

Black Canyon Astronomical Society (BCAS)
Monthly Meeting Minutes
In-person mtg at Centennial Room and online with Zoom
Thursday February 3, 2023
7:00 to 8:30 p.m.

Minutes prepared by Sara Ungrodt- co-secretary
7:03 recording began.

Note: **BCAS Business Topics:** President Bryan thanked all for their support of the club and shared information about how to join.

A total of 39 people attended. 20 Zoom connections, 6 pairs on Zoom and a total of 26 people. Thirteen people at Centennial room including Bryan and Sara.

Commented [AT1]: Bryan had sent Art an email after the meeting indicating 13 in-person attendees (including Bryan and Sara). So, I recorded 39 total on meeting summary.

Program Presentation and Summary:

Astro news:

“Star Chasers” of Senegal on Nova
RMPBS “Ancient Skies”
Image of studying central nebulae star and giant galaxy (billion lightyears away)
Noted 6 diffraction spikes on stars imaged by Webb.

Commented [AT2]: JWST has six diffraction spikes. HST has four, correct?

Other News from members:

Comet C2022E3ZTF- some folks have photographed, with telescopes and seen with binoculars. Appears to be a greenish color in images.

Program: Bryan Cashion- “The Science and Beauty of Planetary Nebulae”

-Intro
PN= planetary nebulae
PNe= plural nebulae

Types of Nebulae
Reflection- Blue color-no light emitted. The light is reflected.
Dark-so thick it blocks light, like Great Rift in Milky Way
Emission- Great Orion Nebula
Red-forming new stars
Hydrogen and other gases emitting color

Planetary- multi-colored- composition of gas determines color

First PN documented by Charles Messier- most well-known- he was looking for comets.
Catalogued M27-1764 and others
William Herschel- 1st use of ‘planetary’
1781 “not well defined” disk
Saturn nebulae-image 2017

1st published Hubble image PN-1991- blue and white

Karl Henize– “curious objects”. He was an interesting character. In 1967 he charted HEN 3-1357. He died on Mt Everest.

Showed images of nebulae changing in a short period of time. Unusual to see this type of quick change.

KEY CONCEPTS 1

Temperature and gas- increase in gas increase in volume.
Balloon sample in video.

Decrease in gas volume creates increase in temperature.

KEY CONCEPT 2

What holds stars together?
EGG- stars are born here- Evaporating Gaseous Globule
Hydrogen gas reactions

LIFE OF STARS- .8 and 8 solar masses

“We are all made of star stuff”- Carl Sagan quote.
Elements all started as Stardust!

PNe last thousands of years before they become white dwarfs.
1,000 PNe charted in the Milky Way. Quote from NASA.

SUN- 5 billion years old- core is stable.
27million degrees F.

?? Diego had comment about the Sun absorbing water.
Someday our Sun will become a red giant then a white dwarf.

Sun size compared to Arcturus- Arcturus MUCHHHH larger.
Simulation video showing a star core collapsing and heat creating pulses in shell. Sample images of cores and shells with xrays and UV coming out.

??? Fred- do the denser elements end up closer to the core? Bryan- they are moving away due to stellar wind. Not sure about distribution.

?? Laura- If gases are going outward do they become cooler? Bryan said they do relatively as compared to the core temp.

Fact: 1 cubic inch of a white dwarf weighs 16 tons.

?? Sally- will a PN ever go away? Bryan- yes typically a red giant will last 10-20,000 years before becoming a white dwarf, but eventually the outer layers dissipate.

Images from Hubble and Webb scopes were shared.

PN Formation-

Blue plastic bowl demo showing how different nebulae look from various angles- such is one reason there is so much variety when looking at them.

??David- is each PN made of different compositions? Bryan yes

Stellar winds- simulations. Not uniform at all. Univ of Sweden- beautiful- looks like an orange rose.

Binary Stars-

2 stars closely held together by gravitational forces.

Showed 2 white spots in center of image

Scientists think the shape of PN are influenced by this 'merging.'

??Fred- Why isn't 2nd star that is sucked in by mass of 1st star- white dwarf not stronger gravitational pull? Bryan- when it pulls enough it will go super Nova.

Simulation of twin PN

SUMMARY

Questions????

??Sally- Can you see PN with naked eye?

Bryan- you can see some hints of color in the brightest, e.g Dumbell.

??Dee-Karl Henize was in Dee's air force training class!!! Said he was adventurous. At 58, Karl was the oldest astronaut in space.

??David- are all stars composed of the same elements or are there any recent surprises?

Bryan -Yes. There will be surprises at some point.

??Diego- Can one go to a dark enough space to see PN color? Bryan- said it depends on an individual's eyesight.

??Phillip- What would Dumbbell PN look like in 10-20,000 years? Bryan- The white dwarf would likely still be there cooling, shrinking, and dimming Color would eventually go away.

??Nancy- Is there a computer model of the Sun as to when it will become a red giant?

Bryan- not that he knew of.

??Dee-M57 shows star cycle well to demonstrate this.

??Ron-Repeated EGG acronym- Evaporating Gaseous Globule

David thanked Bryan

Randy Carter thanked Bryan

Meeting ended and Bryan stopped recording 8:17p.m.

Bryan said that link will be available tomorrow.

Next meeting is March 2 at 7:00 p.m. hybrid meeting -Michael Williams will be talking about "The Big End"

