

# Howard Astronomical League



April 18th, 2019

# Introductions

**Sponsored by: Galactic Cruises**

**Perfect for those of you who have accumulated  
lightyears of vacation time.**

**Please arrive at your spaceport two hours in  
advance of your scheduled departure time.**

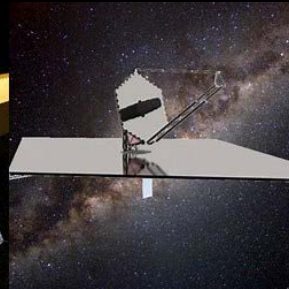
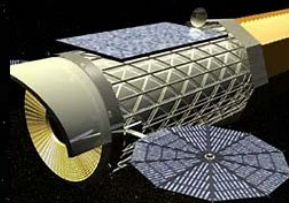
# It's time once again for:

## Astronomy

### Past

### Present

### Future



# 32,000 YEARS AGO (Maybe in April)

**Ach Valley Mammoth tusk-fragment has been interpreted as a star map of Orion**

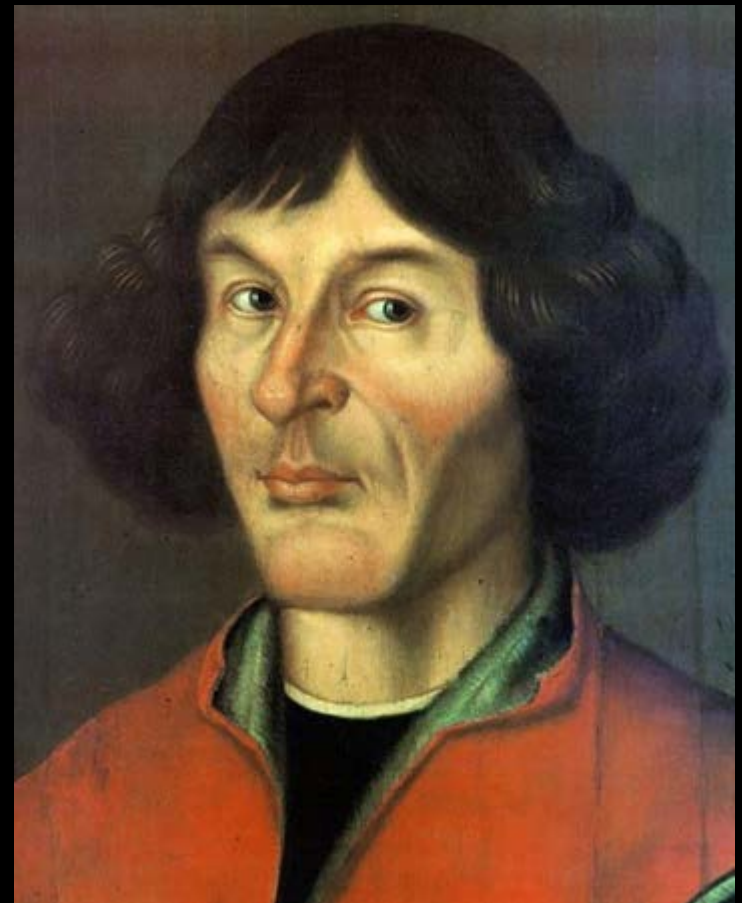
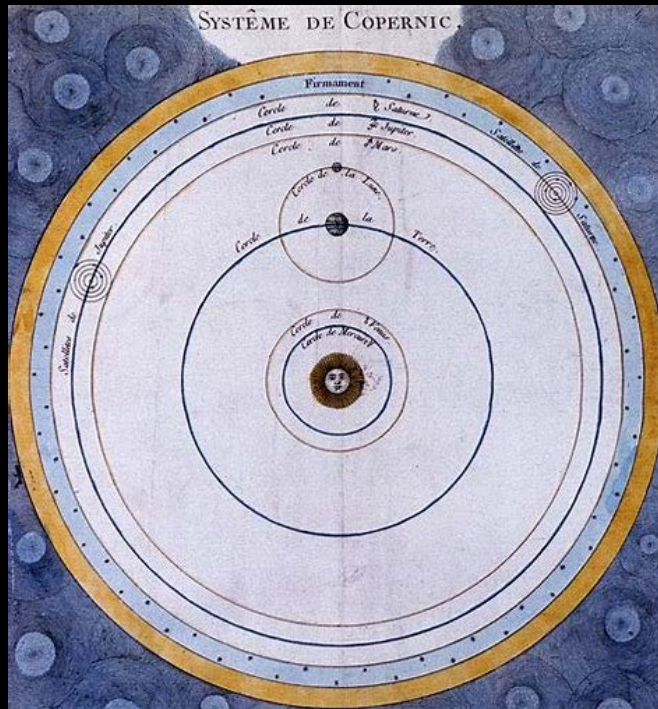


