

Meeting Minutes 10/16/2020

- 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
 - Game Night next week at 5pm
 - Astronomy Club + SO DEI Social
 - When: Today at 5 pm (following our meeting)
 - Members of the Steward Observatory Diversity, Equity, and Inclusion Task Force (SO DEI) will introduce themselves and discuss their work on the task force. This will be a great chance for everyone to meet each other and ask questions!
- TIMESTEP with Dr. Eduardo Rozo
 - Next meeting: Overview of Graduate Application Process
 - Led by Dr. Eduardo Rozo
 - When/Where: Wednesday, October 21st at 5 pm over Zoom
 - You must register your UA email in advance to receive the Zoom link
 - Hear from faculty and current u grad students about applying for grad school
 - How to set yourself up to be competitive and organized
 - Come ask some questions!
- Amendment Voting
 - Prop #1 - Accepted
 - Prop #2 - Accepted
 - Prop #3 - Accepted
 - Prop #4 - Accepted
 - Prop #5 - Accepted
 - Prop #6 - Accepted
 - Prop #7 - Accepted
 - Prop #8 - Accepted
 - Prop #9 - Accepted
 - Butter UP! Won the bread vote.
- TSGID with Harrison
 - The Magdalena Ridge Observatory Interferometer
 - Optical and NIR interferometer under construction
 - Beam combining facility completed 2008
 - Telescope foundations 2011
 - First light with first telescope 2019
 - When completed, will feature array of 10 configurable 1.4m telescopes with a baseline of 7.8 to 340 meters
 - Will be one of the largest optical baselines of any telescope

- Sub-milliarcsecond resolution!
- Main missions:
 - Star and planet formation
 - Stellar accretion and mass loss
 - AGN
 - Space situational awareness
- Light cannot be combined electronically at optical wavelengths, must use beam-trains, delay lines, and optical tables to directly combine images
- Astro News of the Week with Savannah
 - <https://www.washingtonpost.com/technology/2020/10/15/space-collision-might-have-open-thursday/>
 - Thursday 10/15/2020 two pieces of space debris just barely missed colliding with each other
 - One was a satellite from the USSR, the other was a rocket booster from China
 - Classic example of our space junk problem
 - If two pieces of space junk collide, they can break up into many smaller pieces, those pieces going off into untrackable directions which may harm other satellites and potentially the ISS
 - There are some options for how to deal with space junk
- AstroKahoot!
- What Up Astronomy Club with Yancy
 -
- Astronomy Question of the Week with Don
 - What is an invisible supermoon?
 - The moon is at perigee, but is a new moon and therefore invisible
 - The newest new moon ever photographed
 - Bob Berman - "Strange Universe" column at Astronomy.com
 - What is the most dangerous celestial object to human life?
 - Comet Swift-Tuttle, the source of the Persied Meteor Shower
 - It comes at the Earth almost head on
 - What is the smallest deep-space object a backyard telescope owner can see?
 - Smallest in physical size
 - The crab nebula
 - What three different planets' names can form anagrams?
 - Earth and heart, Mars and arms, Venus and Nevus
 - What's the most barely happening celestial event that oddly enough, everyone knows?
 - The big bang :)
 - The Earth's rotation, which is slowing a millisecond every 100 years
 - The asteroid Bennu
 - Touchdown ~1am Oct 20
 - 500 meters across

- Osiris Rex
- How much would you weigh on Bennu?
 - Mass, radius, shape, rotational velocity
 - A half second fall on Earth takes 10 minutes on Bennu
- Gravity depends on the mass of the object, your distance from it
- The diameter at the equator is different from the diameter at the poles
- Spins once every 4.3 hours, on the equator you'd weigh half as much as you would on the pole
- Force of gravity is 2 micro-g (2 millionths of the force of gravity on Earth)
- Apparently it has eruptions of material, unknown what causes that effect
- Bennu's gravity field
 - Doppler effect from orbiter
 - Can track particles from bursts and get an idea of the gravity field
 - Hollow core
 - 2 football fields of empty space in there
- Betelgeuse Update
 - What causes the gap in the magnitude plot?
 - The Sun. Can't observe Betelgeuse behind it.
 - In the news
 - New distance: 530 light years away, (25% reduction)
 - New diameter: 750 R_{sun}, (~66% reduction), not as big as the orbit of Jupiter anymore.
- At 5 pm: SO DEI Social Event (this Zoom call)