



# STAR STUFF

Ford Amateur Astronomy Club Newsletter

## Star Stuff

This newsletter is published eleven times per year by:

Ford Amateur Astronomy Club  
P.O. Box 7527  
Dearborn, MI 48121-7527

## Officers

President:	Mike Bruno
Vice President:	Ed Halash
Secretary:	Cheri Grissom
Treasurer:	Arica Flores

## Departments

Webmaster:	Liam Finn
Membership:	Doug Bauer
Newsletter:	Tim Campbell
Equipment:	Jeff Gorman
Speakers:	Sandra Macika

## Club Information

The Ford Amateur Astronomy Club meets on the fourth Thursday of each month, except for the combined November/December meeting which meets on the first Thursday of December – at Henry Ford College Administration Services and Conference Center in Dearborn.

## Secretary's Report

*by Cheri Grissom*

### FAAC General Meeting – July 22, 2021

Our videoconference meeting was called to order by President Mike Bruno at approximately 7:02 p.m. Board members Ed Halash and Arica Flores absent. A total of 19 people attended. New members and guests introduced themselves.

### *Member Observing Experiences:*

Several members attended the observing event at Island Lake last Saturday. We had good weather, skies were decent. We observed two ISS passes. Liam Finn and Cheri Grissom were able to follow it across the sky manually with their scopes. Saturn made an appearance late in the evening, followed by Jupiter. Doug Bock will be going to his Boone Hill Observatory in August to observe the Perseids. He is also planning on going to the Okie-Tex Star Party in early October. We talked about the Great Lakes Star Gaze coming up September 9 - 12.

### *What's Up:*

Gordon Hansen presented. He went over our calendar of events; for details, see our website or social media sites. Saturn is at opposition August 2. The annual Perseid Meteor Shower will peak on August 12. Jupiter is at opposition August 19. Our club picnic will be held at Spring Mill Pond, Island Lake, on August 14. Details will follow on our sites. Our asterism of the month is "The Segment" in Perseus. Everyone present agreed they had never heard of that one before! Mercury, Venus, Mars, Jupiter, Saturn, and Neptune will all be easily found in the evening skies in August. There are also many nice open clusters to be seen this time of year.

## Club Information

Refer to our website for a map and directions:

[www.fordastronomyclub.com](http://www.fordastronomyclub.com)

## Observing

The FAAC primary observing location is Spring Mill Pond located within the Island Lake State Recreation Area near Brighton, Michigan. The Club maintains an after-hours permit. Club members can contact any club officer for procedures to enter or exit the park when the main gate is locked.

The club also has use of a private observing site near Gregory Michigan. See the FAAC Groups.io Group for more information.

Inquiries can be directed to [info@fordastronomyclub.com](mailto:info@fordastronomyclub.com)

## Membership

Membership is open to anyone with an interest in amateur astronomy. The FAAC is an affiliate of the Ford Employees Recreation Association (FERA).

### Fees

Annual - New Members: \$30

Annual - Renewals: \$25

(\$30 if not renewed by Jan 31)

### Benefits

Membership includes the Star Stuff newsletter, discounts on magazines, discounts at selected

## Club Reports:

**Secretary's Report:** Cheri advised that the club is down to only six of the lanyards and plastic sleeves that we give to members for displaying their membership badges, and asked for this to be put on the agenda for the next board meeting so we can make arrangements to order more.