The image above shows the front and back of a carved fragment of mammoth ivory measuring 38 mm x 14 mm x 4 mm that was discovered in 1979 inside the Geißenklösterle cave in the Swabian Alps of south-western Germany. The cave is just one of a complex system of caves that were all inhabited during the Upper Palaeolithic epoch that lasted from about 50,000 to about 10,000 years ago. Dr Michael A. Rappenglück, formerly of the University of Munich, believes that among the thousands of stone tools, weapons, ivory flutes, and decorative items carved from stone and ivory recovered from the Geißenklösterle cave over many years, the figure on the ivory fragment represents the constellation Orion, which effectively, makes the ivory fragment a star map.

# April 26, 1514

## Nicolaus Copernicus makes his first observation of Saturn

Nicolaus Copernicus (1473-1543) made his first observations of Saturn. Copernicus later proposed that the sun is stationary and that the earth and the planets move in circular orbits around it.



April 10, 2019

# First ever image of a black hole



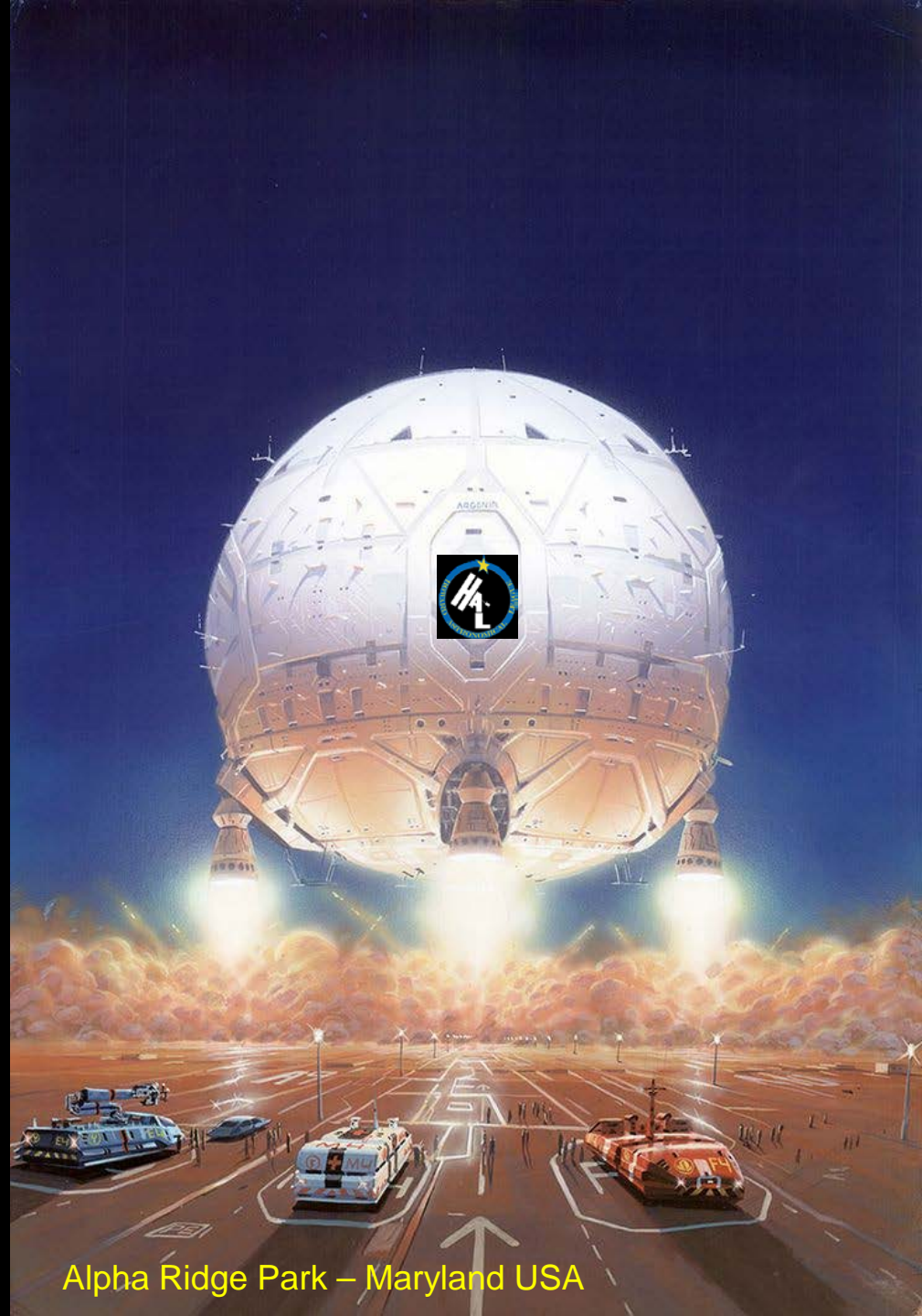
This image released Wednesday, April 10, 2019, by Event Horizon Telescope shows a black hole. Scientists revealed the first image ever made of a black hole after assembling data gathered by a network of radio telescopes around the world. **EVENT HORIZON TELESCOPE COLLABORATION/MAUNAKEA OBSERVATORIES VIA AP**

