



Mid-Hudson Astronomical Association

June, 2017

Website: www.midhudsonastro.org

Yahoo Group: MHAstro

President : Willie Yee
Secretary: Jim Rockrohr
Newsletter Editor: Rick Versace
Publicity: Paul Chauvet
Speakers: Paul Granich

Vice President: Jack Chastain
Treasurer: Karen Tulchinsky
Membership Coordinator: Caryn Sobel
Webmaster: Paul Chauvet
Outreach: (open)
College Liaison: Dr. Amy Forestell

Board of Directors: Joe Macagne, Karl Loatman, Steve Carey

Minutes of the monthly meeting of the Mid Hudson Astronomical Association, May 16, 2017

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

The minutes of the last meeting were approved as published in the latest newsletter.

Officer's Reports:

Membership: 2 renewals and 1 new member as reported by Ken Bailey.

Treasurer: Karen Tulchinski was present. See the latest report as published in the newsletter.

Treasurer's Report for the month of May, 2017

Date: 17 June, 2017

Bank Balance:	\$2668.31
Outstanding Checks:	\$ 0.00
Outstanding Deposits:	\$ 24.95
Ending Bank Balance:	\$2693.26
Checkbook Balance:	\$2693.26
Balance with Bank: Yes	

Ending balance total: \$2693.26

Notes: Outstanding deposit is for membership paid via PayPal.

Respectfully submitted: Ken Bailey for Karen Tulchinsky
Treasurer

Outreach:

- **Michael Kudish Preserve, Stamford NY** – May 19-20, Willie coordinating. Jack, Rick, Ken, and Paul Granich, so far.
- **UFO Fair, Pine Bush** – May 20, (if anyone is interested).
- **Pine Plains Library** – May 25. Indoor presentation with possible viewing if weather is OK. Jack Chastain.
- **Adriance Library, Poughkeepsie, Solar Viewing** – July 8. Willie coordinating.
- **Olana** – October 21. Willie coordinating.
- **Pin Plains Library** – date TBD. Solar viewing and presentations. Ken Bailey coordinating.
- **Solar Eclipse** – August 21. We have had several requests for programs around the solar eclipse, but no one will be here to lead them. Raj may have a program at SUNY.

Publicity: Paul Chauvet was present. Send him info on public events.

Webmaster: Paul Chauvet was present. No issues known.

Upcoming programs: The following information was shared:

- June: Presentations by members about their telescopes.

Old Business:

- (none)

New Business:

- Willie requested money to purchase more solar glasses for the club. It was moved and seconded to authorize him to spend up to \$500 to purchase 1000 solar glasses. Motion passed unanimously.

Observing Reports:

- 4/22 – March for Science was well attended; up to 2000 people in the march in Poughkeepsie. Our booth had hundreds of people stop by.
- 4/28 – Club star party was attended by only Jack and a new member, Karen, who had an 8" SCT and was looking for help in using it. She learned a lot, but the viewing was not real good.
- 4/29 – Bright Ideas program at High Meadow School; presentations and viewing had about 100 people. Willie, Joe, and Jack participated.
- 5/5 – Haviland Middle School event cancelled due to weather.
- 5/16 – Joe gave a presentation at the New Paltz Montessori school to about 17 3-5 year olds. We donated the small Tasco telescope to the school.

Visitors/New Members:

There were about 23 people in attendance at the end of the business meeting.

The meeting was adjourned at about 7:55 PM. The next meeting is on June 20th.

The presentation that followed was "How Superman Sees the Stars" by Professor David J. Helfand, a presentation on x-ray astronomy.

Submitted by James Rockrohr, June 18th, 2017.

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From the President:

**MHAA Telescopes 2017**

This month's meeting will feature presentations on the telescopes of MHAA members. For those who will not be present, here is an update on two of our scopes.

The 14" LX-200 has found an excellent home. It will be installed in the [Dudley Observatory's](#) new facility. This is expected to open late fall. Dr. Valerie Rapon was extremely grateful to receive an instrument of this size.

Our most recent acquisition, a "department store" refractor was donated to the Montessori School of New Paltz. Joe Macagne delivered the scope and made a presentation to a very young and enthusiastic audience. One of their thank you notes is attached.

On a sadder note, Howie Glatter, who has spoken a couple times at our meetings, has passed. His work and passion were unequalled in our field, and he will be missed.

Dr. Willie K. Yee  
President

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The Shape of the Solar System

By Marcus Woo

When Stamatis (Tom) Krimigis was selected for the Voyager mission in 1971, he became the team's youngest principal investigator of an instrument, responsible for the Low Energy Charged Particles (LECP) instrument. It would measure the ions coursing around and between the planets, as well as those beyond. Little did he know, though, that more than 40 years later, both Voyager 1 and 2 still would be speeding through space, continuing to literally reshape our view of the

solar system.