**Treasurer's Report:** Arica was absent but Mike advises our balance is about the same as last month.

**GLAAC/AATB:** Astronomy at the Beach will be held as a live event at Kent Lake Beach, Island Lake, on September 24 and 25. Scopes will be limited to the beach area. Clubs may bring their own canopies and tables, but there will be no big tent, no vendor displays, no guest speakers. There will also be no virtual component to the event as the park does not have the bandwidth for it. [Editor's note: *At the subsequent GLAAC board meeting, AATB has reverted to doing a virtual event rather than a physical in-person event due to concerns around COVID-19 and the Delta variant — combined with knowing that a large part of our audience would be school-aged children who are not able to be vaccinated against the virus.*]

## Speaker:

Dr. Rajib Ganguly is an Associate Professor of Physics at U of M-Flint, and the subject of his talk was "The Universe Through Superman's Eyes," which means x-ray vision, of course, or maybe it should be called Kryptonian eyes! If the entirety of the sound waves that we humans are able to hear was represented by a piano keyboard, the portion of the electromagnetic spectrum that we are able to see would be only one octave on that keyboard. Seeing things in space with x-ray vision, however, gives quite a different perspective. Interestingly, though, if Superman were observing the night sky from Earth, he would see pretty much the same as humans do, due to our atmosphere. So if we humans want to see what's out there with x-ray vision, we have to do it with specialty space missions like the Chandra X-ray Observatory. Dr. Ganguly shared a nice collection of comparisons between space images done in visible light versus x-ray.

A question-and-answer period followed with additional discussion.

Meeting adjourned at approximately 9:30 p.m.

area equipment retailers, and after-hours access to the Island Lake observing site and private observing sites.

Astronomy or Sky & Telescope magazine discounts are available by contacting the FAAC club treasurer [treasurer@fordastronomyclub.com](mailto:treasurer@fordastronomyclub.com) for the discount form. The form should be sent to the respective publisher with your subscription request and payment. Do not send money directly to FAAC.

The FAAC has a pool of equipment including telescopes, cameras, and other gear used for outreach. Much of the gear can be borrowed for personal use in the interest of furthering your knowledge and experience in astronomy.

Please see the equipment list for further information.

## Club Wear

Club logo-wear (embroidered with club logo) can be ordered directly through [LLBeanBusiness.com](http://LLBeanBusiness.com)

See the [groups.io](http://groups.io) files section for ordering information and instructions on how to request the correct logo.

## Communication

The FAAC uses Groups.io for our email distribution list (both formal and informal discussion.)

Observing nights & locations (scheduled and unscheduled as weather permits), equipment

# Catch Andromeda Rising

*by David Prosper*



If you're thinking of a galaxy, the image in your head is probably the Andromeda Galaxy! Studies of this massive neighboring galaxy, also called M31, have played an incredibly important role in shaping modern astronomy. As a bonus for stargazers, the Andromeda Galaxy is also a beautiful sight.

Have you heard that all the stars you see at night are part of our Milky Way galaxy? While that is mostly true, one star-like object located near the border between the constellations of Andromeda and Cassiopeia appears fuzzy to unaided eyes. That's because it's not a star, but the Andromeda Galaxy, its trillion stars appearing to our eyes as a 3.4 magnitude patch of haze. Why so dim? Distance! It's outside our galaxy, around 2.5 million light years distant - so far away that the light you see left M31's stars when our earliest ancestors figured out stone tools. Binoculars show more detail: M31's bright core stands out, along with a bit of its wispy, saucer-shaped disc. Telescopes bring out greater detail but often can't view the entire galaxy at once. Depending on the quality of your skies and your magnification, you may be able to make out individual globular clusters, structure, and at least two of its orbiting dwarf galaxies: M110 and M32. Light pollution and thin clouds, smoke, or haze will severely hamper observing fainter detail, as they will for any "faint fuzzy." Surprisingly, persistent stargazers can still spot M31's core from areas of moderate light pollution as long as skies are otherwise clear.

Modern astronomy was greatly shaped by studies of the Andromeda Galaxy. A hundred years ago, the idea that there were other galaxies beside our own was not widely accepted, and so M31 was called the "Andromeda Nebula." Increasingly detailed observations of M31 caused astronomers to question its place in our universe - was M31 its own "island universe," and not part of our Milky Way? Harlow Shapley and Heber Curtis engaged in the "Great Debate" of 1920 over its nature. Curtis argued forcefully from his observations of dimmer than expected nova, dust lanes, and other oddities that the "nebula" was in fact an entirely different galaxy from our own. A few years later, Edwin Hubble, building on Henrietta Leavitt's work on Cepheid variable stars as a "standard candle" for distance measurement, concluded that M31 was indeed another galaxy after he observed Cepheids in photos of Andromeda, and estimated M31's distance as far outside our galaxy's boundaries. And so, the Andromeda Nebula became known as the Andromeda Galaxy.

questions, events, outreaches, etc. are normally discussed via this list.

