

First Light Lite

July 1, 2024

Jim Lynch – Editor

Message from the CCAS President

June was again semi-active for CCAS, with some outreach and a very good speaker. But we *again* didn't have a star party due to the frustrating insurance issue that didn't get resolved until mid-month, after our New Moon window week for the party. That issue cost us two months of WSO activity overall, and in a season that has some of the best galaxy views. Again, our thanks to CCAS Treasurer Ken Brink for dealing with it as quickly as possible.

Our First Thursday talk made up for a lot of our disappointment, however, with national best-selling author Rebecca Boyle giving a great talk on her recent book "Our Moon." She is also signing some author nameplates, so that we will have some signed books to give to the local students, as is our custom. A discussion of her book appears below in "Last Month's Speaker."

We also had one outreach event for the Brewster's Ladie's Library on June 18th, where Jim Lynch gave a talk on the Big Bang. (If you give a public astronomy talk, choose either the Big Bang or Black Holes, which are by far the crowd favorites!)

Star parties and events

We are now back in business legally, and it's been too long since we've been able to invite people to look at the night sky with us. We are scheduling a star party for the week of July 8th to July 12th, and hopefully will get a clear night in that window. George Silvis has said he will bring his Seestar-S50 All-in-one Smartscope with him to demonstrate at this party. This is a very nifty, small, automated astrophotography scope, and will be great to see in action. We will send email to our FLL list and also post a notice on the website the day of the party, hopefully by noon.

As to events, we are discussing a "bring your own telescope" day for July 19th or thereabouts and will be sending notices soon via email and on our website about exact date, time, and details.

Hybrid meetings (Zoom plus live at DYHS)

One of the things that came out of our recent monthly CCAS officers/CCAF board meeting was the agreement that we should have our monthly talks be in a “hybrid” format, i.e. both live from DYHS and with Zoom, whether the speaker is remote or not. That would allow us to have our H&K club dinner beforehand and enjoy some real face-to-face socialization, and not just the (great) talks. The Zoom link will still make the talks available to those who can't come to DYHS that day.

Some events available – Janice Marks suggestions

Janice Marks has two rather nice suggestions for those who may be interested in a good web talk on July 2nd and also some “short course” lectures on the basics of astronomy. We will be further discussing some of these short course ideas as a possible club initiative.

Title: The Pillars of Creation: Multiwavelength Explorations in 3D

Speaker: Frank Summers, Space Telescope Science Institute

Date: July 2, 2024 at 8:00 PM EDT (UTC-4)

Livestream: <https://youtube.com/live/VdBHw5wPVC8>

Information: <https://www.stsci.edu/public-lectures>

The Pillars of Creation in the Eagle Nebula is one of the most iconic images in astronomy. It was popularized by Hubble's striking visible light observations and has been followed up with Webb's amazing infrared views. The scientific story of the pillars involves the interplay of stars and dust, with stars forming inside vast dust clouds and then re-shaping those clouds with their emissions. Dr. Summers will detail the telltale features of these interactions and explain the knowledge gained through multiwavelength observations. Going further, he will explore the pillars in three dimensions with a brand-new visible and

infrared flythrough visualization of the pillars created by the AstroViz Project of NASA's Universe of Learning.

As we consider how to select and organize the CCAS First Thursday lectures, I suggest that one "thread" might be a refresher on the basics of Astronomy and Physics for those who are long removed from their time in classrooms.

Best,

Janice

Here are just a few of the "starter ideas" and links Janice suggested. How do people feel about these?!

1. Why study Astronomy?

<https://www.pbs.org/wgbh/nova/einstein/lrk-hand-emc2expl.html#:~:text=Einstein's%20Big%20Idea%20homepage,forms%20of%20the%20same%20thing>

2. Big Questions in Astronomy and Cosmology

<https://www.cfa.harvard.edu/big-questions>

3. Redshift, Blueshift and multiwavelength observing

<https://www.space.com/25732-redshift-blueshift.html#:~:text=When%20an%20object%20is%20moving,to%20charting%20the%20universe's%20expansion>

Larry Summers - Pillars of Creation in multiwavelength

<https://youtube.com/live/VdBHw5wPVC8>

5. How black holes grow

https://www.sciencedaily.com/releases/2024/06/240620152335.htm?utm_source=substack&utm_medium=email

