



# MHAA

## Mid-Hudson Astronomical Association

### February, 2015

Website: [www.midhudsonastro.org](http://www.midhudsonastro.org)

Yahoo Group: MHAstro

**President :** Willie Yee

**Secretary:** Jim Rockrohr

**Newsletter Editor:** Rick Versace

**Publicity:** Paul Chauvet

**Parks Liaison:**

**Vice President:** Candace Wall

**Treasurer:** Ken Bailey

**Membership Coordinator:** Caryn Sobel

**Webmaster:** Paul Chauvet

**College Liaison:** Dr. Amy Forestell

**Directors:** Karl Loatman, Steve Carey, Joe McCagne, and Dave Lindemann

#### Minutes of the monthly meeting of the Mid Hudson Astronomical Association, January 20, 2015

The meeting was called to order at 7:30 PM by President Willie Yee in the Coykendall Auditorium at SUNY, New Paltz, NY.

It was moved and seconded that the minutes of the last meeting as published in the newsletter be approved. The motion passed.

#### Officer's Reports:

**Membership:** Caryn Sobel was not present. Ken Bailey reported that he has received 10 renewals, 4 new memberships, plus an additional 5 memberships processed through PayPal. REMINDER: Annual dues are to be paid in January. They are currently \$25.00 per year.

**Treasurer:** Ken Bailey present. See his report in the newsletter. We currently have about \$1870 in the checking account.

## Treasurer's Report for the month of January, 2015

Date: 15 February, 2015

Bank Balance:	\$2043.12
Outstanding Checks:	\$ 50.00
Outstanding Deposits:	\$ 75.00
Ending Bank Balance:	\$2068.12
Checkbook Balance:	\$2068.12
Balance with Bank: Yes	
Ending balance total:	\$2068.12

Notes: Outstanding check is a speaker's honorarium. Outstanding deposit is from payments for memberships.

Respectfully submitted: Ken Bailey

**Steering Committee:** Willie gave a summary of the recent Steering Committee meeting (see new business below) noting that we need to watch our spending.

**Outreach:** Candace Wall reported on upcoming events:

- Rhinebeck Relay for Life: May 30-31 at Dutchess County Fairgrounds. They would like some 'scopes for the night of the 30<sup>th</sup>. May be lights. Full moon 6/2. We can set up model solar system. More details to come.
- School visit at Chatham, NY: February 5 @ 9:30 AM. Willie coordinating.

**Publicity:** Paul Chauvet was not present.

**Webmaster:** Paul Chauvet not present.

**Upcoming programs:** Candace Wall present.

- February: Steve Bellavia, program TBD.

### **Old Business:**

- Annual dinner at the Would Bar & Grill scheduled for Saturday, February 7<sup>th</sup>.
  - o Willie moved that we invite the Hasbroucks from Olana and pay their tab. Motion passed.
- Club video library is available. List is in the file section on the website. Willie donated the video on Galileo.
- Club telescopes and resources:
  - o 13 inch dob mirror to be recoated. Jack Chastain still working on arranging it.
  - o Meade 125 ETX is with Steve Carey; no chance to use it, yet.
  - o 100 mm Celestron AP is available; see Willie.
  - o Full asset list is posted on the website.
- T-shirts
  - o Ken Bailey reported that we have 62 T-shirts of various sizes and colors, and
  - o 11 sweatshirts: Blue (two L, two XL), Tan (two Med, two XL), and Gold (one L, two XL)
  - o Contact Ken for prices and to make purchases.

### **New Business:**

- It was moved that the full year dues be increased to \$27 with a discount to \$25 if paid by cash or check. This will allow us to cover the cost of credit card or PayPal payments. Similarly, the ½ year dues (paid after July 1) be raised to \$17.50 with a discount to \$15.00 if paid by cash or check. After discussion, the motion passed.

- Steering Committee report:
  1. We need to keep the Yahoo discussions clean. The list of moderators has been updated.
  2. The committee is working on ideas for fund raising. If you have suggestions, pass them on to a club officer or director.
  3. Karl Loatmann volunteered to be the club historian. If you have any old documents or stories about the club, let him know.
- Willie has ordered lapel pins with the MHAA logo at his expense. He'll be selling them for \$5 each to members, \$8 to non-members.

#### Visitors/New Members:

2 visitors and a new member introduced themselves. There was a total of about 25 people present for the meeting.

#### Observing Reports:

- A few people have seen comet Lovejoy.
- 7-8 people showed up at the last star party (1/16), but it was cold and windy. The next scheduled star party is on February 13.
- On January 24<sup>th</sup> there will be a triple shadow pass on Jupiter.
- On January 26<sup>th</sup> there will be a NEO (near earth asteroid) flyby that will be visible in binoculars and small 'scopes.
- There is a good conjunction of Mars and Venus coming up.
- Several people attended the annual club shopping spree at High Point Scientific on January 10<sup>th</sup>. Several wallets were significantly lightened!

The meeting was adjourned at 7:58 PM. Next meeting is on February 17<sup>th</sup>. Willie reported that he will be at the Winter Star Party (WSP) in Florida and Candace will chair the next meeting.