Join by visiting <https://groups.io/g/FordAstronomyClub> to request membership.

## Articles & Submissions

Your submissions to Star Stuff are welcome! Send your story and/or images to the editor at: [starstuff@fordastronomyclub.com](mailto:starstuff@fordastronomyclub.com)

## Observatory

The FAAC maintains and operates the Hector J Robinson Observatory (HJRO) at Lincoln Park Schools.

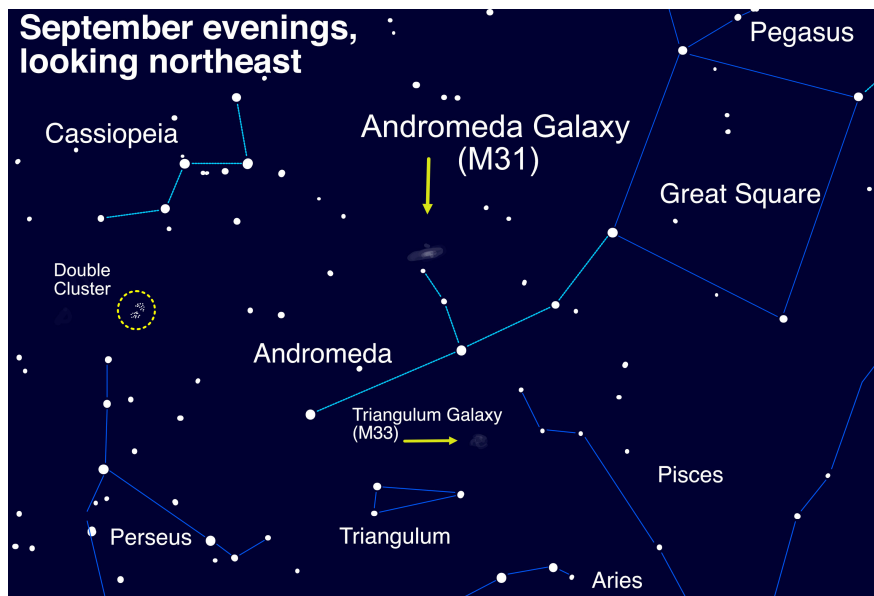
The observatory houses a 14" Celestron C14 Schmidt Cassegrain Telescope as well as other instruments and can be used by club members.

The observatory is adjacent to the athletic field situated between the Lincoln Park Middle School and High School buildings near

1701 Champaign Rd.  
Lincoln Park, MI 48146

The school system has designated four "key-holders" within the club who have the ability to open the observatory.

Call (313) 444-5850 to learn when the observatory is opening (or request an opening).



*Spot the Andromeda Galaxy! M31's more common name comes from its parent constellation, which becomes prominent as autumn arrives in the Northern Hemisphere. Surprising amounts of detail can be observed with unaided eyes from dark sky sites. Hints of it can even be made out from light polluted areas. Image created with assistance from Stellarium.*

These discoveries inspire astronomers to this day, who continue to observe M31 and many other galaxies for hints about the nature of our universe. One of the Hubble Space Telescope's longest-running observing campaigns was a study of M31: the Panchromatic Hubble Andromeda Treasury (PHAT): [bit.ly/m31phat](http://bit.ly/m31phat). Dig into NASA's latest discoveries about the Andromeda Galaxy, and the cosmos at large, at [nasa.gov/te](http://nasa.gov/te) from one point in Perseus - their radiant. Giant planets Jupiter and Saturn will be up all evening as well. Look south - they easily stand out as the brightest objects in the faint constellations Aquarius and Capricornus.

