



ASTRAL PROJECTIONS

February 2014
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JANUARY MEETING: January was our annual telescope workshop meeting. It was raining that night so we only had three families in attendance. They received help on using their scopes from various members. Even though it was a low turnout like last year, the event was a success.

FEBRUARY MEETING: Rich Brady will present the top astronomical stories for 2013

Announcements

ASTRA DUES ARE DUE: Membership application form is attached. Form is also available online.

MEMBERSHIP IN THE ASTRONOMICAL LEAGUE is separate and requires an additional dues payment of **\$7.50**. The Astronomical League Membership Form was sent with the January Newsletter and is available online.

What's up This Month?

JAKE'S BRANCH COUNTY PARK: Come join us under star filled skies to observe the Universe. Saturday, February 8, 2014, 6:00 PM - 8:00 PM. Location: Jakes Branch County Park, Double Trouble Rd, Beachwood, NJ 08722

Check the online message board on the date of the star party for up to date information on these events.

ASTRA LIBRARY OF BOOKS AND DVDS: Many books and DVDs are available for loan from the ASTRA Library for a one month period. A list of these items is available on the ASTRA website. Request for these items must be made prior to our regular meeting and returned by the following meeting. Please e-mail your request for these items to our Librarian Barbara Novick at Library-Loan@astra-nj.org or call her at 732-840-3111.

NEWSLETTER: E-mail material (meeting reports, observing reports, or other items of interest) to Newsletter@astra-nj.org.



Surprising Young Stars in the Oldest Places in the Universe

By Dr. Ethan Siegel

Littered among the stars in our night sky are the famed deep-sky objects. These range from extended spiral and elliptical galaxies millions or even *billions* of light years away to the star clusters, nebulae, and stellar remnants strewn throughout our own galaxy. But there's an intermediate class of objects, too: the *globular star clusters*, self-contained clusters of stars found in spherically-distributed halos around each galaxy.

Back before there were any stars or galaxies in the universe, it was an expanding, cooling sea of matter and radiation containing regions where the matter was slightly more dense in some places than others. While gravity worked to pull more and more matter into these places, the pressure from radiation pushed back, preventing the gravitational collapse of gas clouds below a certain mass. In the young universe, this meant no clouds smaller than around a few hundred thousand times the mass of our Sun could collapse. This coincides with a globular cluster's typical mass, and their stars are some of the oldest in the universe!

These compact, spherical collections of stars are all less than 100 light-years in radius, but typically have around 100,000 stars inside them, making them nearly 100 times denser than our neighborhood of the Milky Way! The vast majority of globular clusters have extremely few heavy elements (heavier than helium), as little as 1% of what we find in our Sun. There's a good reason for this: our Sun is only 4.5 billion years old and has seen many generations of stars live-and-die, while globular clusters (and the stars inside of them) are often *over 13 billion years old*, or more than 90% the age of the universe!

When you look inside one of these cosmic collections, you're looking at some of the oldest stellar swarms in the known universe.

Yet when you look at a high-resolution image of these relics from the early universe, you'll find a sprinkling of hot, massive, apparently *young* blue stars! Is there a stellar fountain of youth inside? Kind of! These massive stellar swarms are so dense -- especially towards the center -- that mergers, mass siphoning and collisions between stars are quite common. When two long-lived, low-mass stars interact in these ways, they produce a hotter, bluer star that will be *much* shorter lived, known as a *blue straggler star*. First discovered by Allan Sandage in 1953, these young-looking stars arise thanks to stellar cannibalism. So enjoy the brightest and bluest stars in these globular clusters, found right alongside the oldest known stars in the universe!



Globular Cluster NGC 6397. Credit: ESA & Francesco Ferraro (Bologna Astronomical Observatory) / NASA, Hubble Space Telescope, WFPC2.

Learn about a recent globular cluster discovery here:

<http://www.nasa.gov/press/2013/september/hubble-uncovers-largest-known-group-of-star-clusters-clues-to-dark-matter>.

Kids can learn more about how stars work by listening to The Space Place's own Dr. Marc: <http://spaceplace.nasa.gov/podcasts/en/#stars>.





