



THE STAR DIAGONAL

THE JOURNAL OF THE OGDEN ASTRONOMICAL SOCIETY



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Meeting Announcement

The monthly meeting of the Ogden Astronomical Society will be held on May 12th at 7:30 in the Ott Planetarium at Weber State University.

President's Message

Hi All,

While waiting for better weather and a chance to get out and do a little observing I had a chance to attend some very good indoor Astronomy activities. Dr. Stacy Palin taught a three day astronomy course that was very informative and entertaining. I picked up a lot of new information and verified some things I already knew. She will be teaching an Astronomy class later this fall that will be more involved and hopefully include time with the new observatory. This will be a great course for anyone interested in Astronomy; we will have more details later.

Dr. Shane Larson was back in town and gave a presentation on Gravitational Wave Astronomy at

WSU. He is one of the people involved with LIGO and talked about the recent discovery of gravitational waves.

We will have our May meeting Thursday the 12th and the topic will be on Gravitational Wave Astronomy and related astrophysics. I have a short video and presentation along with a group discussion.

Other activities coming up are Curlew May 6th and 7th, Antelope Island May 14th and June 4th and our family BBQ dinner Thursday June 9th instead of our regular meeting.

I hope to see you at these activities.

Thanks,
Lee Priest

OAS Minutes

The meeting began on April 14, 2016 at 7:30 with Lee Priest conducting.

Announcements:

- Aug 26. Antelope Island is working on their Dark Sky program. They would like a Ranger Talk 8-9pm and then have us count stars in an area of the sky.
- Apr 15. Shane Larson will give a presentation on Gravitational Waves in LL121 at 1:30pm
- May 9. Mercury transit at Doug Say's home. The transit starts before the sun comes up and last until a little before noon. We will have a few telescopes with solar filters set up. Doug has volunteered his place for us to get together and he will have coffee and doughnuts. He is in Farr West at 2060 West 1025 North. You can show up anytime if you don't want to see the beginning,
- Apr 18. NSN – Messenger Mission
- Apr 28. Burton Elementary
- May 27. E.G. King Elementary
- Jun 4. Dead Horse Point
- Aug 18-19. Good Sam event at North Fork Park

For the rest of the meeting we watch a previously recorded Web Conference from the Night Sky Network. It was on the New Horizons craft and showed some of the things they have learned so far. They will still be getting more data for quite a while. It is really interesting some of the features and other things that they have learned so far.

The meeting was adjourned at 9:15 where several members went to Village Inn.

The Astronomical League By George Barber

At the March meeting, I volunteered to be your new Astronomical League (AL) coordinator. For those of you who don't know me, I have been a member of the OAS for over 5 years now. I moved here from Tucson 5 years ago, where I was a member of the Tucson Amateur Astronomy Association. I served that club in many capacities, and I am now

happy to be able to serve you as your AL coordinator. I own 3 different telescopes, and enjoy visual observing and astronomy outreach activities.

So what is the Astronomical League? The AL is one of the largest amateur astronomical organizations in the world. Its mission is to promote the science of astronomy. You can join the AL through your local astronomy club. What are the benefits of membership? The AL produces a beautiful quarterly publication, 'The Reflector', which is chock full of articles about astronomy, outreach, member profiles, and other items of interest.

The AL sponsors a large number of observing programs. These help you learn the night sky, and about the fascinating objects in our universe. The programs start at the beginner's level and continue to the advanced observer, so there is something for everyone.

For those who like to travel, the AL has an annual convention. This year's convention occurs in August and will be held in Washington DC. The convention is held in different locations every year.

Check out the Astronomical League at their website, <https://www.astroleague.org/> to learn more.

Star Parties

Public

- 5/14 – Antelope Island (Astronomy Day)
- 6/4 – Antelope Island
- 8/6 – Antelope Island
- 8/26 – Ranger Program and Star Count
- 9/24 – Antelope Island
- 10/1 – North Fork Park
- 10/22 – Antelope Island

Requested

- 4/28 – Burton Elementary
- 5/27 – King Elementary
- ? – Lomond View

Private

- 5/6-5/7 – Curlew
- 7/27-30 – Monte Cristo
- 8/31-9/5 – Monte Cristo
- 9/30-10/1 – North Fork Park
- 10/28-29 - Curlew

External

- 5/1-8 - <http://texasstarparty.org/get-started/>
- 6/1-4 – Bryce Canyon Astronomy Festival
- 6/4-11 – Grand Canyon Star Party
- 8/2-7 – www.oregonstarparty.org
- 9/29-10/1 – Great Basin Astronomy Festival
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Hubble Shatters The Cosmic Record For Most Distant Galaxy