- Space race and/or Space collaboration

China Becomes First Country to Retrieve Rocks From the Moon's Far Side

https://www.nytimes.com/2024/06/25/science/change-6-china-earth-moon.html?unlocked_article_code=1.2U0.BqR6.4S2TzeCAS_61

https://www.sciencedaily.com/releases/2024/06/240620152335.htm?utm_source=substack&utm_medium=email

6. Exoplanets

<https://science.nasa.gov/universe/exoplanets/nasas-tess-finds-intriguing-world-sized-between-earth-venus/>

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Dues

This year, as we have resumed normal activities, we are requesting dues at a flat rate of \$15 per family (or individual, if there is no family to consider. Dues are waived for any students.) Dues will be due July 1st. If you have sent our treasurer (Dr. Ken Brink) dues in the last year (during 2024), you will be considered to have paid dues for this year. If not, we would ask you to submit them, as this money is used to support our activities with the schools and the public. (We don't buy equipment, as that is the Foundation's function.) Dues should be sent to: Dr. Ken Brink, 16 Greengate Rd., Falmouth, MA 02540. If you send your dues to the Observatory or DYHS, they will be delayed in their transmission to the CCAS Secretary. Thank you in advance!

Officer Elections - July 4th 5 PM deadline

As you may have noticed, our elections are in a bit of an ad-hoc format this year due to the July 4th holiday being on our First Thursday meeting night. We now have a slate of officers and some initial votes cast. The officer's slate is:

CCAS President, Jim Lynch; CCAS Vice-President, Frank Isik; CCAS Secretary, open; and CCAS Treasurer, Ken Brink. For the CCAF Board position, Brian Twohig has been nominated. If you wish to vote or nominate someone, you have until July 4th. At 5PM July 4th, votes will be formally counted. The election results will be announced shortly thereafter. Please email Chris Lynch at cca@capecodastronomy.org with your vote and/or nomination.

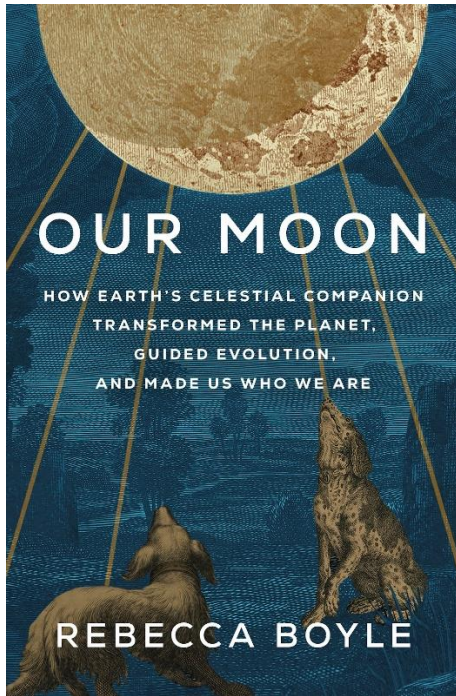
Speakers

Last Month's Speaker (June 13th): Ms. Rebecca Boyle

Title: Our Moon

CV: As a journalist, Rebecca Boyle has reported from particle accelerators, genetic sequencing labs, bat caves, the middle of a lake, the tops of mountains, and the retractable domes of some of Earth's largest telescopes. Her first book, *OUR MOON: How Earth's Celestial Companion Transformed the Planet, Guided Evolution, and Made Us Who We Are* (Random House, 2024) is a new history of humanity's relationship with the Moon, which Rebecca has not yet visited on assignment. (Book is available through the Cape's "Clams" system libraries.) Based in Colorado Springs, Colo., Rebecca is a contributing editor at *Scientific American*, a contributing writer at *Quanta Magazine*, and a columnist at *Atlas Obscura*. She is a frequent contributor to the *New York Times*, *The Atlantic*, *Smithsonian Air & Space*, and many other publications. Rebecca's work has been anthologized multiple times in the *Best American Science and Nature Writing* series, and she is the recipient of multiple writing awards throughout her career. As a daily newspaper reporter, Rebecca interviewed presidents and presidential candidates, state and local lawmakers, and covered major criminal court cases. Rebecca got her start in a small newsroom but attending Space Camp in 6th grade is really what set the course of her career.