# SIZE COMPARISON: THE M87 BLACK HOLE AND OUR SOLAR SYSTEM

EHT BLACK HOLE IMAGE  
SOURCE: NSF



**April 18, 2019**  
**HAL Launches HALSO**  
(Howard Astronomical League Space  
Observatory)





# Howard County GreenFest

Saturday, April 13, 2019 • 10 am - 4 pm  
Howard Community College  
Science, Engineering and Technology Building (SET)



# April Public Star Party





**EOPARDY!**

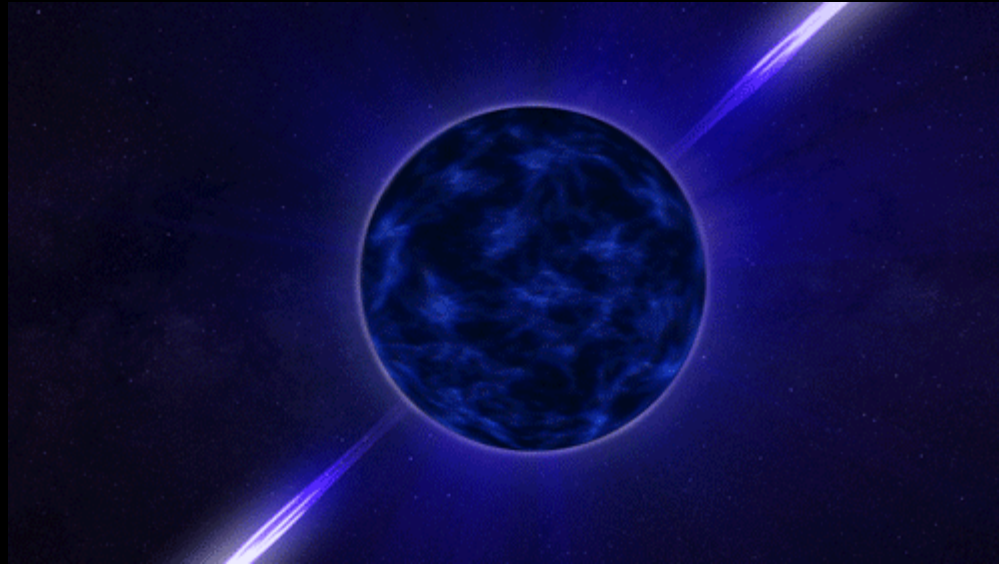


**DAILY  
DOUBLE**

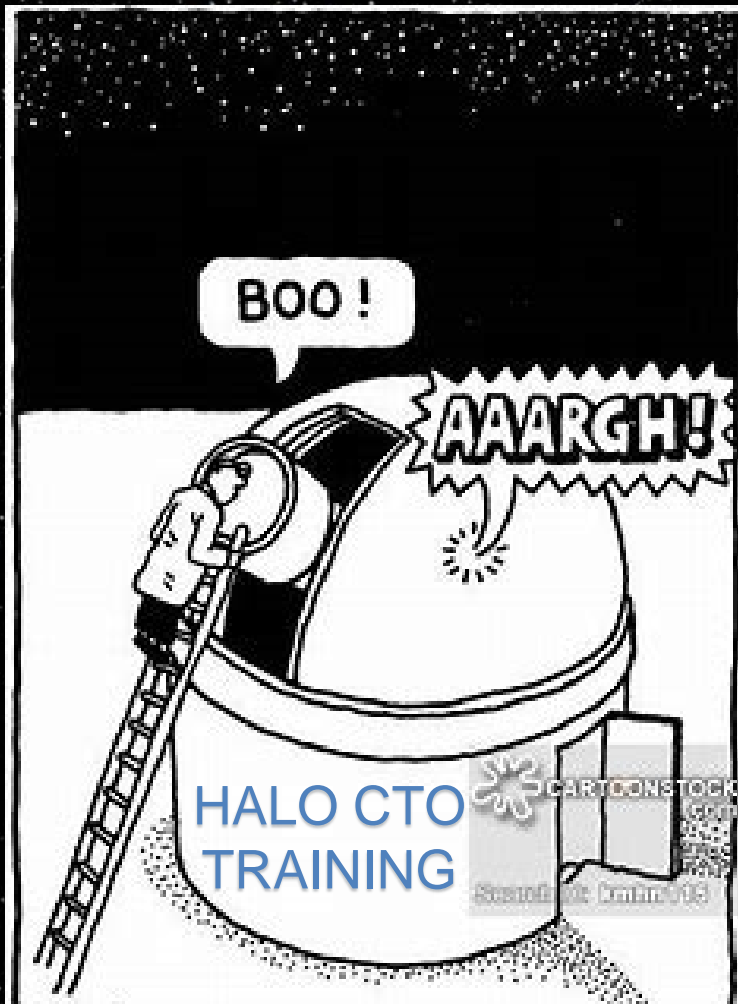
I weigh in at about 1.5 solar masses and all packed into a volume of about 6 miles in radius. Some even say they can set their watch by me.



# Neutron Star (Pulsar)



# Astronomy Humor



# HOUSTON

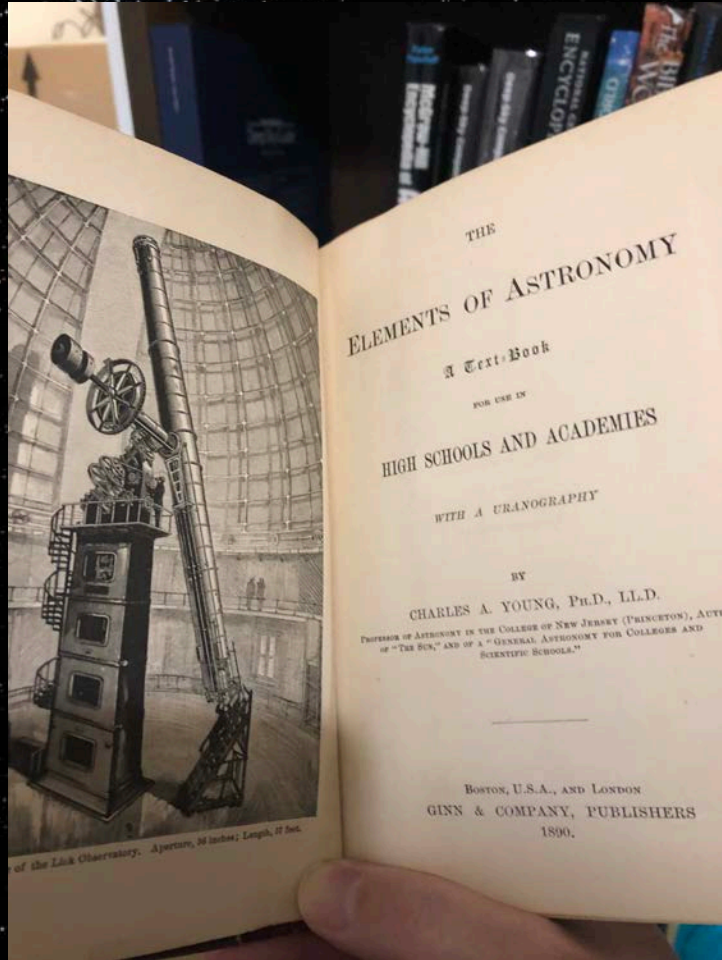
We have a problem.

