



# Mid-Hudson Astronomical Association September, 2016

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:** OPEN

**Vice President:** Candace Wall  
**Treasurer:** OPEN (Ken Bailey until June)  
**Membership Coordinator:** OPEN  
**Webmaster:** Paul Chauvet  
**College Liaison:** Dr. Amy Forestell

**Directors:** Karl Loatman, Joe McCagne, Steve Carey, Paul Granich

## August 2016 Minutes

**Mid-Hudson Astronomical Association (MHAA)  
August 16, 2016 Meeting Minutes  
SUNY New Paltz, CSB Lecture Hall, New Paltz, NY**

Meeting started at 7:35 pm, called to order by MHAA President Willie Yee.

Secretary out so someone asked to take minutes-Carrie Doyle volunteered.

1. Motion to approve July minutes, seconded and “aye” given by a handful of people, minutes approved.
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2. Now offering ½ price special on membership-see meetup site for details
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3. Treasurer’s report: See handout with July minutes; final balance \$2,559.64

## Treasurer's Report for the month of August, 2016

Date: 14 September, 2016

Bank Balance:	\$2619.99
Outstanding Checks:	\$ 189.94
Outstanding Deposits:	\$ 150.00
Ending Bank Balance:	\$2580.05
Checkbook Balance:	\$2580.05
Balance with Bank:	Yes

Ending balance total: \$2580.05

Notes: Outstanding checks are for this month's speaker's honorarium and reimbursement for Meetup Dues. Outstanding deposit is from Olana for the August program we did.

Respectfully submitted: Ken Bailey  
Treasurer

#### 4. Outreach:

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- a. We had a good Star Party
- b. Upcoming: Olana, Moonwalk on Walkway over the Hudson, Dudley Observatory in Albany
- c. Tivoli was cancelled due to weather; will try to reschedule in September
- d. Sam's point-no news yet but trying to schedule

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#### 5. Publicity/Webpage: no updates

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#### 6. Speakers: coming up, Chris Kendall; Willie gave some background on him.

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#### 7. Old Business: 13" scope repairs and Joe M has the ETX – no updates on that

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#### 8. New Business: none

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#### 9. New People introductions: 5 people introduced themselves as this being their first MHAA meeting. Most said they found the meeting via the Meetup Group.

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#### 10. Sky Observation reports:

- a. One person said they went to the York County (formerly called Mason Dixon) star party and got to use his scope and his wife's new scope; good viewing.
- b. Olana turned out well; Phil and 3 people from Albany. They saw Jupiter, Mars and Saturn. Couldn't see double cluster but viewing was excellent.
- c. Star Party at beginning of August-good night Saturday night; one person was down on the lake doing long duration trying to get a good look at the Milky Way (astrophotography). Steve Willaby (sp?) does that, for example, posts pics to Flickr if you want to check them out.
- d. Did anyone see the meteor shower? One woman said she was going out every few hours and looking and generally saw a few meteors each time between the breaks in the clouds. Another said he saw 12 on Friday early morning. As one of the meeting attendees said "August is the best time for viewing because it's like we're driving into the snowflakes."

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11. End of meeting, and speaker Linda Zimmerman gave a great presentation on “Mysterious Stone Sites” in the Hudson Valley, which after doing careful observations and calculations,
- Many seem to be oriented to tell time of year/season, such as the summer equinox, winter solstice etc. Many believe they are just a root cellar, or just a long stone wall for creating boundaries/penning in animals, but after studying them they appear to be much more of an astronomical tool for tracking the seasons/time.

## September speaker

Dr. Vivek Jain is an experimental Particle Physicist, and has worked on many leading experiments during his career. He received a M.S. in Physics from the Indian Institute of Technology, New Delhi, India and a Ph.D. in Experimental Particle Physics from the University of Hawaii, Manoa. He is currently an Assistant Professor of Physics at U Albany.