The program that followed was "Cosmic Butterflies (Planetary Nebulae)" by Keith Murdock.

Submitted by James Rockrohr, February 14, 2015.

**Yay Us!!!**



Willie and Joe-

A few latitudes  
of gratitude  
for all you've done!

Mel and I had a really nice time at the WSP with your group.  
Thank you for inviting us and for your generosity.  
Looking forward to working with you again this year!  
All best,  
Melanie and Sarah

## From the President:

## AWARDS AND STUFF

One of the joys of being president is being able to give out awards to club members, and sometimes to even make them up. For starters, the recipients of the Night Sky Network's Certificate of Appreciation and pin for 2014 goes to the following members:

Candace Wall  
Dennis Davis  
Jack Chastain  
Joseph Macagne  
Ken Bailey  
Karen Bailey  
Rick Versace  
Tom Rankin  
Willie Yee



These are all folks who participated in 3 or more outreach events in the past year. In addition, we have made this award to Sarah and Melanie Hasbrook of the Olana Partnership for their efforts to bring astronomy to a new audience.

In addition, I made up a special award for those who braved the less than 10° wind chill at January's Star Party. The Polar Bear Award goes to

Steve Bellavia  
Judy Guercio  
Shannon  
Paul Granich  
Rich Versace  
Ken Bailey  
Sam Rosenberry  
Willie Yee



Congratulations to all our award recipients.

Last month I listed some tasks that members could undertake. I would like to add Awards Director to that list.

\* \* \*

It is with deep sadness that I report the Sue Rose, president of the Amateur Observers Society of Long Island, lost her husband suddenly last month. Our condolences to Sue and her family.

\* \* \*

This will be a short report this month. I will be on my way or at the Winter Star Party by the time you read this. On the way down I will be overnighting with Dave and Pam Rosseter. Have a good meeting, Star Party and rest of the month.

Dr. Willie Yee  
MHAA President



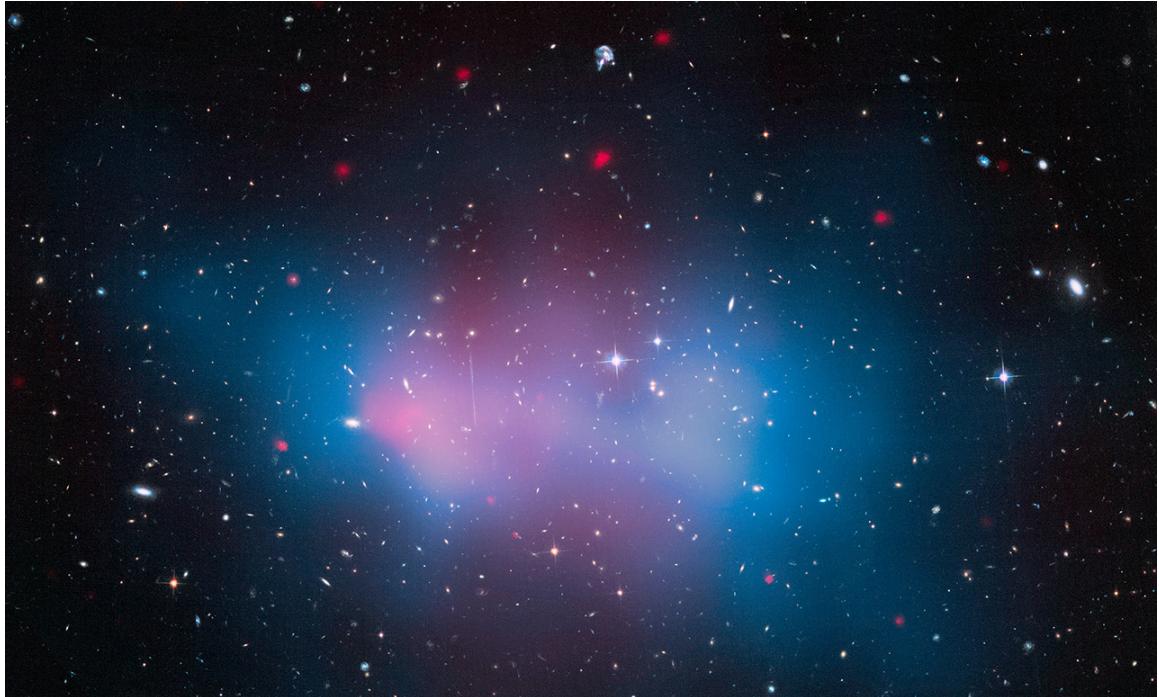
## The heavyweight champion of the Cosmos

By Dr. Ethan Siegel

As crazy as it once seemed, we once assumed that the Earth was the largest thing in all the universe. 2,500 years ago, the Greek philosopher Anaxagoras was ridiculed for suggesting that the Sun might be even larger than the Peloponnesus peninsula, about 16% of modern-day Greece. Today, we know that planets are dwarfed by stars, which themselves are bound together by the billions or even trillions into galaxies.