# Officers Reports

<b>President</b>	Phil Whitebloom	president@howardastro.org
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<b>ALCor +</b>	Steve Jaworiwsky	halcor@howardastro.org
<b>Webmaster *</b>	Paul Montanaro	Use "Contact Us" Page



# Library – President's Pick of the Month





# Visual Observers Corner

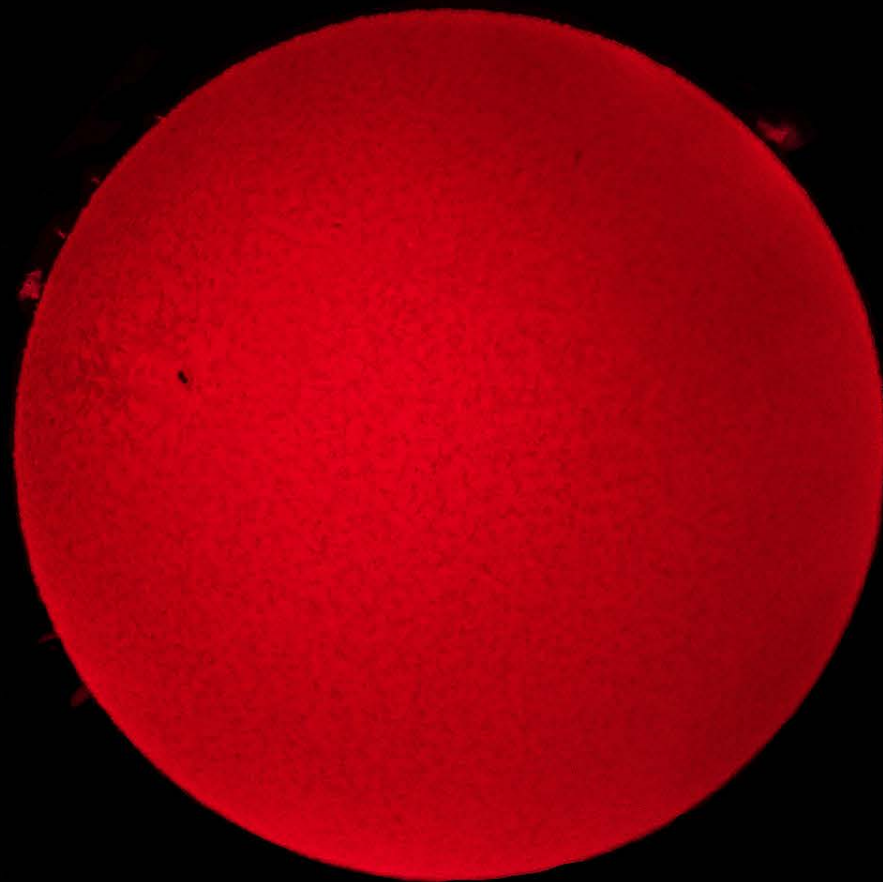


Member  
Astrophotos, Sketches, and  
Paintings



**Photosphere (White Light)**

Photo with 155mm refractor, Thousand Oaks Filter & Nikon D810



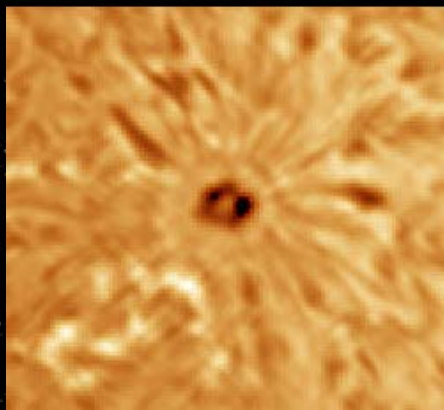
**Chromosphere (Hydrogen-Alpha)**

Photo with 100mm Lunt Solar Telescope & Nikon D810

**Date:** 10-April-2019 **Time:** 12:30 EDT

**Location:** Deck of House

Richard Orr