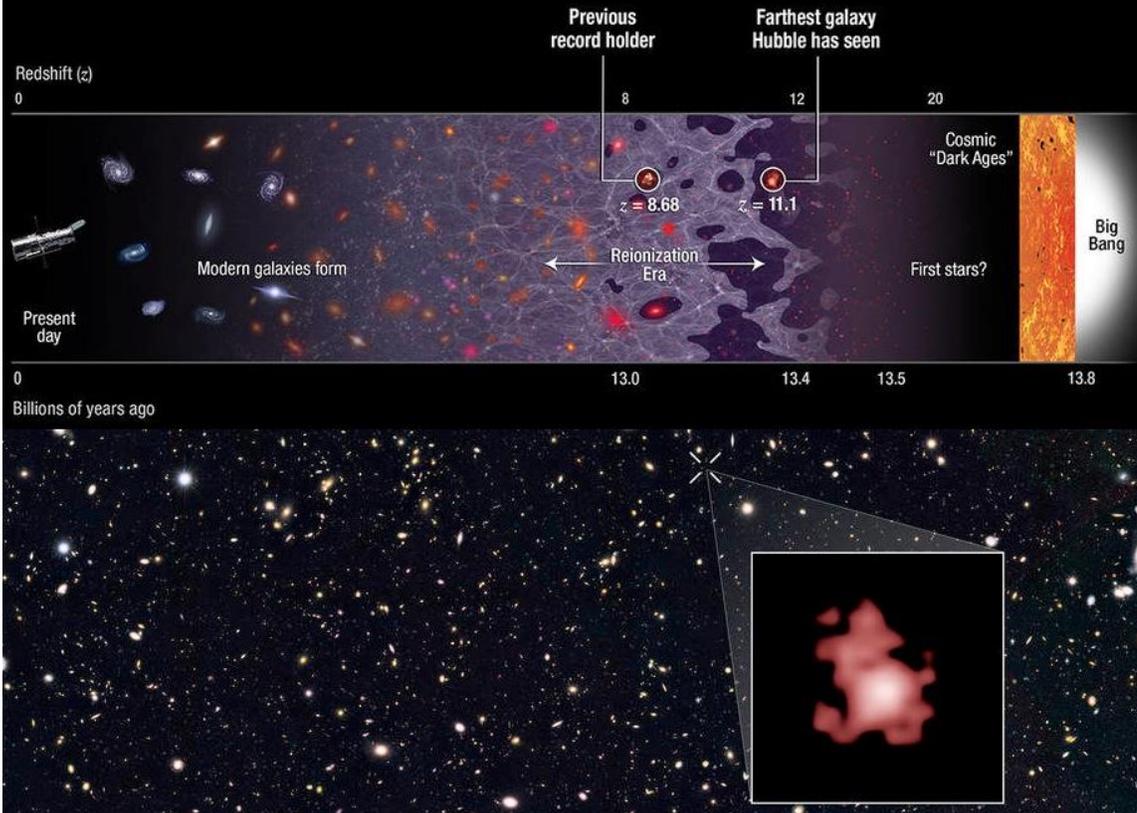
By Ethan Siegel

The farther away you look in the distant universe, the harder it is to see what's out there. This isn't simply because more distant objects appear fainter, although that's true. It isn't because the universe is expanding, and so the light has farther to go before it reaches you, although that's true, too. The reality is that if you built the largest optical telescope you could imagine -- even one that was the size of an entire planet -- you still wouldn't see the new cosmic record-holder that Hubble just discovered: galaxy GN-z11, whose light traveled for 13.4 billion years, or 97% the age of the universe, before finally reaching our eyes.

There were two special coincidences that had to line up for Hubble to find this: one was a remarkable technical achievement, while the other was pure luck. By extending Hubble's vision away from the ultraviolet and optical and into the infrared, past 800 nanometers all the way out to 1.6 microns, Hubble became sensitive to light that was severely stretched and redshifted by the expansion of the universe. The most energetic light that hot, young, newly forming stars produce is the Lyman- α line, which is produced at an ultraviolet wavelength of just 121.567 nanometers. But at high redshifts, that line passed not just into the visible but all the way through to the infrared, and for the newly discovered galaxy, GN-z11, its whopping redshift of **11.1** pushed that line all the way out to 1471 nanometers, more than double the limit of visible light!

Hubble itself did the follow-up spectroscopic observations to confirm the existence of this galaxy, but it also got lucky: the only reason this light was visible is because the region of space between this galaxy and our eyes is mostly ionized, which *isn't true* of most locations in the universe at this early time! A redshift of 11.1 corresponds to just 400 million years after the Big Bang, and the hot radiation from young stars doesn't ionize the majority of the universe until 550 million years have passed. In most directions, this galaxy would be invisible, as the neutral gas would block this light, the same way the light from the center of our galaxy is blocked by the dust lanes in the galactic plane. To see farther back, to the universe's first true galaxies, it will take the James Webb Space Telescope. Webb's infrared eyes are much less sensitive to the light-extinction caused by neutral gas than instruments like Hubble. Webb may reach back to a redshift of 15 or even 20 or more, and discover the true answer to one of the universe's greatest mysteries: when the first galaxies came into existence!

Hubble spectroscopically confirms farthest galaxy to date



Images credit: (top); NASA, ESA, P. Oesch (Yale University), G. Brammer (STScI), P. van Dokkum (Yale University), and G. Illingworth (University of California, Santa Cruz) (bottom), of the galaxy GN-z11, the most distant and highest-redshifted galaxy ever discovered and spectroscopically confirmed thus far.