Abstract: The Moon is one of Earth's most unique features, and it shapes all of the other things that make our planet special, from its geology to its multitudes of life. Earth would be a vastly different planet without our Moon, and we would be different too. In this lecture, author Rebecca Boyle will dive into the spectacular journey that the Earth and the Moon have shared, providing a new perspective on human history through a lunar lens. You will come away from this event with a new appreciation for our Moon as something greater than just a beautiful object in the sky.



[Our Moon: How Earth's Celestial Companion Transformed the Planet, Guided Evolution, and Made Us Who We Are](#) (Random House)

USA Today and ABA Indiebound Bestseller, NYT Book Review Editor's Choice

Precis: Rebecca Boyle's talk was a unique one, in that she had no PowerPoint presentation or notes that she consulted. Rather, she spoke about her book for an hour strictly from memory and did a far better job of it than most of us could do from detailed notes attached to a PowerPoint. And kept the audience spellbound and engaged.

Her book on "Our Moon" is aimed at a general audience, and so should be accessible to all our members and friends. It certainly has her engaging style, but it also has something else - a breadth of topics that you normally wouldn't see in an astronomy talk, even one on a more historical topic. The book covers lunar and planetary science, certainly, but also covers history, mythology, sociology, timekeeping, evolution, politics, and much more. It is a fascinating read in many dimensions!

July 4th Speaker – None. Enjoy the holiday!

August 1st Speaker – Dr. Tony Stark, Senior Astronomer, Harvard & Smithsonian Center for Astrophysics

CV: Antony Stark is a pioneer of Antarctic Astronomy and is a founder and designer of the South Pole Telescope (SPT), which is among the most important instruments for observational cosmology. He is PI and designer of the Parallel Imager for Southern Cosmology Observations (PISCO), a photometric camera on the Magellan Clay telescope for taking fast simultaneous g, r, i, and z band images. PISCO is being used to take the first images of galaxy clusters discovered by the SPT to determine their mass by gravitational lensing analysis. PISCO is also in use by several groups from Magellan consortium institutions to study asteroids, galaxy formation, exoplanets, and X-ray sources. Stark is a member of the STO and GUSTO balloon-borne telescope teams for Milky Way and Magellanic Cloud TeraHertz spectroscopy surveys of the dominant cooling lines of the interstellar medium.

Title: "The LSST Survey and You"

Abstract: The Large Synoptic Survey at the Vera Rubin Observatory is starting up and will operate for the next decade. It will survey the Southern Sky in six visual-wavelength bands with an 8-meter primary mirror, covering a large fraction of the sky repeatedly with billions of CCD pixels, in order to detect time-variable sources and build up a long exposure of deep sky objects over the years. It will be producing data as if from a fire hose, data that will be immediately available to the public, and that includes you!

September 5th Speaker: Dr. Antonio Hales, National Radio Astronomy Observatory

Title: ALMA Studies of Eruptive Stars

CV: Antonio Hales is a scientist and the Deputy Manager of the North American ALMA Regional Center at the National Radio Astronomy Observatory (NRAO). He works in astrophysics, education, outreach, and the art-science relationship. Hales is also the lead of the Telescope Interface Group and his research interests include the formation and evolution of planetary systems, protoplanetary and debris disks, and episodic accretion in young stars.

Abstract: Stars are now believed to acquire a significant fraction of their mass in short episodes of accretion outbursts. This episodic accretion picture has replaced the traditional steady-state accretion model. It is changing our understanding of how stars gain their mass (and the origin of the IMF), binary formation, planet formation, the luminosity spread in young clusters, disk chemistry, and snowline migration. Despite its relevance to the field, the physical mechanisms responsible for episodic accretion still need to be better understood. In this talk, I will present recent observational and modeling advancements aimed at constraining the physical properties of outbursting sources to help understand what drives this critical phase of star formation.

October 3rd Speaker: Kevin Hainline, Arizona University

Topic: Distant galaxies (see note below from Kevin)

While my research topic is ostensibly black holes, in the last few years I've been heavily involved in looking for ultra distant galaxies, and we made a big splash by finding the current record-holder:

<https://www.forbes.com/sites/jamiecartereurope/2024/05/31/profound-moment-as-webb-sees-most-distant-galaxy-close-to-big-bang/>

<https://news.arizona.edu/news/webb-telescope-spots-two-most-distant-galaxies-ever-seen-cosmic-dawn>

I'll likely be discussing this at the lecture!

Directions to Dennis Yarmouth HS and 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. **NOTE:** We are redoing the website, so that this information may become dated soon. We intend to move any currently useful information to our new website.

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.