



Star Stuff

Ford Amateur Astronomy Club Newsletter

Volume 26, Number 10

November/December 2016

Dimming stars, erupting plasma, and beautiful nebulae

By Marcus Woo

Boasting intricate patterns and translucent colors, planetary nebulae are among the most beautiful sights in the universe. How they got their shapes is complicated, but astronomers think they've solved part of the mystery—with giant blobs of plasma shooting through space at half a million miles per hour.

Planetary nebulae are shells of gas and dust blown off from a dying, giant star. Most nebulae aren't spherical, but can have multiple lobes extending from opposite sides—possibly generated by powerful jets erupting from the star.

Using the Hubble Space Telescope, astronomers discovered blobs of plasma that could form some of these lobes. "We're quite excited about this," says Raghvendra Sahai, an astronomer at NASA's Jet Propulsion Laboratory. "Nobody has really been able to come up with a good argument for why we have multipolar nebulae."

Sahai and his team discovered blobs launching from a red giant star 1,200 light years away, called V Hydrae. The plasma is 17,000 degrees Fahrenheit and spans 40 astronomical units—roughly the distance between the sun and Pluto. The blobs don't erupt continuously, but once every 8.5 years. The launching pad of these blobs, the researcher's propose, is a smaller, unseen star orbiting V Hydrae. The highly elliptical orbit brings the companion star through the outer layers of the red giant at closest approach.

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Presidents Article

By Timothy Campbell

General Membership Meeting Time, Elections, Sirius Award, and the Club Website

This month I have quite a few things to report.

First on the list: **General Membership Meeting Times.**

This change will take effect in January.

Question

The board recommends changing the club meeting time to 7pm starting with the January 2017 meeting. This would be a permanent change. Will you be able to attend club meetings starting at 7pm?

tcampb01 • 30 votes • 11/08/2016

Results



Just to avoid any confusion, the **December 1 meeting this year will still occur at 5:30pm**, but the first meeting of 2017 -- on January 26 -- will begin at the new time of 7pm.

Second on the list: **Club Elections**

Elections are held on the first general club membership meeting of each year. In 2017 this occurs on January 26th (and that meeting will begin at 7:00pm). Club by-laws limit terms of officers to 3 years in any position (an officer could run again if they ran for a different position). This year, Gordon Hansen and I are both term-limited and will not be running for a different seat.

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Presidents Article

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However, both Tim Day and Jessica Edwards have agreed to run for re-election of their existing seats. This means there are two vacancies to be filled.

A nominating committee has been appointed by the president (me), per club by-laws, to perform a candidate search to ensure that there is one candidate in each position. The slate of candidates will be announced by the nominating committee at the December 1st meeting. While the nominating committee is required to find at least one qualified candidate for each position, any member in good standing may run for an officer position provided they are nominated and the nomination must be seconded.

Third on the list: **Sirius Award Nominations**

It's time to submit your nominations for the club's annual presentation of the Sirius Award. This award is presented annually to the club member whom we feel has done the most in service of the club's mission to the community, or to the club itself.

Please submit your nominations to the club president at: president@fordastronomyclub.com

I will, in turn, forward your nominations to the other three members of the board. The board reviews your nomination submissions and selects the recipient.

Please include a few words about why you chose to nominate this person... this is informal and may be short or long, and might include a list of this person's activities performed in service either to the community based on our club's mission of promoting science and astronomy (such as outreach events) or activities they perform for the club itself.

Two caveats... the first caveat is that the Sirius Award is a "once in a lifetime" achievement which means you may not nominate anyone who has won this award in the past.

