

# **First Light Lite**

Dec 1, 2024

Jim Lynch – Editor

## **Message from the CCAS President**

I'll again keep with a brief initial message followed by some topics. Overall, it's been a good month for CCAS. Here are some details.

### **Communications**

The mailing list is still a bit problematic, but at least we know the problem areas now and hopefully can fix them. We have a list of names of people who are having difficulty receiving our newsletter, and we'll get to them individually if our master list still has problems. . If you use Comcast for email, this may be part of the problem, as many of the missing names use Comcast. We'll also get back to people with various requests.

### **Speakers and Hybrid Meetings**

Our hybrid meeting format has been working out reasonably well, allowing us both an in-person dinner and meeting and also a remote Zoom link for those who can't attend the live event. The upcoming meetings will all be this format, whether the speaker is in-person or not. So, a bit of progress! Next hybrid meeting is Dec 5<sup>th</sup>, and Dr. Mario Motta will be guest our speaker (see below).

### **Star Parties**

Last month, we scheduled the November star party for the week of Nov 4-8. Our best visibility night was the 7<sup>th</sup>, when we had our First Thursday lecture, but rather than having the star party right after the talk, which would rule out families with young children, we decided to wait until Friday and a somewhat less favorable sky condition (i.e. partly cloudy). This worked out, and despite having to wait out a cloud or two, people got to see the Moon, Jupiter (and its moons), and a nice glimpse into what the small Seestar scopes could show (see below).

This month, the star party is scheduled for the week of the 9<sup>th</sup> to the 14<sup>th</sup>. The weather has turned cold, so please dress warmly if you come. The winter nights are beautifully clear, and the fall and winter sky have some wonderful features to see, but our activities are partially outdoors, so be prepared!

We'd also like to consider again an occasional extra star in Falmouth, as we have an 8" Dob, a Seestar, and binoculars available there. Our main problem has been locating an open, light-free venue.

### **Small smart telescopes**

CCAS recently purchased both Unistellar and Seestar small, smart telescopes which are very easy to set up and also provide real time stacked images. They both work with iPhones and tablets and can also provide images to a bigger screen. They are excellent for wide-field sky viewing and imaging. I have some pictures to show (below) from these, and more will be coming. For people interested in imaging, these could provide a simple beginning tool. The Seestar price point, around \$500, is also attractive.

We also plan to devote some time to training our members how to use these new systems. A big thank you to Frank Isik who has written up an instruction set for the Unistellar scope and to Marinna Martini who has done the same for the Seestar. As noted, we plan to devote some time, either during a star party or separately, to having a tutorial session for our members. Charlie Burke will be coordinating these sessions.

Below are very nice examples of how well the Seestar scopes can work, courtesy of CCAS member Allan Collette. Shown are M33 and the PacMan nebula. These are big, wide objects, but perfect for this small scope.



M33, courtesy of Allan Collette.



PacMan nebula, courtesy of Allan Collette.

## **Main Dome Scope News**

Thanks to Charlie Burke, Gary Walker, and Brian Twohig, our main scope is working again. While doing the troubleshooting, they are also making a detailed “operator’s manual” so that other club members can also learn to operate the scope (which is not totally a trivial chore.) When done with this, interested members are invited to “give it a go” using the manual. The more people who can use the scope the better. (That goes for all of our scopes...)

## **Some Additional Astrophotography**

While we’d like to do more in the area of astrophotography as a club, many of our members are good photographers individually, as can be seen on our website. Here is an example of the hard-to-capture nebulosity around the Pleiades, which binoculars or optical eyepiece views don’t see easily.



Fig 5. Nebulosity around the Pleiades. Courtesy Frank Isik, using 9.25" Celestron scope.

### **Initiatives and Committees**

We have devoted some time (yet again) on committee structure, and currently are looking at the following committees: Outreach, Website, History, By-Laws, Speakers, Advertising and Publicity, Membership, and Member Technical Activities (Projects). We could particularly use help with: By-Laws, Advertising and Publicity, and Membership. These committees should not be overly strenuous as to workload, and hopefully you might be interested in engaging in one if you have not done so already!

### **Speakers**

#### **Last month's speaker**

**November 7<sup>th</sup>: Jim Lynch, WHOI/CCAS/ASA**

#### **Topic: A digital Higgs universe and the flow of time**

**Abstract:** As many CCAS members know, I've been working over the past two years on some "just for fun" cosmology theory to present to our club as one of our First Thursday talks. The topic I looked at is: "What happens if you try to go faster than light (FTL)?" In pursuing this, some very interesting results about the nature of space, time, and the evolution of our universe were produced. These results seem consistent and perhaps constitute a serious new look at cosmology. Maybe we live in a universe where the Higgs field produces more than just a very famous boson?!

## Precis:

In considering going faster than light, you enter the complex plane mathematically. In terms of a simple picture, you are rotating spacetime by 90 degrees to get to the other side of the “speed of light barrier,” Einstein’s famous speed limit. In another point of view, you are looking at the past. These are actually pretty uncontroversial statements if you ran them past a physicist. But where do you go from there?

