

Cape Cod Astronomical Society - Minutes of the March 3, 2016 meeting

Attendance: 22 members and 2 guests

The meeting was held at the Dennis-Yarmouth High School Library.

Tonight's speaker is the president of CCAS, Michael Hunter.

In addition to Mike's presentation, below, the following items were discussed:

- Mike asked for additional volunteers for the nominating committee.
- The fact is that real science is accomplished at the observatory (e.g., occultations).
- Transit of mercury May 9.
- March 11 Bernie, Bob and Gus will host a class of 3rd graders at the observatory.

LIGO: Laser Interferometer Gravitational-Wave Observatory: A Brief Introduction and Overview of a Millennial Event

- Now a new field of astronomy.
- Gravity waves are not light, sound, nor magnetic...they are waves in the fabric of space-time.
- Measurement Evidence: the first measurement of gravitational waves was in 1972 looking at binary stars; measurements agreed with relativity.
- They are given off by anything moving or spinning, but most not measurable since they are too weak.
- There are 4 kinds of gravity waves:
 - Continuous – neutron star spinning at fixed speed
 - Compact binary in spiral
 - Stochastic – random gravity waves
 - Burst gravity waves
- Observed Gravity Waves: collaboration between Caltech in Hanford, Washington, and MIT in Livingston, Louisiana. Equipment is 1,000 miles apart in order to get a measurement timing difference. India to join to make a 3-way measurement.
- Equipment is extremely sensitive. Needs to measure to 1/10,000 the diameter of a proton.
- Measured 2 black holes that destroyed themselves 1.3 billion years ago. Probability of error less than one event every 200,000 years.
- Equipment consists of two sets (one at each site) of 4 kilometer arms at 90 degree angles. With the use of mirrors and lasers, the effective length is 1120 km. Project was first funded in 1992, and the first instrument completed in 2001.
- Measured event happened unexpectedly during testing.

The meeting was adjourned at 9:00 PM.

Next meeting: April 7, 2016.

Respectfully submitted,
Gus Romano, CCAS Secretary