MHAA

Mid-Hudson Astronomical Association

July, 2014

Website: www.midhudsonastro.org

Yahoo Group: MHAstro

President : Willie Yee
Vice President: Joe Macagne
Secretary: Jim Rockrohr
Treasurer: Ken Bailey
Newsletter Editor: Rick Versace
Membership Coordinator: Caryn Sobel
Publicity: Paul Chauvet
Webmaster: Paul Chauvet
Parks Liaison:
College Liaison: Dr. Amy Forestell

Directors: Steve Carey, Dave Lindemann, Karl Loatman, & Tom Rankin

Meeting Minutes

Minutes of the monthly meeting of the Mid Hudson Astronomical Association, June 17, 2014

The meeting was called to order at 7:34 PM by President Willie Yee in Lecture Center Room 102 at SUNY, New Paltz, NY.

It was moved and seconded that the minutes of the last two meetings (April and May) as published in the newsletter be approved. The motion passed.

Officer's Reports:

Membership: Caryn Sobel was not present. As of July 1, the dues for new memberships for the remainder of 2014 are half price ($12.50).

Treasurer: Ken Bailey present. See his report in the newsletter. He also received an additional $200 donation from Olana that should be added to the totals in the newsletter.

Treasurer's Report for the month of June

Date: 13 July, 2014

Bank Balance:	$2334.93
Outstanding Checks:	$1204.36
Outstanding Deposits:	$ 175.00
Ending Bank Balance:	$1305.57
Checkbook Balance:	$1305.57
Balance with Bank: Yes	
Ending balance total:	$1305.57

Notes: Outstanding deposit is from Olana and membership renewals. Outstanding checks are a reimbursement and shirt order.

Respectfully submitted: Ken Bailey
Treasurer

Outreach: Candace Wall will be out of town 6/24-7/10.

Upcoming events include:

- Received a request for a presentation from a school in Fishkill. Elli Lopatinskey coordinating.
- **Sun Day**: June 22. We need a coordinator.
- **Grey Fox:** July 17-20. Paul Granich coordinating. 5 'scopes, so far, including Dave Rosseter's "Fritz".
- **Olana events (Willie organizing)**:
    - Summer camp, 7/7-12 and 7/21-24.
    - Saturday, August 16, 2 PM (?), Sun Tour (weather date August 17)
    - Sunday, September 21, 7-9 PM (no weather date)
- **Rosendale Bridge** (Tom Rankin coordinating)
- **Mason Dixon Star Party, 6/23-27** (See Ken for details)
- **Rockland Star Party, 7/25-8/3**

Publicity: Paul Chauvet not present.

Webmaster: Paul Chauvet not present.

Upcoming programs: Joe Macagne

- We need speakers. If you have any ideas or leads, let Joe or Willie know.

Old Business:

- Club Library – Ken has the library if any paid member wants to check out a video. We will order the recent Cosmos TV series on DVD. A listing of all of the videos in the library will be posted on the Meetup Page under "More – Files"
- Club Inventory – Willie reviewed what he has, so far, with the group. He will post this on the meetup site when complete.
- Club telescopes:
    - **13.1" Dobsonian Club Telescope:** Jack Chastain has it and will bring it to club events.

- **8" Dynamax SCT:** Joe Macagne has it and it is available to paid members.
- **6" Bausch & Lomb SCT:** Tom Crepet has it and it is available to paid members.
- **4" Tasco Newtonian:** Paul Chauvet has it and is using it.
- **10" Newtonian on EQ mount:** Candace has it and is looking for help. It has a few problems.
- Karl Loatman is willing to take the 10" Dobsonian we were offered if it is still available.

New Business:

- Rick has ordered and received the pop-up shelter with sides authorized at the last meeting. He showed some pictures to the group.
- Also discussed obtaining club T-shirts to hand out at Grey Fox. Rick will get with Ken.
- Paul Chauvet will prepare 500 handouts for Grey Fox.

Visitors/New Members:

No visitors introduced themselves. There were a total of about 14 people present for the meeting.

Observing Reports:

- Girl Scout Camporall on May 30 had 4 'scopes. 30-40 girl scouts visited the scopes. Well received.
- Haviland School on June 6 also had 4 'scopes. About 100 people attended.
- Olana on June 14. Karl Loatman gave a talk on astronomy in art. Willie gave a talk on the moon. The group was lucky to see a double Iridium flare. 40-50 people attended.

The meeting was adjourned at 8:00 PM. Next meeting is on July 15.

The program that followed was a talk by Steve Bellavia: **"Comets of 2013 and 2014"**.

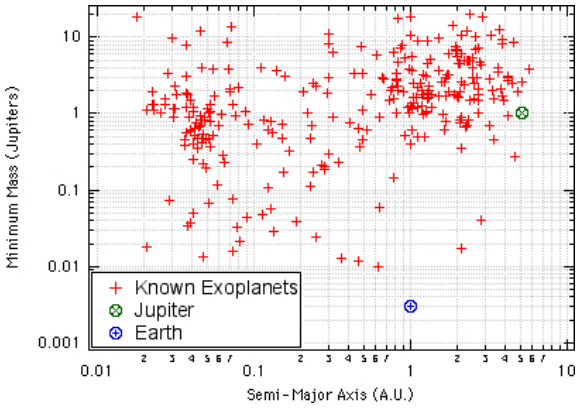
Submitted by James Rockrohr, July 13, 2014.