Dr. Jain is a member of the ATLAS experiment that collects data at the Large Hadron Collider at CERN in Switzerland. ATLAS was one of the two experiments that discovered the Higgs particle in 2012; this particle is the keystone of the current model that explains various aspects of High Energy Physics, aka “The Standard Model” of particle physics.

Title and Abstract:

"Physics at the Large Hadron Collider"

I will give a brief overview of the field of High Energy physics, and talk about the successes and failings of the Standard Model, which has been developed over the last 50 years. I will review how modern experiments are done, and discuss the potential for new discoveries at the Large Hadron Collider.

I look forward to meeting your group.

Vivek

## Call for Volunteers

Ken is doing a program for Desmond-Fish Library in Garrison, NY on October 6<sup>th</sup>. I think he is doing it alone so any help will be appreciated. Contact Ken if you're interested.

Here is a little about it...

*International Observe the Moon Night is Saturday, October 8th and we have arranged for a pre-InOMN event on Thursday the 6th. I am hoping that you might like to collaborate and help create a fun night of moon viewing at the Desmond-Fish Library in Garrison by encouraging your students and their families to come.*

*We will have at least two telescopes on the lawn and a member of the Mid-Hudson Astronomical Association showing us all what to do. Ken Bailey will give an initial talk about using a telescope and what they will see and then we will all go outside and take a look.*



Visit [spaceplace.nasa.gov](http://spaceplace.nasa.gov) to explore space and earth science!

## One Incredible Galaxy Cluster Yields Two Types of Gravitational Lenses

By Ethan Siegel

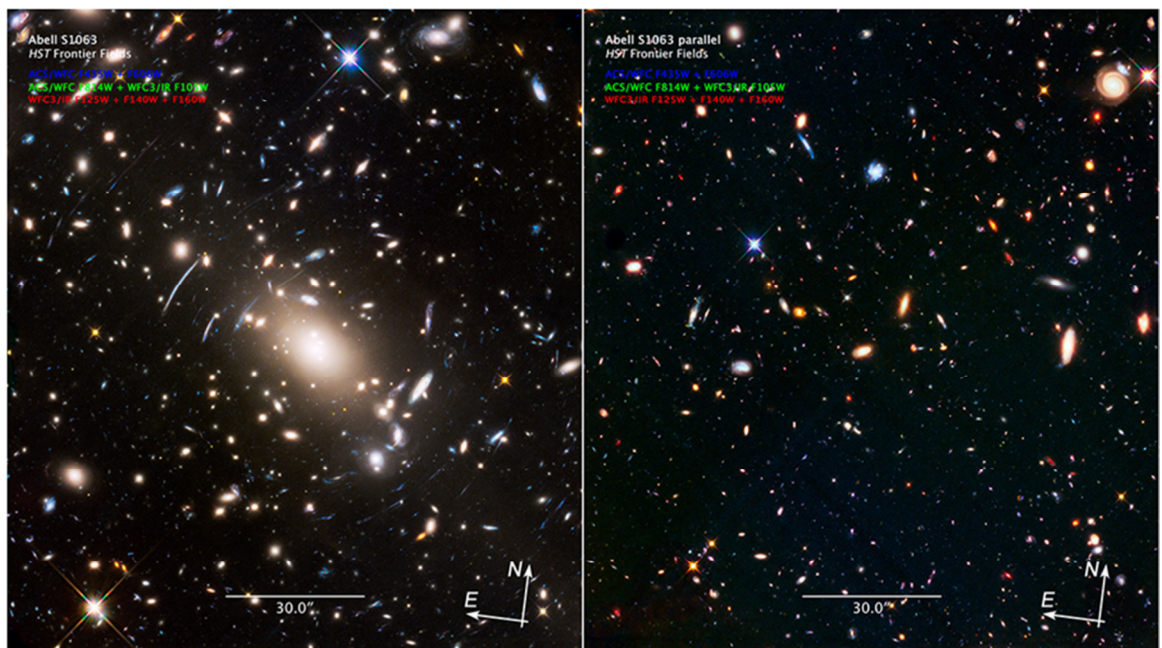
There is this great idea that if you look hard enough and long enough at any region of space, your line of sight will eventually run into a luminous object: a star, a galaxy or a cluster of galaxies. In reality, the universe is finite in age, so this isn't quite the case. There are objects that emit light from the past 13.7 billion years—99 percent of the age of the universe—but none before that. Even in theory, there are no stars or galaxies to see beyond that time, as light is limited by the amount of time it has to travel.

