Black Canyon Astronomical Society (BCAS)

Monthly Meeting Minutes
Thursday March 17, 2022
7:00 p.m.
Online BCAS video meeting using ZOOM video conferencing service and Bryan at the Centennial Room in Montrose presenting his program to test equipment. Hopes are to have a hybrid meeting in April at the Centennial Room with a zoom presentation presented on-screen.

Submitted by Sara Ungrodt- co-secretary

Note: **BCAS Business Topics:** Business will not be covered in this video conference.

24 connections and 28 people

Minutes Summary: Meeting started at 7:04 pm
Bryan also had his phone on too, like a wireless microphone, so questions in the room can be heard on Zoom.

President Bryan Cashion opened meeting. Shared Agenda.

Program Topics:
Astronomy news:
Bryan- James Webb telescope, showing image from after mirror alignment- 1st image released 3/16/ magnitude 9 star with red filter- NASA very impressed
Alice- Black Canyon NP- planning astro programs. Introduced Lori Rome, Chief of interpretation. Adrienne Fitzgerald has replaced Paul Zaenger.

Presentation:
Bryan Cashion- "Stellar Evolution"

Hydrogen is where it starts.

TOPICS

Pillars of Creation etc. various stages of a starts birth.
EGG evaporating gas globules.
"Before" stars-
"Big Bang Theory or Steady State Theory.
ABBA after Big Bang- mathematical Universe expanded and cooled. Key concept-
Expansion results in cooling, compression results in heating.
Timeline…
The 1st stars--- 100-1000 solar masses
MASSIVE- Mass most important parameter for a star.
Fused hydrogen into helium like hydrogen bomb.
Early stars went through hydrogen quickly only last a few million years.

Metals-astronomers say they are any element other than hydrogen and helium
Didn't produce planets or galaxies

Two groups of stars discovered

Population I and II - Walter Baade theorized two populations.

Population III- never observed, no remnant left, but could have existed. Webb Telescope will look for these.

Population I and II exist

Pop. II- middle aged not very bright

Globular clusters and galaxy cores-Red-older

Pop. I- metal rich , luminous

Orion nebula-blue spectrum younger

Paper 1957- Burbidge, Fowler and Hoyle published.

Huge step forward about how things are made inside stars.

Stars holding together:

Our Sun's core temperature is 27 million degrees F will last a few more billion years

Fusion- Hot blue to cooler red

Iron is endpoint for fusion reaction

Slow neutron capture-

If it is a big star

- Supernovae

If it is a smaller star

- Planetary nebulae, then white dwarf

Universe is seeded with what was inside star – "We're all made of Star stuff" Carl Sagan quote

Arrow chart- pathways explained

Mass of star determines its fate.

Bryan's talk ended at 7:53 p.m.

Questions:

Art- Inflation- very short time from size of softball to size of solar system

Bob Grossman- What is dust? Don't understand gravity. E.g. Pillars of Creation but miniscule grains- Art commented "Some organic molecules in dust can be identified by their absorption spectra at radio frequencies. Organic molecules are where COH life comes from"

Barb- Does dark matter influence expansion theory? Difficult to discuss

Aaron Watson- Real stars like movie "A Star is Born

- what are your stars in the sky? Betelgeuse- red giant, Antares, Arcturus, Rigel- blue white, Sirius- bright blue, young and close.

Alice- Iron-26 to Bismuth element 83 slow neutron capture "s" process because?

Marshal- Hubble new star- how did they know star formation takes a long time- point Hubble at various positions

Susan- Would like image link to the Chart- helpful

Alice and Art- want pdf line- Bryan will send link to all

Bob Grossman again-James Webb's contribution to science is ENORMOUS!

Barb- Supernova takes place quickly- yes!

Sara- Star nurseries- stellar nurseries
Clouds of hydrogen
Open star clusters- spaces are gas dispersion
Barb- Orion Nebulae colors are layers? No layers are in a shell- it is enormous hydrogen clouds and dust. Hydrogen emits in red color.
Note scientific community suggests that Betelgeuse will turn supernova in our lifetime.

Next meeting April 14 7:00 p.m. Hybrid meeting. People can come to the Centennial room and meet in person!

Aaron Watson "An Overview of Dark Skies in Colorado" is speaker on April 14.
BCAS and WCAC will be a joint meeting
Nancy and Bryan will host.

Meeting ended at 8:33 p.m.