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Dimming stars, erupting plasma, and beautiful nebulae

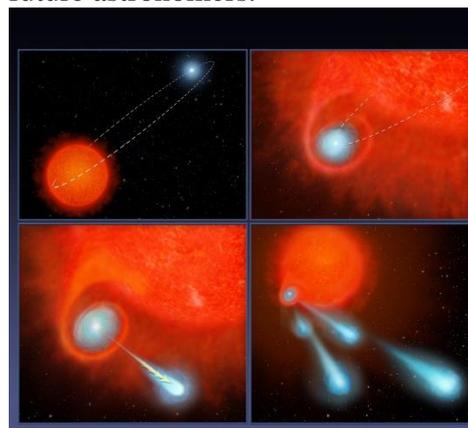
Continued from page 1

The companion's gravity pulls plasma from the red giant. The material settles into a disk as it spirals into the companion star, whose magnetic field channels the plasma out from its poles, hurling it into space. This happens once per orbit—every 8.5 years—at closest approach.

When the red giant exhausts its fuel, it will shrink and get very hot, producing ultraviolet radiation that will excite the shell of gas blown off from it in the past. This shell, with cavities carved in it by the cannon-balls that continue to be launched every 8.5 years, will thus become visible as a beautiful bipolar or multipolar planetary nebula.

The astronomers also discovered that the companion's disk appears to wobble, flinging the cannonballs in one direction during one orbit, and a slightly different one in the next. As a result, every other orbit, the flying blobs block starlight from the red giant, which explains why V Hydrae dims every 17 years. For decades, amateur astronomers have been monitoring this variability, making V Hydrae one of the most well-studied stars.

Because the star fires plasma in the same few directions repeatedly, the blobs would create multiple lobes in the nebula—and a pretty sight for future astronomers.



This four-panel graphic illustrates how the binary-star system V Hydrae is launching balls of plasma into space. Image credit: NASA/ESA/STScI

Presidents Article

Continued from page 2

Past winners are:

- Bob FitzGerald (deceased)
- Timothy Dey
- George Korody
- Bob MacFarland
- Don Klaser
- Jim Frisbi
- Doug Bauer
- Greg Ozimek

The second caveat is that current officers are not eligible (since those same officers decide the recipient.) Exclude anyone who is an officer in 2016 or 2017. You may, however, nominate past club officers.

Final item: **Club Website**

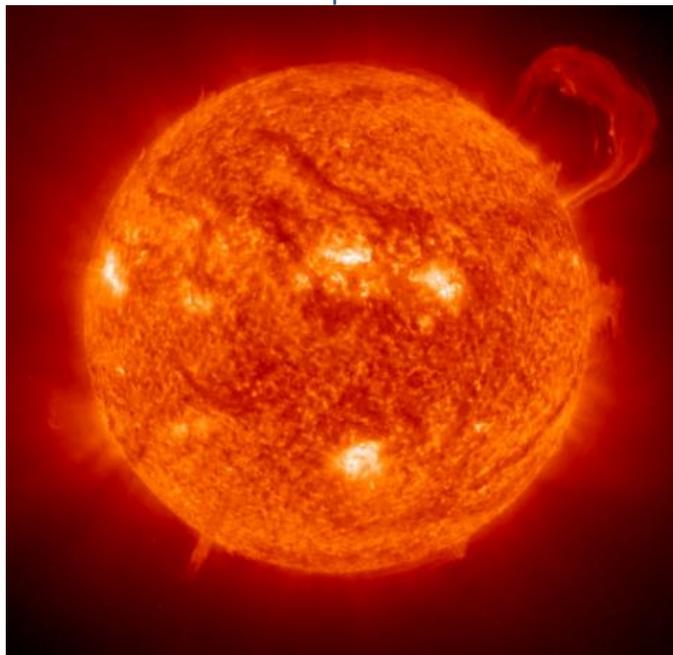
Over the past year, Yahoo has been in the news numerous times regarding their financial condition. Yahoo had been cutting staff and was rumored to be eliminating services that are not profitable. Since the club relies on Yahoo Groups for group messaging, calendar, photo and file sharing services there was a real concern that some (or possibly all) of these services might be impacted. Yahoo has since been purchased by Verizon, but typically a buyer needs time to evaluate what changes may be made. Typically changes will be made since it doesn't make a lot of financial sense for a buyer to purchase a company that loses money and not make changes in an attempt to make it profitable. We just don't know what those changes may be.