Pegasus truly holds some fantastic astronomical treasures! Continue your exploration of the stars of Pegasus and beyond with NASA at [nasa.gov](http://nasa.gov).

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## Planetarium

FAAC members are volunteer operators for the Hammond Planetarium at Henry Ford College.

Planetarium shows are free and open to the public.

Four seasonal planetarium shows are offered per year with the stars and constellations of the current season as well as a multi-media presentation featuring select planets.

Public planetarium shows are normally offered each Wednesday at 7:30pm and every 2nd Saturday at 3:00pm – however there are some exceptions. Please see the planetarium schedule for specific times. It is posted here:

[fordastronomyclub.com/hfc-planetarium](http://fordastronomyclub.com/hfc-planetarium)

## Social Media

The FAAC has several social media accounts. Members are encouraged to join and follow them.

### Facebook

[facebook.com/FordAstronomyClub](https://facebook.com/FordAstronomyClub)

### Twitter

[twitter.com/Ford\\_Astro](https://twitter.com/Ford_Astro)

### MeetUp

[meetup.com/Ford-Amateur-Astronomy-Club](https://meetup.com/Ford-Amateur-Astronomy-Club)

## Scheduled Club Events

Month	Date	Sunset	Location
September	11th (Tentative)	7:49pm	Island Lake
September	24 & 25 (Astronomy at the Beach)	7:26pm 7:24pm	Island Lake (Kent Lake Beach)
October	9th	7:00pm	Maybury State Park

## Upcoming Club Meeting Topics & Speakers

Meeting	Speaker	Topic
August 26th	Dale Force	Cassini Radio Science: The Glenn Contribution
September 23rd	Jeffrey Woytach	Asteroid Missions - Psyche, DART and OSIRIS-REX
October 28th	Don Klaser	Skylor & Mythology - Fall/Winter

## June Talk Details

### Cassini Radio Science: The Glenn Contribution

*Dale Force*

*Electronics Engineer, NASA Glenn Research Center, Lewis Field*

Dale Force of the NASA Glenn Research Center in Cleveland, OH will give a speech on the Center's contribution to the radio science experiment on the Cassini mission to Saturn. The radio science experiment tested General Relativity and searched for gravitational waves. The experiment also provided precision navigation, allowing measurements of the gravitational field of Saturn and its moons. He will also discuss the results of occultation measurements of the atmosphere and ionosphere of Saturn and its larger moons.

*Continued on Page 8*



*Andromeda (Cont'd from page 4)*

While M31's disc appears larger than you might expect (about 3 Moon widths wide), its "galactic halo" is much, much larger – as you can see here. In fact, it is suspected that its halo is so huge that it may already mingle with our Milky Way's own halo, which makes sense since our galaxies are expected to merge sometime in the next few billion years! The dots are quasars, objects located behind the halo, which are the very energetic cores of distant galaxies powered by black holes at their center. The Hubble team studied the composition of M31's halo by measuring how the quasars' light was absorbed by the halo's material. Credits: NASA, ESA, and E. Wheatley (STScI) Source: <https://bit.ly/m31halo>

*July Talk Details (Cont'd from Page 5)*

The Glenn Research Center developed the Ka band high power amplifier for the mission. Cassini was the first deep space mission to use the Ka band deep space frequency band at 32 GHz. Although Cassini only used this band for radio science, Cassini proved the technology mature, allowing the use of Ka band communications on later NASA missions such as Kepler and the Lunar Reconnaissance Orbiter.

The Cassini Ka band high power amplifier is a 10 W traveling wave tube amplifier. Traveling wave tubes are an advanced form of vacuum tube used for high power microwave amplification.

Dale's role in the development was the design of the multistage depressed collector and assistant project manager for the Glenn effort.