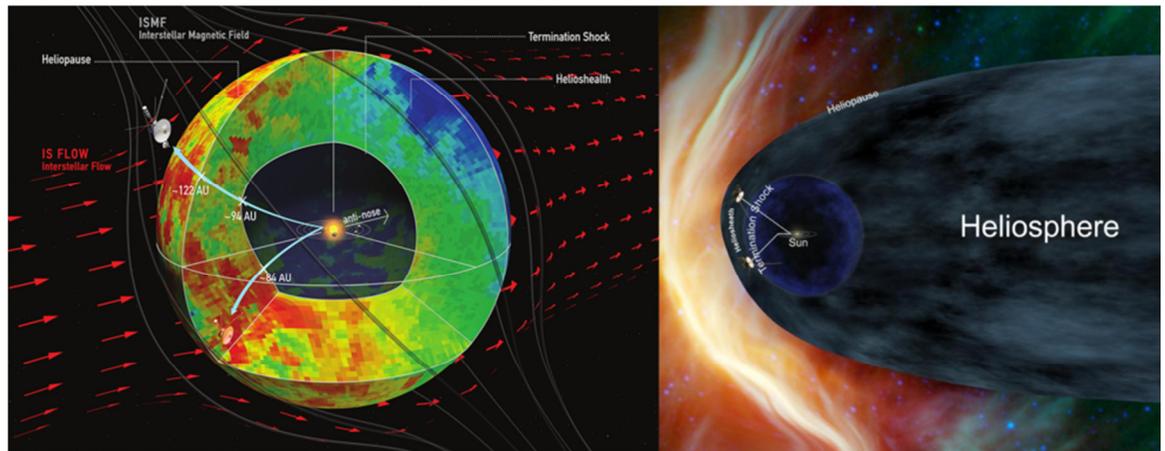
The solar system is enclosed in a vast bubble, carved out by the solar wind blowing against the gas of the interstellar medium. For more than half a century, scientists thought that as the sun moved through the galaxy, the interstellar medium would push back on the heliosphere, elongating the bubble and giving it a pointy, comet-like tail similar to the magnetospheres—bubbles formed by magnetic fields—surrounding Earth and most of the other planets

"We in the heliophysics community have lived with this picture for 55 years," said Krimigis, of The Johns Hopkins University Applied Physics Laboratory in Laurel, Maryland. "And we did that because we didn't have any data. It was all theory."

But now, he and his colleagues have the data. New measurements from Voyager and the Cassini spacecraft suggest that the bubble isn't pointy after all. It's spherical.

Their analysis relies on measuring high-speed particles from the heliosphere boundary. There, the heated ions from the solar wind can strike neutral atoms coming from the interstellar medium and snatch away an electron. Those ions become neutral atoms, and ricochet back toward the sun and the planets, uninhibited by the interplanetary magnetic field.

Voyager is now at the edge of the heliosphere, where its LECP instrument can detect those solar-wind ions. The researchers found that the number of measured ions rise and fall with increased and decreased solar activity, matching the 11-year solar cycle, showing that the particles are indeed originating from the sun.



New data from NASA's Cassini and Voyager show that the heliosphere — the bubble of the sun's magnetic influence that surrounds the solar system — may be much more compact and rounded than previously thought. The image on the left shows a compact model of the heliosphere, supported by this latest data, while the image on the right shows an alternate model with an extended tail. The main difference is the new model's lack of a trailing, comet-like tail on one side of the heliosphere. This tail is shown in the old model in light blue.

Image credits: Dialynas, et al. (left); NASA (right)

Meanwhile,

Cassini, which

launched 20 years after Voyager in 1997, has been measuring those neutral atoms bouncing back, using another instrument led by Krimigis, the Magnetosphere Imaging Instrument (MIMI). Between 2003 and 2014, the number of measured atoms soared and dropped in the same way as the ions, revealing that the latter begat the former. The neutral atoms must therefore come from the edge of the heliosphere.

If the heliosphere were comet-shaped, atoms from the tail would take longer to arrive at MIMI than those from the head. But the measurements from MIMI, which can detect incoming atoms from all directions, were the same everywhere. This suggests the distance to the heliosphere is the same every which way. The heliosphere, then, must be round, upending most scientists' prior assumptions.

It's a discovery more than four decades in the making. As Cassini ends its mission this year, the Voyager spacecraft will continue blazing through interstellar space, their remarkable longevity having been essential for revealing the heliosphere's shape.

"Without them," Krimigis says, "we wouldn't be able to do any of this."

To teach kids about the Voyager mission, visit the NASA Space Place: <https://spaceplace.nasa.gov/voyager-to-planets>

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## 2017 Star Party Schedule

| <i>Date</i>    | <i>Time</i> | <i>Sunset</i> | <i>End Civil Twilight</i> | <i>Nearest New Moon</i> |
|----------------|-------------|---------------|---------------------------|-------------------------|
| January 27th   | 7:30PM      | 5:05PM        | 5:35PM                    | January 27th            |
| March 3rd      | 7:30PM      | 5:49PM        | 6:17PM                    | February 26th           |
| March 24th     | 7:30PM      | 7:13PM        | 7:40PM                    | March 27th              |
| April 28th     | 8:00PM      | 7:51PM        | 8:21PM                    | April 26th              |
| May 26th       | 8:30PM      | 8:19PM        | 8:52PM                    | May 25th                |
| June 30th      | 8:30PM      | 8:34PM        | 9:09PM                    | June 23rd               |
| July 28th      | 8:30PM      | 8:18PM        | 8:49PM                    | July 23rd               |
| August 18th    | 8:30PM      | 7:51PM        | 8:20PM                    | August 21st             |
| September 22nd | 7:30PM      | 6:52PM        | 7:20PM                    | September 20th          |
| October 20th   | 7:30PM      | 6:06PM        | 6:35PM                    | October 19th            |
| November 17th  | 7:30PM      | 4:33PM        | 5:04PM                    | November 18th           |
| December 15th  | 7:30PM      | 4:26PM        | 4:48PM                    | December 18th           |

### 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).