But gravitationally bound structures extend far beyond galaxies, which themselves can bind together into massive clusters across the cosmos. While dark energy may be driving most galaxy clusters apart from one another, preventing our local group from falling into the Virgo Cluster, for example, on occasion, huge galaxy clusters can merge, forming the largest gravitationally bound structures in the universe.

Take the "El Gordo" galaxy cluster, catalogued as ACT-CL J0102-4915. It's the largest known galaxy cluster in the distant universe. A galaxy like the Milky Way might contain a few hundred billion stars and up to just over a trillion ( $10^{12}$ ) solar masses worth of matter, the El Gordo cluster has an estimated mass of  $3 \times 10^{15}$  solar masses, or 3,000 times as much as our own galaxy! The way we've figured this out is fascinating. By seeing how the shapes of background galaxies are distorted into



**Image credit:** NASA, ESA, J. Jee (UC Davis), J. Hughes (Rutgers U.), F. Menanteau (Rutgers U. and UIUC), C. Sifon (Leiden Observatory), R. Mandelbaum (Carnegie Mellon U.), L. Barrientos (Universidad Católica de Chile), and K. Ng (UC Davis). X-rays are shown

more elliptical-than-average shapes along a particular set of axes, we can reconstruct how much mass is present in the cluster: a phenomenon known as weak gravitational lensing.

That reconstruction is shown in blue, but doesn't match up with where the X-rays are, which are shown in pink! This is because, when galaxy clusters collide, the neutral gas inside heats up to emit X-rays, but the individual galaxies (mostly) and dark matter (completely) pass through one another, resulting in a displacement of the cluster's mass from its center. This has been observed before in objects like the Bullet Cluster, but El Gordo is much younger and farther away. At 10 billion light-years distant, the light reaching us now was emitted more than 7 billion years ago, when the universe was less than half its present age.

It's a good thing, too, because about 6 billion years ago, the universe began accelerating, meaning that El Gordo just might be the largest cosmic heavyweight of all. There's still more universe left to explore, but for right now, this is the heavyweight champion of the distant universe!

Learn more about "El Gordo" here: <http://www.nasa.gov/press/2014/april/nasa-hubble-team-finds-monster-el-gordo-galaxy-cluster-bigger-than-thought/>

*El Gordo is certainly huge, but what about really tiny galaxies? Kids can learn about satellite galaxies at NASA's Space Place* <http://spaceplace.nasa.gov/satellite-galaxies/>.

*all about Black Holes from this cool animation at NASA's Space Place:* <http://spaceplace.nasa.gov/black-holes/>.

## 2015 Star Party Schedule

Date	Time	Sunset	End Civil Twilight	Nearest New Moon
January 16th	7:30 PM	4:51 PM	5:22 PM	January 20th
February 13th	7:30 PM	5:26 PM	5:55 PM	February 18th
March 20th	8:00 PM	7:08 PM	7:36 PM	March 20th
April 17th	8:30 PM	7:39 PM	8:08 PM	April 18th
May 15th	8:30 PM	8:09 PM	8:41 PM	May 17th
June 19th	8:30 PM	8:34 PM	9:09 PM	June 16th
July 17th	8:30 PM	8:28 PM	9:01 PM	July 15th
August 14th	8:30 PM	7:58 PM	8:28 PM	August 14th
September 11th	8:00 PM	7:13 PM	7:41 PM	September 12th
October 9th	7:30 PM	6:25 PM	6:52 PM	October 12th
November 13th	7:30 PM	4:37 PM	5:07 PM	November 11th
December 11th	7:30 PM	4:25 PM	4:56 PM	December 11th

### Directions To The Star Party Site—

[Lake Taghkanic State Park](#) is in the town Ancram, NY. The park entrance is on the Taconic Parkway 10 minutes north of the exit used for Wilcox park.

Star Parties at Lake Taghkanic are held in the West Parking lot, next to the beach. The skies are darker than in Wilcox, with less stray light to deal with. The horizon is also much lower, especially to the south and east, making many more targets possible.

**IMPORTANT:** all events at Lake Taghkanic State Park require an **RSVP** which includes license plate number of the car you are bringing (please do so via [Meetup](#)). The park is patrolled by state police, and all non registered cars will be ticketed and risk our use of the park.

### **General Information:**

- For the foreseeable future, all indoor meetings will be held on the 3<sup>rd</sup> Tuesday of each month in Coykendall Science Bldg., SUNY New Paltz (directions above) at 7:30 PM. All indoor events are FREE! All are welcome. The presentations are generally geared towards teenagers and up. For more information, call the Club Hotline.
- Dates listed for star parties are the primary dates. The rain date is the following night unless otherwise noted. Only one session is held for a given weekend, usually on the primary date, Friday, unless postponed (usually due to inclement weather) to the backup date, Saturday. Exceptions to this are noted in the "Scheduled Events" section above.
- All outdoor events are FREE! All are welcome. If you bring small children, it is your responsibility to keep a close eye on them. Please do not bring white-light flashlights. Instead, bring a red astronomer's flashlight or an ordinary flashlight covered with several layers of red cellophane. If in doubt about the weather, check the status of the event at [www.midhudsonastro.org](http://www.midhudsonastro.org).