**Bio:**

Dale Force joined NASA in 1983, after receiving his M.S. and B.S. in Physics from Michigan State University. Having done his thesis research on solid-state theory, it was natural that NASA made him a thermionics engineer designing vacuum tubes, especially traveling wave tubes (TWTA) (M.E., University of Utah). His interest in Cassini Radio Science comes about since he was involved in the design of the 32 GHz TWTA, which is part of the radio science package on Cassini. Following his work on Cassini, he has been involved in the Lunar Reconnaissance Orbiter and the SCaN Testbed, as well as many other NASA efforts. He is a member of the Institute of Electrical and Electronic Engineers (IEEE), the American Physical Society, and Toastmasters. He is speaking here as a member of the Glenn Research Center Speakers Bureau.

# Equipment

The FAAC maintain an equipment pool of telescopes, binoculars, cameras, and other equipment used for special events. Much of this equipment is available to members.

Each piece of equipment is either stored by a club volunteer who offers to be the caretaker of the item, or by the person who last borrowed the item.

Most equipment can be borrowed for one-month durations. At the end of the month, the borrower can extend the loan if no other members have requested it.

Some items are reserved for special events use and are not normally available to be borrowed.

If you are interested in borrowing an item, please contact either the current holder of the equipment, or contact the club equipment manager, Jeff Gorman, at [equipment@fordastronomyclub.com](mailto:equipment@fordastronomyclub.com)

Item	Held by	Item	Held by
<b>Telescopes</b>		<b>Display Items</b>	
TK1 Coronado Personal Solar Telescope (Doublestack) w/Meade Autostar Goto Mount	Jessica Edwards	Astronomy Event Sign (3' x 6')	Gordon Hansen
TK5 4.5" Reflector on Fitz GEM mount	Bob MacFarland	Astronomy Event Signs 18x24" (x8)	Liam Finn
TK6 8" Orion XT8i Dobsonian	Sean Pickard	PVC Display Board - Folding	Sandra Macika
TK7 TPO 8" f/4 Newtownian Astrograph (OTA Only - no mount)	Gary Gibson	Banner - Small (24" x 32")	George Korody
TK8 20" f/5 Obsession Dob, Ladder & EP Kit	Liam Finn	Banner - Medium (24" x 72")	Sandra Macika
<b>Presentation Tools</b>		Banner - Large (32" x 16')	George Korody
Projector (older)	Jim Frisbie	Tri-Fold Presentation Boards	George Korody
Projector (newer)	Gordon Hansen	<b>Other</b>	
Projection Screen 8'	John McGill	Canopy (10' x 10')	Liam Finn
Projection Screen 6'	Liam Finn	Pop Cooler	Sean Pickard
Bullhorn	George Korody	TA Sky Quality Meter	Liam Finn
Speaker System w/Wireless Mic	Liam Finn	<b>Demonstration Tools</b>	
DVD Player	Dennis Salliotte	Weigh on Planets Scale	George Korody
		Lunar Phase Kit	Bob MacFarland
		100' Scale Model Solar System Kit	Bob MacFarland
		NSN Meteorite (Outreach) kit	Sandra Macika

Item	Held by
<b>Imaging Cameras</b>	
C2 Meade Deep Sky Imager Pro III w/Autostar Suite	Gordon Hansen
C6 Canon 60Da Astrophotography DSLR and accessories	Tim Dey
<b>Other Imaging Equipment</b>	
CA1 Rigel Systems Spectrascope	Gordon Hansen
C7 Canon EOS EF 70-200mm f/1.4L IS USM lens & tripod mounting ring (for Canon EOS cameras)	Gordon Hansen
Rokinon 8mm f/3.5 Fish-Eye Lens (Canon EOS Mount)	John McGill
<b>Special Event Items - Not available for Loan Out</b>	
BK2 Zhumell 25x100 Binoculars, hard case, & Zhumell TRH-16 tripod w/soft fabric bag	Sandra Macika
TAK1 Night Vision Image Intensifier for telescopes (2" barrel size)	George Korody