

Meeting Minutes 9/11/2020

- General Club Announcements
 - ATOMM
 - Tutoring for physics, astronomy, and math by experienced graduate students (over Zoom!)
 - M (2-4 pm) Yujing Qin
 - T (noon - 2 pm) Ryan Keenan
 - W (1-2 pm) Ryan
 - Th (2-3 pm) Yujing
 - Come to meetings to fill out the active members form! Get listed as an active member!
 - Club Outreach Opportunity
 - 2nd Graders (about 70 students)
 - Interactive Activities (At least as much as we can through Zoom) to be determined
 - Looking for volunteers who are interested in helping lead/guide an activity possibly through breakout rooms in Zoom
 - If Interested please fill out [poll](#)
 - This will be a trial run for outreach via Zoom
 - Club Climate Survey
 - 100% optional survey of club members
 - Major/Minors
 - Nationality
 - Ethnicity
 - Gender Identity
 - How you heard about Astro Club
 - Data will be confidential and can be as anonymous as you like
 - Will be used by club, faculty, and VeritAstronomy to better understand our demographics (Sai will send out link)
- TIMESTEP
 - TIMESTEP - Led by Dr. Gurtina Besla
 - Next meeting: Scientific Coding: Research and Examples Part 1
 - When/Where: Wednesday, September 16th over Zoom at 5 pm
 - You must register your UA email in advance to receive the Zoom link
 - [Link to TIMESTEP website](#)
- What Up Astronomy Club with Yancy
 - Jupiter and Saturn in the Southern sky, along with Mars in the East
 - Possible to see the Milky Way if you are in a dark spot
 - Might be tough due to the fires
 - Saturday *:05pm Tucson time, meridian transit
 - Last time: Phaet should be brighter than Epsilon Leoporis, but appears fainter on the webcam. Why?

- Planck functions, depending on their temperature, stars peak at different wavelengths
 - Planck functions never cross each other!
 - A hot star will always put off more light than a cooler star at any wavelength
 - Stars have different sizes, so the extra surface area makes the observed flux at certain wavelengths brighter for the bigger star
 - Distance, atmospheric scattering, and the infrared camera all impact it as well
- Astronomy Question of the Week with Don
 - Another solution to the Fermi Paradox
 - Scientists say that life could survive inside of stars via Futurism
 - Cosmic strings and monopoles as a source of life
 - What's going on in this picture? It's a balloon in space! How high up was this image taken?



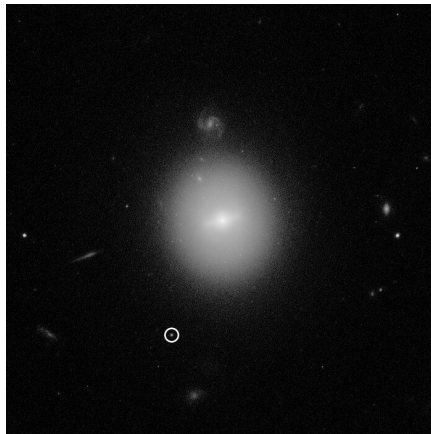
- You need to get up pretty high to see that space is black
 - When a weather balloon gets up high enough, the balloon shreds due to its own internal pressure
- True or False
 - The sun always rises in the east and sets in the west. False.
 - The sun is overhead at noon. False.
 - The north star is the brightest star in the nighttime sky. False.
 - The sun is a yellow star. False.
 - On a dark night, you can see millions of stars by eye. False.
 - Days get shorter in winter and longer in summer. False.
 - The moon comes out at night. False.
 - On the equinox, there are 12 hours of day and night. False.
 - All are false, if strictly interpreted.
- When and how was this picture (aka a movie) taken?
 - Geostationary satellite
 - Taken over the course of a day

- Brighter spot over the land and sea, in direct alignment with the Sun
 - On a equinox, vernal or autumnal
- Autumnal Equinox
 - September 22 (6:30am),
 - Tucson's sunrise occurs at 6:12am
 - Take some cool pictures and share them!
- What happened here?
 - Internal reflection, lens flare



- Telescope Time 🧐🚀 with Harrison
 - Hubble Space Telescope
 - Launched April 24, 1990
 - Named for Edwin Hubble, who discovered the expanding universe
 - Very effective for its size because it is above the atmosphere
 - <https://hubblesite.org/>
 - <http://spacetelescopelive.org/>
 - Nearly Fatal Flaw
 - PSF were over an arcsec instead of < 0.1 , which made faint and

- high-contrast objects unobservable
 - Allen Commission established to determine and solve the problem with the telescope
 - The null corrector was misassembled leading to the mirror being grounded
 - The mirror was ground to the wrong specifications, but was still very precise
 - Corrective lenses would be made for the optics and installed on the next service mission in 1993
 - Political backlash nearly killed the program of \$1.6 billion
 - Now the company that made the mirror is out of business
- The Hubble telescope has glasses :)
- Fixed with a space shuttle mission
- Its data has revolutionized many fields of astronomy
- Astro News of the Week with Savannah
 - Hubble Finds Best Evidence for Elusive Mid-Size Black Hole
 - <https://www.spacetelescope.org/news/heic2005/>



- Meet the Messiers with Sean
 - Messier #15
 - Apparent magnitude of 6.2, can see it with binoculars!
 - Discovered in 1746 by Jean-Dominique Maraldi
 - First globular cluster known to host a planetary nebula
 - Pease 1 was detected by Francis G. Pease in 1928, one of only 4 planetary nebulas known to exist in globular clusters
 - Planetary nebulas have short timescales, so they are rare in globulars
- Breakout Room Shenanigans
 - Ran out of time :(
- (Optional) Astrophotography with Sai
 - Stay after the meeting for Astrophotography!!!