First Light Lite

September 1st, 2018

Jim Lynch - Editor

Summer is now in its last three weeks! But it has treated us well, and July and August featured our full complement of three star parties per month. Some nights were hazy, and some were bright due to the moon, but all worked, especially due to the beautiful arc of four planets splayed across the summer sky. Venus, Jupiter, Saturn and Mars clearly showed off the plane of the solar system to visitors, and the CCAS/CCAF scopes gave many visitors their first views of Jupiter's bands and moons, and Saturn's rings. I was gratified to hear numerous nice remarks from those who visited, many with their families.

I also noted that one of Joel's favorite activities, a "tour of the sky" using a laser pointer, went over extremely well and I'd like to see that as a regular feature at our star parties.

One note I made at the last star party is that we need a bit more in the way of "rainy day" activities and shows for the public on those (not infrequent) Cape Cod days when the weather is not conducive to astronomical observation. I am getting a hands-on spectroscopy demonstration rigged for WSO, and we also should develop a few more "pre-canned" movies and presentations.

On a similar topic, we are working to finalize plans for our September "Day of Astronomy" program (dedicated to Werner.) I have sent a straw man schedule of activities to the CCAS officers and CCAF board to consider, and am hoping to get things solidified soon. Date is the weekend of September 22nd, with exact timing TBD.

Dues were due in August, and if you haven't paid them yet, Mike Hunter will be happy to collect them from you at the September meeting. Though checks are preferred, Mike Hunter will probably take anything that he get - Bitcoin, Chinese Yuan, IOU's, whatever! ☺ If you can't pay in person, contact Mike Hunter via email (mamhunter@yahoo.com), and he'll direct you as to where to send your check.

September 6 CCAS Speaker

Dr. Mike Hunter, CCAS

Title: Astrophotography at CCAS

Our Treasurer and CCAF Board Chair, Mike Hunter, will wax poetic about the do's and don'ts of astrophotography, using examples from his and other members experience and files. (Be warned: he will show show "the good, the bad, and the ugly!")

Concentration will be on equipment and techniques. Of particular interest will be a discussion of what equipment you need to be successful, and what you can ignore. Mounts will be particularly stressed. Some basic optics and processing will be discussed, but the emphasis will be on photographic equipment matters.

Upcoming Speakers and Topics

October - Dr. Tony Stark, HSCfA. Cosmology topic TBA.

November - Dr. Martina Arndt, Bridgewater State. Solar Eclipses.

December - Dr. Jim Lynch, CCAS. The Solar System - Its Formation and Basic Dynamics.

Last Month's *Speakers* - Abstracts and Discussion

Last month, we were graced with *two* excellent speakers, Drs. Anastasia Fialkov and Marion Dierickx of the Harvard Smithsonian Center for Astrophysics. Despite having their venue unexpectedly changed from the DY HS Library to the Werner Schmidt Observatory, both Anastasia and Marion soldiered on and gave very well received talks, and answered numerous questions. Below are their abstracts, along with a few extra words of description.

Dr. Anastasia Fialkov, HSCfA
Title: "Mysterious Fast Radio Bursts"
Abstract: Recently discovered in archival pulsar survey data (Lorimer et al. 2007), Fast Radio Bursts (FRBs) are a new astrophysical phenomenon of unknown origin. FRBs are short (few milliseconds) and highly energetic bursts of radio waves. From the 35 published events we estimate that FRBs occur roughly 1000 times per sky per day. Properties of the observed events indicate that they are extragalactic and, possibly, originate at large cosmological distances. However, the nature of these bursts remains a mystery. In my talk I will review properties of FRBs and highlight efforts to find new sources.

NOTES: Many of the questions asked of the speaker were about what the FRB's were, to which Anastasia replied an honest "We don't know yet." A big part of the talk was about how, even if you don't know what they are, you can still use the dispersion of their signals as a probe to look at the electron density along the path from the FRB to us. Electrons scatter radio waves, so electrons along the path will change the amplitude and frequency dependence of the original source spectrum.

Dr. Marion Dierickx, HSCfA
Title: Galactic Collisions in the Local Group
Abstract: As the nearest galactic laboratory available for study, the Local Group harbors the faintest and most dark-matter dominated known galaxies. The sample of observed dwarf satellites surrounding the Milky Way and Andromeda is continually growing, and so is the list of diverse detected substructures in the outer reaches of our Galaxy's halo. Knowledge of our own cosmic backyard is especially critical to building up our understanding of the Universe at large. In this effort, simulations are our only access to the time axis, as they allow us to reconstruct past possible histories of the interplay between members of the Local Group. I will present new simulations of past collisions between two satellite galaxies in the Local Group with their more massive hosts: M32 with Andromeda and Sagittarius with the Milky Way. I will then discuss how these simulations help us rebuild the Local Group archaeological record.

NOTES: Perhaps the biggest loss of our move over to WSO for the talks was that Marion wasn't able to show her computer movies, as we didn't have the needed

connector. But what she did show was great stuff... how one can study both the Milky Way's matter distribution and the properties of one of the small galaxies it "eats" (the Sagittarius Dwarf) from the Sgr Dwarf debris trail that is observed today. This is a hard, computer intensive "inverse problem" in astronomy.

August Meeting Minutes and CCAS Business

Due to our venue being changed, the CCAS President was scrambling for a while, and absent-mindedly left his business meeting notes in his car. So we shelved the business meeting segment for the next time. No reports of serious damage have been received due to this somewhat unusual event.

Star Parties

From September thru June, we will have two regularly scheduled Star Parties each month taking place at 8:00-10:30pm on the Thursday closest to the date of First Quarter Moon (about 7 days old). This is an increase from our old schedule of one per month in the fall, winter, and spring.

From July through August, we have three regularly scheduled Star Parties each month taking place on Thursdays at 8:30-10:30pm.

When the moon is near its First Quarter, the terminator (the line dividing light from dark) is favorable for viewing sunlight or shadow on the sides of craters. This time is also favorable for observing the dark side of the moon occult (visually cover) stars in the sky as the moon moves in its orbit. Depending upon the calendar, we may also be able to observe planets and other celestial objects.

Here is the schedule for fall “Star Parties” up to December, 2018; **the public is cordially invited**:

September 13, 20

October 11,18

November 8,15

December 13

POSSIBLE CANCELLATIONS for Star Parties: Cancellations will be very rare since we have lots to do "inside" as well as outside. Even if the forecast is "iffy"; the Staff Leader for the night may elect not to cancel in spite of possible clouds. If clouds arrive after staff and guests have convened, a virtual Star Party will usually take place indoors to include overviews of the sky for that night using computer simulations with our big screen TV, videos of interesting sky events recorded previously, demonstrations and/or training on the use of scopes and other equipment, and consultation/discussions on things astronomical, etc.

However, sometimes a solid forecast for overcast or rain or a storm will result in cancellation of a given Star Party. IF IN DOUBT ABOUT THE WEATHER AND THE STATUS OF A STAR PARTY, CALL THE OBSERVATORY AT 508-398-4765 AFTER 7:45 pm. No answer means the event has been cancelled.

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.

For meetings, drive in the south entrance road and go around behind the main building. Park in the lot about half way 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.

H&K directions

Please be reminded that Gus Romano or his delegate “host” a dutch-treat dinner gathering for members and friends each CCAS meeting night (before the meeting) at the South Yarmouth Hearth & Kettle restaurant at 5:45pm; (the meetings begin at 7:30 at D-Y.) The speaker for each meeting is always invited. Please join the group to dine and talk about all things interesting, including astronomy, each month 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).