From the President:

Exoplanets

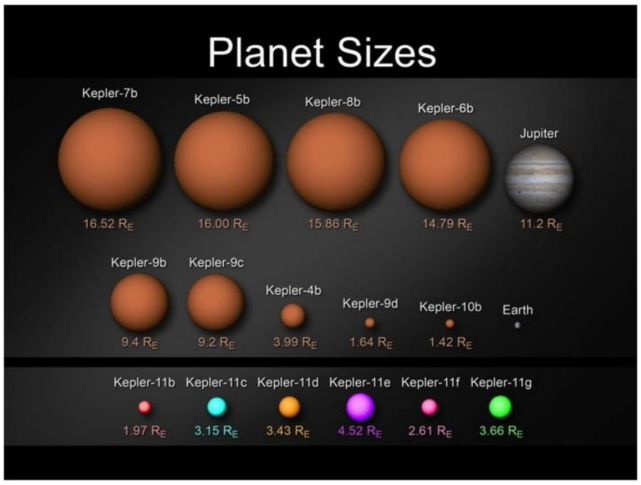
I just finished an online course on exoplanets from the University of Geneva. The lecturers were some of the pioneers of exoplanet research, and Jennifer's name even popped up in one of the recommended reading articles. So here are some of the take-away points.

1. What we have previously surmised about how planets form in accretion disks is wrong. Until the discovery of exoplanets, the only system we had to base any theories on was our own solar system. And it seems that ours is a rather unusual one in the galaxy, at least that part of it that we have been able to explore so far. The discovery of "hot Jupiters", planets the size of Jupiter or larger, orbiting their stars very closely and rapidly, has required a model, with the attendant math, to show how they tend to wander in closer to their stars over time.



2. Exoplanet research has moved on from detecting exoplanets to learning what we can about the characteristics of these planets.

3. Although they are far away, and involve separations of 1/10th an arc-second, the techniques of exoplanet research can tell us about the mass, size, orbit, and density of the planets. Further techniques, such as spectroscopy have been able to characterize the **atmospheres** of planets including chemical composition, visible color, and the presence of clouds or high winds. If oxygen is present, we could detect it, and it would be suggestive of the presence of life.



4. From studying multi-planet systems, we have come to learn about the stabilizing influence of other planets on the orbits of a given planet. In the absence of other planets, orbits will remain highly elliptical. With many planets in a system, they will become more circular, as in our solar system.

5. The next generation of telescopes including the Webb Space Telescope, the ESO Extremely Large Telescope, and the Thirty Meter Telescope will greatly advance exoplanet research. Aperture rules!

NASA Space Place

The Invisible Shield of our Sun

By Dr. Ethan Siegel

Whether you look at the planets within our solar system, the stars within our galaxy or the galaxies spread throughout the universe, it's striking how empty outer space truly is. Even though the largest concentrations of mass are separated by huge distances, interstellar space isn't empty: it's filled with dilute amounts of gas, dust, radiation and ionized plasma. Although we've long been able to detect these components remotely, it's only since 2012 that a manmade spacecraft -- Voyager 1 -- successfully entered and gave our first direct measurements of the interstellar medium (ISM).

What we found was an amazing confirmation of the idea that our Sun creates a humongous "shield" around our solar system, the heliosphere, where the outward flux of the solar wind crashes against the ISM. Over 100 AU in radius, the heliosphere prevents the ionized plasma from the ISM from nearing the planets, asteroids and Kuiper belt objects contained within it. How? In addition to various wavelengths of light, the Sun is also a tremendous source of fast-moving, charged particles (mostly protons) that move between 300 and 800 km/s, or nearly 0.3% the speed of light. To achieve these speeds, these particles originate from the Sun's superheated corona, with temperatures in excess of 1,000,000 Kelvin!

When Voyager 1 finally left the heliosphere, it found a 40-fold increase in the density of ionized plasma particles. In addition, traveling beyond the heliopause showed a tremendous rise in the flux of intermediate-to-high energy cosmic ray protons, proving that our Sun shields our solar system quite effectively. Finally, it showed that the outer edges of the heliosheath consist of two zones, where the solar wind slows and then stagnates, and disappears altogether when you pass beyond the heliopause.

Unprotected passage through interstellar space would be life-threatening, as young stars, nebulae, and other intense energy sources pass perilously close to our solar system on ten-to-hundred-million-year timescales. Yet those objects pose no major danger to terrestrial life, as our Sun's invisible shield protects us from all but the rarer, highest energy cosmic particles. Even if we pass through a region like the Orion Nebula, our heliosphere keeps the vast majority of those dangerous ionized particles from impacting us, shielding even the solar system's outer worlds quite effectively. NASA spacecraft like the Voyagers, IBEX and SOHO continue to teach us more about our great cosmic shield and the ISM's irregularities. We're not helpless as we hurtle through it; the heliosphere gives us all the protection we need!

Want to learn more about Voyager 1's trip into interstellar space? Check this out: http://www.jpl.nasa.gov/news/news.php?release=2013-278.

Kids can test their knowledge about the Sun at NASA's Space place: http://spaceplace.nasa.gov/solar-tricktionary/.

Image credit: Hubble Heritage Team (AURA / STScI), C. R. O'Dell (Vanderbilt), and NASA, of the star LL Orionis and its heliosphere interacting with interstellar gas and plasma near the edge of the Orion Nebula (M42). Unlike our star, LL Orionis displays a bow shock, something our Sun will regain when the ISM next collides with us at a sufficiently large relative velocity.

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 Taghanic are held in the West Parking log, 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 ticketted and risk our use of the park.

General Information:

- For the foreseeable future, all indoor meetings will be held on the 3rd 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. Call the Club Hotline for updated information. Everyone should meet at the gate at the scheduled time. The gate will be closed after that time.
- 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.