

# **Black Canyon Astronomical Society (BCAS)**

Monthly Meeting Minutes

Thursday March 2, 2023

7:00 to 8:00 p.m.

Minutes prepared by Bryan Cashion

Note: **BCAS Business Topics:** Business was not covered during this meeting.

The meeting was a hybrid format with in-person attendance at the Centennial Room in Montrose and Zoom online attendance. Bryan Cashion hosted the meeting at the Centennial Room. Eight persons attended in the Centennial Room, plus a total of 19 online Zoom attendees (15 logins) for a grand total of 27 attendees.

## **Minutes Summary:**

President Bryan Cashion opened the meeting welcoming members and guests. For Astronomy News, a video of the recent aurora borealis was shown. Also, Aaron Watson shared his image from Paonia of the aurora and the morning Milky Way.

## **Program Presentation and Summary:**

Michael Williams presented “The Big End,” a discussion of the cosmology of the formation, growth, and eventual demise of the Universe. Topics included:

- The Big Setup – The presently accepted model of matter and energy (e.g. quarks, leptons, photons, etc.)
- The Big Bang – The various phases of the Universe’s evolution after the Big Bang: Quantum, Nuclear, Electromagnetic, and Stelliferous (present star forming phase).
- The Big Space – The present state of the Universe. Distances and size are mind-boggling. Much of our Universe is unobservable due to accelerating expansion, dark energy, and dark matter. “We are profoundly surrounded by the unknown.” (M. Williams)
- The Big End – Several scenarios of the Universe’s future. Most of these depend upon the value of the critical density ratio of matter and energy. The time scales of these scenarios are staggeringly large.
- The Big Upshot – Humanity should not dread the Universe’s possible future. Far more immediate existential threats may confront us, but we can marvel at our existence in the Stelliferous Era. “Like Goldilocks, we should appreciate the just-rightness of the here and now” (M. Williams)

The next meeting will be a hybrid on April 6. Aaron Watson, BCAS member and Colorado IDA Chairperson, will present ‘Dark Skies in Colorado.’

Bryan wrapped up the meeting, thanked all that attended the hybrid format, and he adjourned the meeting at approximately 8:00 pm.