Liam Finn volunteered to look for software that could allow us to have our current services, but host them all at our own club website. This would require some changes to our existing website — but many of these changes come with upgrades to our services. For example... the events are actually hosted on a Google Calendar. One key advantage of this is that it allows members to “subscribe” to the calendar so that events automatically show up on your own devices.

This new website is nearly completed (it has been undergoing a quality review for the past two weeks). Expect to see this new content go “live” the coming weeks. I'll provide a demo of this at the December 1 meeting.

For the Young Astronomers

How does our sun compare to other stars?



Our sun is a bright, hot ball of hydrogen and helium at the center of our solar system. It is 864,000 miles (1,392,000 km) in diameter, which makes it 109 times wider than Earth. It's 10,000 degrees Fahrenheit (5,538 degrees Celsius) at the surface and 27 million degrees Fahrenheit (14,999,982 degrees Celsius) in the core. Yikes!

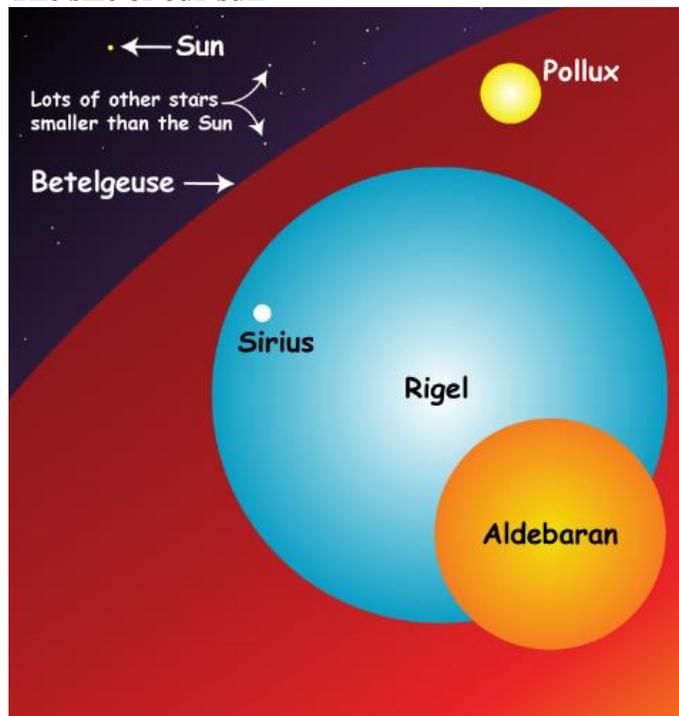
Our sun is pretty impressive, but how does it compare to other stars? There are billions more stars in the Milky Way galaxy - the galaxy we call home. And there are many, many more in the rest of the universe. Is our sun special?

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For the Young Astronomers

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The size of our sun



It turns out that our sun is an average sized star. There are bigger stars, and there are smaller stars. We have found stars that are 100 times bigger in diameter than our sun. Truly, those stars are enormous. We have also seen stars that are just one tenth the size of our sun.

Suns with friends

Our sun is a little unusual because it doesn't have any friends. It's just one sun surrounded by planets, asteroids, comets, and dwarf planets. But solar systems can have more than one sun. In fact, that's often the case. More than half of all stars are in multiple star systems. That means the solar system has two or more suns in it.

Can you imagine having two suns in the sky at the same time? Well, there are plenty of planets throughout the universe where that is normal.

Secretary Report

By Jessica Edwards

Member Observations and What's up

Many members have been enjoying wonderful views from HJRO recently. Clearer than normal skies have made some nice observing possible during October. The outreach event at Mayberry State Park brought in about 55 people. They are excited to have us com again for other events. Unfortunately, the clear skies did not make and appearance at the Great Lakes Star Gaze, but many wonder conversations did take place.