In doing some “creative playtime” to prepare the lecture, I looked at continuing to rotate the universe until I came to 360 degrees, which means you are where you started off, only at a different point in time. Moreover, doing this produces a parallel universe going backward in time. These ideas are strange, but not totally out of the range of current cosmological thought, and so I figured at that beginning point to look into the literature to see if anyone had done similar things. And there *were* some papers. Neal Turok and a very good theory group from the Perimeter Institute had published a paper on a “backward universe” and a Ukrainian scientist, Alexander Antonov had published a paper on the 360-degree rotations and the past. So, I had been beaten to those ideas, which was not exactly a big surprise. But the Turok/Perimeter group’s idea had gotten a lukewarm welcome at best, and the Antonov idea had a theoretical problem that in it created a “firewall” by violating Special Relativity. So, my initial work was unoriginal, unpopular, and had a basic flaw regarding the rotation. Good start!

But no matter – this was for a fun lecture, and besides I *liked* those basic ideas, which were based in some of the fundamental symmetries of nature. So I decided to plug on and see if I could fix the “basically flawed” part. The Perimeter Group papers were solid, even though they were not popular with some of the physics theory world, which has actually been known to be wrong at times. In searching for a cure, I started to look at the “Planck scale” (time, length and energy scales dictated by the three basic constants of nature,  $h$ ,  $c$  and  $G$ , i.e. Planck’s constant, the speed of light, and the gravitational constant.) Buoyed by some useful comments from one of our frequent CCAS guests, HSCfA astronomer Tony Stark, I plunged from the largest scales of the Universe to the smallest scales. These are intimately related to each other in Special Relativity (or SR, which is what I initially looked at for simplicity), as SR displays what is called “global symmetry”

- basically, if the physics works at one point, it works everywhere. So, the ultra-small Planck scale would in essence encompass the Universe!

Rather to my surprise and delight, pursuing things at this scale allowed quantum mechanics to save the theory from the firewall difficulty, and even push things much further. There is a lot of detail to this, but the bottom line is that the results seem to make good sense so far. According to what I've done, we all live in a digital, holographic, stroboscopic universe which has both a forward in time and backward in time component. If that sounds strange, don't totally blame me. Variants of these ideas have actually been around in theoretical physics for quite some time, and my work just seems to synthesize them. If you're interested in the technical details, I've been fortunate to be able to publish them so far as a Woods Hole Oceanographic Institution (WHOI) technical report thanks to being a WHOI emeritus scientist. This report has the title "A digital Higgs universe and the flow of time," and the digital web site identifiers doi 10.1575/1912/70830 and URL <https://hdl.handle.net/1912/70830>.

To conclude this story, my work as an amateur (in this field, though not in science – my resume is at the back of the report) will not be easy to promote to the cosmology community, as there is a (well-founded) skepticism of amateurs, most especially in this area. My aim is to give some talks to Physics and Astronomy departments, and to discuss things with some people who have devoted their careers to this topic. From there, you can go on to producing peer reviewed papers (assuming you're correct!) I've published enough papers to know that this is the accepted route within the scientific community, no matter what the topical emphasis. But in the meantime, this WHOI report, and maybe one more in the future, will be my progress marker. If you do read it, I hope you enjoy what you see, and I'm also happy to answer any questions!

**This month's speaker: Dr. Mario Motta, MD, FACC**

**Date and place: December 5<sup>th</sup>, 7:30 PM. At DYHS and on Zoom**

**Title: Human and Environmental health effects of LED Lighting, and How**

## **Directions to Dennis Yarmouth HS and Werner Schmidt Observatory**

For information on the location of our Dome behind Dennis-Yarmouth High School, click on the purple button "Old Website" and once there, click on "Meeting Location" viewing the two maps that are there: external for the Dome, and internal to locate the high school library where meetings are held.

For meetings, drive along the south entrance road and go around behind the main building. Park in the lot about halfway down the building and go in the back door and turn down the hall to your left to find the library.

For Star Parties at the Dome, drive in the north entrance road all the way past the north side of the main high school building, through a gate, and on to park near our Dome. You can (and should) park on the grass there.

### **H&K directions**

CCAS hosts a dinner gathering for the speaker (if available), members and friends on meeting nights (just before the meeting) at the South Yarmouth Hearth & Kettle restaurant at 5:45pm; (the meetings begin at 7:30 at D-Y.) Please join the group to dine and talk about all things interesting, especially astronomy, before our meeting. The H&K is at 1196 Rt 28, South Yarmouth, about a half mile west of the Station Avenue/Main Street intersection with Rt 28 (stop light). **NOTE:** Since Covid, we have a mix of fully remote and hybrid in-person+ remote meetings. Check the newsletter and/or website to see what the format is each month! There are no dinners when the meeting is fully remote.