First Light Lite

August 3, 2025

Jim Lynch – Editor

Events – July

July was a bit quieter month for CCAS, with no First Thursday speaker or Third Tuesday WSO workday. But we did have an excellent night for our star party at WSO on the 22nd. After a brief lecture on what we can see with astrophotography while the sky darkened, people went outside and actually saw some of the objects that were featured in the slide show appear in near real time on cellphones and tablets using the small Seestar scopes. There is nothing like seeing things done before your eyes to convey the fact that these odd astro-objects are indeed real. The Veil Nebula (a supernova remnant in Cygnus) was a particular hit, and of course the Whirlpool Nebula.

Our originally scheduled speaker for July, Dr. Avi Loeb from Harvard, switched to an August date (the 21st via Zoom) and so we will have *two* excellent speakers from Harvard (the other being CCAS's old friend Dr. Antony Stark) talking to us. More on that below.

Elections

Our elections are usually held in July, and this year was no different. We held them at our Zoom meeting on the 16th, with either email vote or Zoom vote being accepted

The current CCAS officers will stay another year in office, specifically: Jim Lynch, President; Frank Isik, Vice-President; Chris Lynch, Secretary; and Ken Brink, Treasurer.

Nobody volunteered for the open position on the CCAF Board, which would replace previous Secretary Jonathan Hatch. We need someone for this position, and if you are interested in this, please contact Jim Lynch at jlynchwhoi@gmail.com . The Board can approve an appointment after elections. The job is not onerous and normally takes only an hour or two of time per month.

Events August

The events for August that are upcoming are: 1) the First Thursday talk on the 7th (see below), 2) the Third Tuesday WSO workday on the 19th, 3) the Third Wednesday CCAS/CCAF Zoom meeting on the 20th, 4) a *second* talk on the 21st (again, see below for details) and 5) the New Moon star party window week, from August 25st to July 28th.

We also have a fair number of public outreach events scheduled with schools and Cape organizations over the next 2-3 months and need more volunteers to run them. If you are interested, please email jlynchwhoi@gmail.com.

Dues

Our CCAS dues policy has been rather flexible since Covid, for obvious reasons. However, since our activities have stabilized recently, a more consistent policy should be implemented.

After some discussion, we've come to the agreement that our dues should be light and voluntary unless you want to use/borrow equipment owned by the club. Dues this year (which were due the end of July but can be paid anytime) are $15 per member or family of members, and free for students. This small amount is used solely for club activities, and not for equipment, which is CCAF's province. We appreciate the contributions from people who enjoy our activities, but as our expenditure is generally small, we don't insist on dues to enjoy them.

Dues can be paid at our "in person" DYHS meetings or via mail to: Dr. Ken Brink, 16 Greengate Road, Falmouth, MA 02540. Please do not send them to the DYHS or to the Observatory, as this can delay receipt substantially.

Upcoming Speakers

August 7th – Dr. Tony Stark, HSCfA. (An old friend of CCAS)

Venue: DYHS and on Zoom

Bio: Antony Stark is a pioneer of Antarctic Astronomy and is a founder and designer of the South Pole Telelescope (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.

As a personal note, this is Tony's fifth talk to our club. He comes down to the Cape each summer, and CCAS is one of his regular stops when here. He has been our "Current Astronomy 101" teacher, and I hope that people can join him and his wife Ellen for dinner with us when he comes here! Thank you, Tony!

Topic: "The Shapes of Galaxies Past and Present"

Abstract: When we could only see nearby galaxies at low redshift, astronomers were concerned with understanding the shapes of galaxies as a result of the physical processes within them: ellipticals, spirals, and "irregulars". I'll discuss a project I did on this topic a half-century ago, at the suggestion of two great names: Martin Schwarzscild and S. Chandrasekhar. New, powerful telescopes are now showing us the formation of galaxies back in time at high redshift --- they're very different, and there are aspects we don't understand, but are working on as active research.

July talk which was postponed to Aug 21st

Speaker: Dr. Avi Loeb, Harvard University

Venue: Zoom only

Bio: Abraham (Avi) Loeb is the *Frank B. Baird, Jr., Professor of Science* at Harvard University and a bestselling author (in lists of the New York Times, Wall Street Journal, Publishers Weekly, Die Zeit, Der Spiegel, L'Express and more). He received a PhD in Physics from the Hebrew University of Jerusalem in Israel at age 24 (1980-1986), led the first international project supported by the Strategic Defense Initiative (1983-1988), and was subsequently a long-term member of the Institute for Advanced Study at Princeton (1988-1993). Loeb has written 9 books, including most recently, *Extraterrestrial* and *Interstellar*, as well as over a thousand scientific papers (with h-index of 131 and i10-index of 614) on a wide range of topics, including black holes, the first stars, the search for extraterrestrial life and the future of the Universe. Loeb is the Director of the Institute for Theory and Computation (2007-present) within the Harvard-Smithsonian Center for Astrophysics, and also serves as the Head of the Galileo Project (2021-present). He had been the longest serving Chair of

Harvard's Department of Astronomy (2011-2020) and the Founding Director of Harvard's Black Hole Initiative (2016-2021). He is an elected fellow of the American Academy of Arts & Sciences, the American Physical Society, and the International Academy of Astronautics. Loeb is a former member of the President's Council of Advisors on Science and Technology (PCAST) at the White House, a former chair of the Board on Physics and Astronomy of the National Academies (2018-2021) and a current member of the Advisory Board for "Einstein: Visualize the Impossible" of the Hebrew University. He chaired the Advisory Committee for the Breakthrough Starshot Initiative (2015-2024) and served as the Science Theory Director for all Initiatives of the Breakthrough Prize Foundation. Click here for Loeb's essays on innovation.

Title: The Search for Interstellar Objects of Technological Origin

Abstract: Over the past decade, the first four interstellar objects were discovered. They include the interstellar meteor, IM1, detected on January 8, 2014, `Oumuamua detected on October 19, 2017, and Borisov detected on August 29, 2019. Among these, the first two appeared anomalous relative to known solar-system rocks whereas the fourth appeared to be a familiar comet. IM1 exhibited the highest material strength among all meteorites in the CNEOS catalog of NASA, `Oumuamua exhibited a flat shape and non-gravitational acceleration with no detectable cometary evaporation. In June 2023 we recovered 850 spherules from the Pacific Ocean site IM1. A tenth of these submillimeter meteoritic spherules displayed a unique chemical composition, different from familiar solar system materials. Currently, new Galileo Project Observatories are monitoring millions of objects near Earth in the infrared, optical, radio and audio and analyzing their nature with machine-learning software. Are any of them Unidentified Anomalous Phenomena? Forthcoming data from the Rubin Observatory in Chile will offer additional clues on interstellar objects. Is space trash from extraterrestrial technological civilizations lurking among the natural interstellar rocks?

September 4th - Dr. Mario Motta.

Topic: Building and Using his 32" Telescope

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 5:30 PM; (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.