Venus, Mars, Saturn, and Mercury are visible in the evening skies and those willing to wake up early will be able to observe Jupiter. The Leonids will peak on 17 November, but the Moon will be 88% illuminated making meteor observations difficult.

Main Talk – Meteorites – Formation and Types – Sandra Macika

Meteorites are rocks that have fallen to the surface of the Earth. Their extraterrestrial origin can help us learn about the composition of the early solar system as well as the history of our own planet.

Many meteorites are found during the course of farming, but special expeditions to Antarctica yield many specimens for study. One of the more interesting characteristics of Iron meteorites is the Widmanstätten pattern that is exposed upon acid etching the surface. The pattern of crystals that is revealed can only be formed if the originating body of the meteorite cooled very slowly. These meteorites come from the cores of proto-planets with enough mass to have molten interiors.

Try Something New!

By Dennis Salliotte

Are you an expert stargazer? Do you know the sky well enough to point out the brighter constellations to your friends, or to toss out the name of a particularly bright star that someone asks about? If not, would you like to learn to? Have you thought about taking your hobby to the next level while meeting new people who share your interest in astronomy? Why not become one of FAAC's volunteer planetarium presenters? Doing so is a great way to meet new people who are interested in astronomy and to become more familiar with the night sky without clouds, mosquitos or frost. Plus, you don't have to stay up all night to see the whole sky. Just advance the planetarium sky to the part of the sky you are interested in.

If you are already an expert, great! A lot of people are interested in what you know. Here's your chance to share your knowledge with the world. If you're a novice, this is a good way to learn at your own pace. You can have private access to the planetarium to study the sky, practice presenting or to just get comfortable any time it's not being used (a private session under the stars without mosquitoes or frost might make a nice Valentine's Day gift for that special someone ;-)).

If all of this sounds intriguing to you, now is the time to get involved. The Director of Henry Ford College's Hammond Planetarium, Steve Murrell, is now seeking new volunteers to present planetarium shows. Volunteers who are available in the mornings and afternoons during the week are especially needed. The only requirements are that you have an active interest in astronomy and that you reliably show up for any shows that you eventually commit to. You don't have to know the sky extensively. If you have a basic understanding of the motions of the sky, whatever else is needed for a particular show can be learned surprisingly easily (there are a few tricks for that). You do not have to present any shows until you feel you are ready, and after that, you can volunteer for any shows needed that you are interested in and

available for. Like everything else in astronomy, it is a little bit challenging at first (just a little) but it's also a lot of fun once you've gotten the hang of it. If you have any questions you can contact Steve Murrell directly, or you can contact me or any of the other FAAC members listed below who are currently active planetarium presenters themselves:

Steven R. Murrell
Instructor of Physics and Astronomy - HFC
Director - HFC Hammond Planetarium
srmurrell@hfcc.edu
313-317-1536

FAAC Active Volunteer Presenters
Joann Balbach joannballbach@gmail.com
Tim Campbell tim@isylum.org
Liam Finn liam@finn-family.com
Larry Halstead lt_halstead25@comcast.net
Dennis Salliotte dtsalliotte@yahoo.com

Plymouth Astro Imaging SIG Events

By Gordon Hansen

This group meets on the third Tuesday of every month (scheduled confirmed through next spring) and "members" include all the regulars from our SIG and some other very talented astrophotographers from the region.

All are welcome to attend. The meetings are at the Plymouth Library at 6 pm on the third Tuesday of each month. Reminders are published on the club's Yahoo Group.

