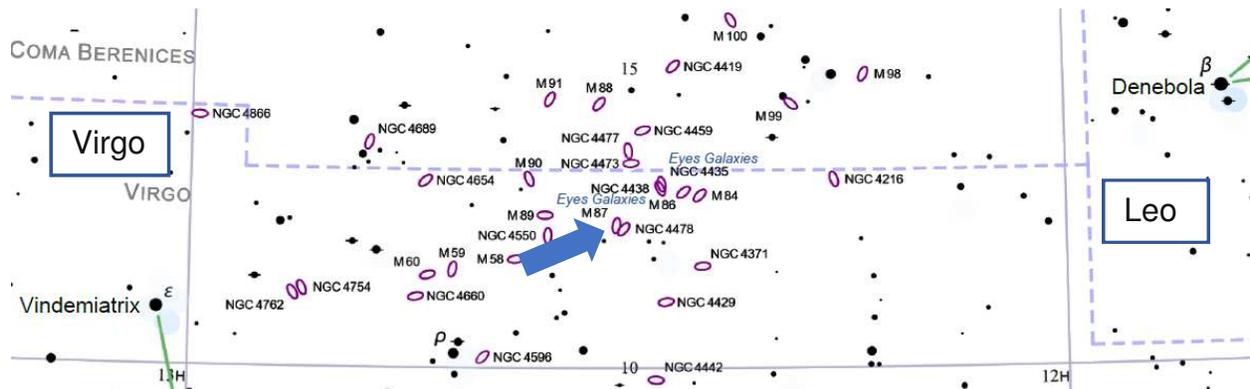
Are you looking for something to discover in the night sky? Try these with a modest size telescope, with some patience and persistence! Or come down to the GHRO and get a really fine look! This month, two large galaxies! Find the "needle" in the celestial haystack.



Coma Berenices is not a large constellation, yet it contains no less than eight Messier objects. Furthermore, in the background are many galaxies, some brighter than magnitude +10. A good example is **NGC 4565**, possibly the most prominent of needle-thin edge-on galaxies in the heavens.

NGC 4565, also known as the Needle Galaxy or Caldwell 38, is the largest edge-on spiral galaxy in the night sky. It is quite similar to our Milky Way, although NGC

4565 is slightly more massive (our Galaxy has a mass of about eight hundred billion suns). The Needle Galaxy contains at least two hundred globular clusters and is thought to have a dark matter halo with a mass of several hundred billion suns.



The Virgo Galaxy Cluster contains about 3000 galaxies, centered on the giant elliptical galaxy **M87**, which is visible as a 9th-magnitude smudge in small telescopes or even binoculars. M87 has a total mass of nearly 800 billion suns, making it one of the most massive galaxies known. Long-exposure photographs show a jet of luminous gas being shot out of M87. Astronomers now believe that the activity in M87 is due to a black hole with a mass of three billion suns, which lurks in the galaxy's nucleus.

M87 is easily located in northern Virgo, about 3° northwest of the 5th-magnitude star Rho Virginis. At low power, the 8.6-magnitude galaxy resembles an unresolved globular cluster, about 3' across and perfectly round. A very bright core, one-third of the galaxy's overall size, blazes in the center.

Acknowledgements:

NightSkyInfo [www.nightskyinfo.com/archive](http://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!**

## CAAC CONTACTS

---

President	Ken Steiner	<a href="mailto:Ksteiner30@gmail.com">Ksteiner30@gmail.com</a>
Vice President	Fred DeAngelis	<a href="mailto:deangelisf@queens.edu">deangelisf@queens.edu</a>
Treasurer	Benton Kesler	<a href="mailto:Benton.kesler@gmail.com">Benton.kesler@gmail.com</a>
Secretary	Nazim Mohamed	<a href="mailto:info@charlotteastronomers.org">info@charlotteastronomers.org</a>
Observatory Director	Jim Gaiser	<a href="mailto:jegaiser@carolina.rr.com">jegaiser@carolina.rr.com</a>
Public Outreach Coordinator	Kevin Moderow	<a href="mailto:kevinmoderow@gmail.com">kevinmoderow@gmail.com</a>