CELESTIAL EVENTS FOR JANUARY

Mercury will close in on the Sun and will reappear in the dawn sky by mid-month. Venus is higher in the SE in the dawn. Mars is in Virgo – rising late evening. Jupiter is in Gemini – going through retrograde motion. Saturn is visible in Libra rising after midnight. Highlights for the month:

- 1 Mercury 4° S of Moon
- 6 First Quarter Moon
- 11 Jupiter 5° N of Moon
- 14 Full Moon
- 19 Spica 1.6° S of Moon
- 20 Mars 3° N of Moon
- 21 Saturn 0.3° N of Moon
- 22 Last Quarter Moon
- 26 Venus 0.4° S of Moon
- 28 Mercury 3° S of Moon

Credit: Observer's handbook



CLUB TELESCOPES: A.S.T.R.A. owns seven small telescopes:

- 6-inch Dobsonian (in need of repairs)
- 8-inch Dobsonian
- 80mm Celestron Refractor
- 120mm EQ AstroView Refractor.
- Lunt 35mm H-Alpha solar scope
- 8-inch Celestron NexStar 8i SE
- 60mm Meade EQ refractor

These telescopes are available for club members to borrow and use for a month or two at a time.

ASTRA-WEAR – Embroidered and/or Printed items with the ASTRA Logo

You can see some samples at ASTRA meetings. To order by mail: Shelter Cove Embroidery Co. 1333 Bay Ave Toms River, NJ 08753 call 732-506-7700 or E-mail astra-wear@estitches.com. Order form is on the ASTRA website.

ASTRONOMICAL ITEMS FOR SALE, OR HELP WANTED

ADVERTISEMENTS: If you have an item to sell, or need help with an astronomical problem (a question, or telescope setup) contact the President President@astra-nj.org to announce it at a meeting and send the advertisement to the newsletter (See Newsletter below).

ASTRONOMICAL LEAGUE MEMBER SOCIETY

Astronomical League National Headquarters, 9201 Ward Parkway; Suite 100, Kansas City, MO 64114, 1-816-333-7759 or www.astroleague.org

The REFLECTOR is published in March, June, September and December. If you do not receive your copy of the REFLECTOR

magazine, contact Astronomical League Coordinator (Alcor) Ro Spedalieri (Treasurer@astra-nj.org)

FOR SALE: The following items are for sale. If anyone is interested see Rich Brady for contact information.

1. Celestron – Byers, 8 inch, f/10, FL = 2000 mm with worm gear drive (not a go to).
2. Wedge and Tripod (owner looking for interface,)
3. Questar 700 90mm, f/8 telephoto or telescope + adapter.
4. Celestron 8X50 finder.
5. Celestron visual back.
6. Eyepieces: 26 mm Celestron Plossl (1 ¼ in); 7 mm Celestron Ortho (1 ¼ in); 2 – 2X Celestron Barlows; 9 mm Nagler (1 ¼/2 in); 55 mm Televue Plossl (2 in); 40 mm Televue wide field (2 in).
7. Diagonals: 2 in, 1 ¼ in. 0.965 in
8. Tripod mount with 2 axis motion.

EXECUTIVE BOARD

President – Rich Brady President@astra-nj.org
 Vice President-Secretary – Sarah Waters, VP@astra-nj.org
 Treasurer – Ro Spedalieri Treasurer@astra-nj.org
 Newsletter Editor – Rich Brady Newsletter@astra-nj.org
 Webmaster – Donald Durett Webmaster@astra-nj.org

Check us out on Facebook, search groups for (ASTRA Astronomy) and look for our logo.





ASTRA Membership Application Form

Thank you for your interest in the Astronomical Society of the Toms River Area. Please read carefully and fill in the appropriate information below.

New membership Annual dues are \$ 25.00 (January to December): (\$ _____)

Telescope Fund Assessment required for all new members (\$5.00)

“Optional for returning Members”

Returning members Annual dues are \$ 25.00 from (January to December): (\$ _____)

Prorated membership dues are \$ 15.00 from (July to December): (\$ _____)

TOTAL AMOUNT PAID (as determined by the above schedule): (\$ _____)

PLEASE MAKE CHECKS PAYABLE TO ASTRA

New Members check box

NAME _____ PHONE () _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

Please provide your E-mail address so you can receive a copy of our “Astral Projections” Newsletter.

E-MAIL ADDRESS _____

I declare that to the best of my knowledge all particulars supplied by me are correct and complete.

APPLICANT SIGNATURE _____

Send this application form with your dues payment to:
A.S.T.R.A. Robert J. Novins Planetarium
Ocean County College P.O. Box 2001
Toms River NJ 08754-2001