Treasurers Report

November 2016

By Gordon Hansen

10:15 AM
11/14/16
Accrual Basis

Ford Amateur Astronomy Club Balance Sheet

As of November 14, 2016

Nov 14, 16

ASSETS

Current Assets

Checking/Savings

10000 · Checking	167.74
11000 · FAAC Savings	
11100 · FAAC Club Savings	1,430.95
11200 · Equipment	2,314.48
11300 · Scholarship	284.26
Total 11000 · FAAC Savings	4,029.69
12000 · Petty Cash Account	104.99
13000 · CD's	
13100 · CD 200599272	1,064.83
13200 · CD 205196033	1,009.37
13300 · CD 89265268	1,113.93
Total 13000 · CD's	3,188.13
Total Checking/Savings	7,490.55
Total Current Assets	7,490.55
TOTAL ASSETS	7,490.55

FAAC Equipment Holders Report

By Dennis Salliotte

FAAC Equipment Report 10/14/16

<u>Item</u>	<u>Currently Held By:</u>	<u>Date Last Verified</u>
<u>Telescopes</u>		
4" Dobsonian (Harold's donation)	George Korody	1/7/16
<u>Presentation Tools</u>		
Projector (older)	Jim Frisbie	3/22/16
Projection Screen 8'	Bob MacFarland	10/13/16
Speaker System w/wireless mic	Bob MacFarland	10/13/16
Bullhorn	George Korody	1/7/16
DVD Player	Jim Frisbie	3/22/16
Projection Screen 6'	Mike Dolsen	3/19/16
Projector, ViewSonic	Gordon Hansen	10/13/16
<u>Demonstration Tools</u>		
Weight On Planets Scale	George Korody	1/7/16
Lunar Phase Kit	Bob MacFarland	10/13/16
100 ft Scale Model Solar System Kit	Bob MacFarland	10/13/16
<u>Display Items</u>		
Astronomy Event Sign (3' X 6')	Gordon Hansen	10/13/16
PVC Display Board - Folding	Sandra Macika	1/8/16
Banner – Small (24" X 32")	George Korody	1/7/16
Banner – Medium (24" X 72")	Sandra Macika	1/8/16
Banner – Large (32" X 16')	George Korody	1/8/16
Tri-Fold Presentation Boards	Don Klaser	9/14/16
Tri-Fold Poster Board (Early Club Photos)	George Korody	1/7/16
<u>Other</u>		
Canopy (10' X 10')	Tim Campbell	11/23/16
Equipment Etching Tool	Greg Ozimek	10/18/16
Pop Cooler	Michael Dolsen	6/22/16

<u>EQUIPMENT KITS</u>	<u>CARETAKER</u>	
<u>Telescopes</u>		
TK3 Celstrn 130 Newt Goto mount	Liam Finn	10/13/16
TK4 Clstrn 90 Refrctr w/man mount	Liam Finn	10/13/16
TK5 4 ½ “ Reflector, on Fitz GEM mount	Bob MacFarland	10/13/16
TK6 8” Orion 8XTi Dobsonian	Dennis Salliotte CARETAKERSHIP IS AVAILABLE	11/23/16
TK1 Coronado PST solar scope w/double stack, Meade Autostar Goto mount & tripod and accessories	John McGill	1/9/16
<u>Binoculars</u>		
BK3 15x70 binocs, monopod mount	Bob MacFarland	10/13/16
BK4 20x80 binocs, altaz goto mount	Sandra Macika	1/8/16
BK5 25x70 binocs w/tripod adaptor	Tim Dey	9/14/16
<u>Eyepiece Kit</u>		
EPK1 Eyepieces, filters & accessories	Liam Finn	10/13/16
<u>Other</u>		
TA Sky Quality Meter	Syed Saifullah	4/26/16
TA Sky Atlas 2000.0	Tim Dey	9/14/16
TA Orion telescope binoviewer	Liam Finn	10/13/16
<u>Lincoln Park Observatory</u>		
LPO Celestron binoviewer #93691	Tim Dey	9/14/16
LPO Celestron 2X 1.25” Barlow	Tim Dey	9/14/16
<u>Imaging SIG</u>		
C1 Celestron NexImage Solar System Imager model #93712	Gordon Hansen	10/13/16
C2 Meade Deep Sky Imager PRO III w/AutoStar Suite	Gordon Hansen	10/13/16
C3 Orion StarShoot Deep Space Video Camera NTSC #52185 w/video capture device #52178	Gordon Hansen	10/13/16
C4 Meade Electronic Eyepiece w/cable to a video monitor, VCR or TV. Pairw#43 AND Meade	Gordon Hansen	10/13/16