But with the advent of large, powerful space telescopes that can collect data for the equivalent of millions of seconds of observing time, in both visible light and infrared wavelengths, we can see nearly to the edge of all that's accessible to us.

The most massive compact, bound structures in the universe are galaxy clusters that are hundreds or even thousands of times the mass of the Milky Way. One of them, Abell S1063, was the target of a recent set of Hubble Space Telescope observations as part of the Frontier Fields program. While the Advanced Camera for Surveys instrument imaged the cluster, another instrument, the Wide Field Camera 3, used an optical trick to image a parallel field, offset by just a few arc minutes. Then the technique was reversed, giving us an unprecedentedly deep view of two closely aligned fields simultaneously, with wavelengths ranging from 435 to 1600 nanometers.

With a huge, towering galaxy cluster in one field and no comparably massive objects in the other, the effects of both weak and strong gravitational lensing are readily apparent. The galaxy cluster—over 100 trillion times the mass of our sun—warps the fabric of space. This causes background light to bend around it, converging on our eyes another four billion light years away. From behind the cluster, the light from distant galaxies is stretched, magnified, distorted, and bent into arcs and multiple images: a classic example of strong gravitational lensing. But in a subtler fashion, the less optimally aligned galaxies are distorted as well; they are stretched into elliptical shapes along concentric circles surrounding the cluster.

A visual inspection yields more of these tangential alignments than radial ones in the cluster field, while the parallel field exhibits no such shape distortion. This effect, known as weak gravitational lensing, is a very powerful technique for obtaining galaxy cluster masses independent of any other



conditions. In this serendipitous image, both types of lensing can be discerned by the naked eye. When the James Webb Space Telescope launches in 2018, gravitational lensing may well empower us to see all the way back to the very first

stars and galaxies.

If you're interested in teaching kids about how these large telescopes "see," be sure to see our article on this topic at the NASA Space Place: <http://spaceplace.nasa.gov/telescope-mirrors/en/>

**Picture caption:** Galaxy cluster Abell S1063 (left) as imaged with the Hubble Space Telescope as part of the Frontier Fields program. The distorted images of the background galaxies are a consequence of the warped space due to Einstein's general relativity; the parallel field (right) shows no such effects. Image credit: NASA, ESA and Jennifer Lotz (STScI)

## 2016 Star Party Schedule

Date	Time	Sunset	End Civil Twilight	Nearest New Moon
January 8th	7:30 PM	4:42 PM	5:13 PM	January 9th
February 5th	7:30 PM	5:16 PM	5:45 PM	February 8th
March 11th	7:30 PM	5:59 PM	6:26 PM	March 8th
April 8th	8:00 PM	7:30 PM	7:58 PM	April 7th
May 6th	8:30 PM	8:01 PM	8:32 PM	May 6th
June 10th	8:30 PM	8:31 PM	9:05 PM	June 4th
July 1st	8:30 PM	8:35 PM	9:09 PM	July 4th
July 29th	8:30 PM	8:17 PM	8:49 PM	August 2nd
September 2nd	8:00 PM	7:27 PM	7:56 PM	September 1st
September 30th	7:30 PM	6:38 PM	7:06 PM	September 30th
October 28th	7:30 PM	5:55 PM	6:23 PM	October 30th
November 25th	7:30 PM	4:28 PM	4:59 PM	November 29th
December 30th	7:30 PM	4:34 PM	5:06 PM	December 29th

### 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).