3.5" LCD Color Monitor Kit # 07700 Complete (unused). Pair w#34		
C5 Orion StarShoot Deep Space Video Camera II #52195 AND Orion StarShoot iPhone Control for Deep Space Video Camera II #52195	Gordon Hansen	10/13/16
C6 Canon 60 DA and accessories	Tim Dey	9/14/16
CA2 Celestron 1.25" to T-Adapter(male thread) Model #93625	Gordon Hansen	10/13/16
CA3 Canon EOS deluxe astrophoto kit FOR Canon bayonet T-thread adapter and variable 1.25" extender	Gordon Hansen	10/13/16
CA4 Orion StarShoot LCD-DVR #58125 2.5" LCD screen	Gordon Hansen	10/13/16
CA5 Celestron Canon EOS T-ring adapter #93419	Gordon Hansen	10/13/16
<u>Special Event Use Only- Not Available For Loan Out</u>		
TK2 Meade 8" ETX-LS-ACF w/tripod, voice assist, computerized GPS plus MANY (35+) accessories	Tim Dey	9/14/16
BK1 Orion BT-100 binocular telescope w/hard case, Orion VersaGo h.d. man altaz mount w/Vixen dovetail head and Vixen style binocular holder bracket	Ken Anderson	7/21/16
BK2 Zhumell 25x100 binoculars, hard case & Zhumell TRH-16 tripod w/soft fabric bag	Sandra Macika	1/8/16
TAK1 Night Vision Intensification binocular unit	George Korody	1/7/16
Dennis Salliotte equipment@fordastronomyclub.com		

STAR STUFF

This Newsletter is published eleven times each year by:

FORD AMATEUR ASTRONOMY CLUB P.O. Box 7527 Dearborn MI 48121-7527

PRESIDENT: Tim Campbell

VICE PRESIDENT: Tim Dey

SECRETARY: Jessica Edwards

TREASURER: Gordon Hansen

WEBMASTER: Greg Ozimek

NEWSLETTER EDITOR: Liam Finn

Club Information:

The Ford Amateur Astronomy Club (FAAC) meets on the fourth Thursday each month, except for the combined November/ December meeting on the first Thursday of December - at Henry Ford College Administration Services and Conference Center in Dearborn. Refer to our website for a map and directions. www.fordastronomyclub.com.

The FAAC observes at Spring Mill Pond within the Island Lake State Recreation Area near Brighton, Michigan. The club maintains an after-hours permit and observes on Friday and Saturday nights, and nights before holidays, weather permitting.

The FAAC also has use of a private observing site near Gregory Michigan and Lake Erie Metro Park. See the FAAC Yahoo Group* for more information.

Observing schedules and additional info are available on our website, or via the FAAC Yahoo Group.* Or call the FAAC Hotline, for info and leave a message, or ask questions: 313-757-2582. You may also send email inquiries to info@fordastronomyclub.com.

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

Membership fees:

Annual - New Members: \$30 (\$15 after July 1)

Annual - Renewal: \$25 (\$30 after January 31)

Membership includes the STAR STUFF newsletter, discounts on magazines, discounts at selected area equipment retailers, and after-hours access to the Island Lake observing site.

Astronomy or Sky & Telescope Magazine Discounts Obtain the required form from the FAAC club treasurer for a \$10 discount.

Send the completed form directly to the respective publisher with your subscriptions request and payment. Do not send any money directly to the FAAC for this.

Star Stuff Newsletter Submissions Your submissions to STAR STUFF are welcome! Send your story and/or images to the editor: StarStuff@fordastronomyclub.com Email text or MS Word is fine. STAR STUFF will usually go to press the weekend prior to each general meeting.

Submissions received prior to the 15th can be included in that month's issue.

* FAAC Members are welcome to join our Ford Astronomy Club Yahoo! Group. Messages photos, files, online discussions.