**Sunspot AR2738**

April 13th 2019

04:51UT

@JamesWillinghan

**AR 2738**

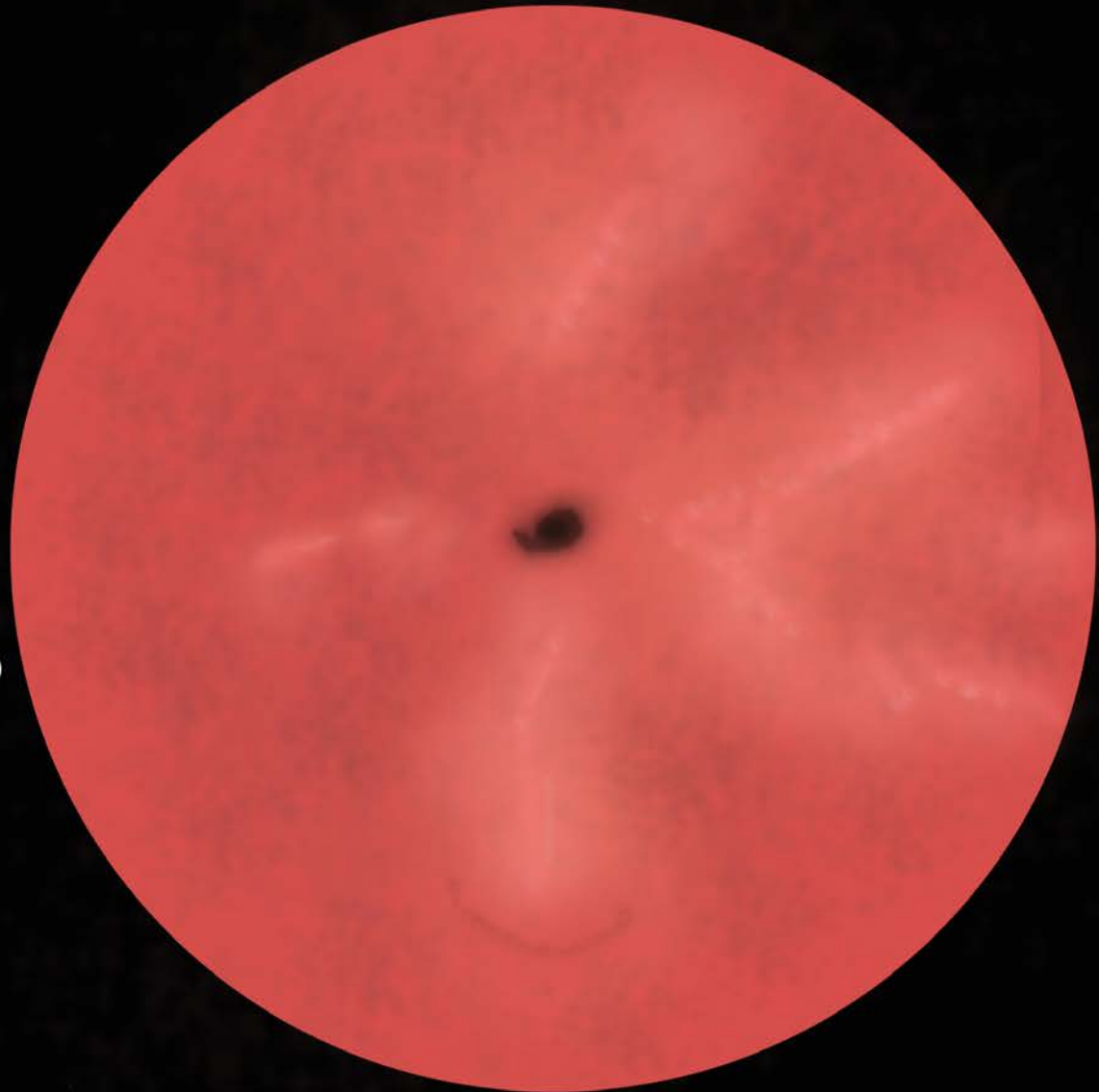
**Sunspot & Phage**

Chromosphere (Hydrogen-alpha)

Date: 16-April-2019  
Time: 13:30 to 14:10 EDT

Telescope: Lunt DSII/100T (Internal Doublestack)  
Eyepiece: 6mm Delos (133x)

Location: Deck of House  
Drawing by: Richard Orr





Angel Nebula  
by Forest Arnold

**Astrodon Red**



**Astrodon Green**



**Astrodon Blue**



**Astrodon Ha 3nm**



*Chris Miskiewicz*  
AstroPhotography



# Upcoming Events

- **April 28<sup>th</sup>-May 5<sup>th</sup> – Texas Star Party**
- **May 2-5 – Delmarva – Cypress Point, DE**
- **May 4<sup>th</sup> – Member Only – Alpha Ridge**
- **May 11<sup>th</sup> – Public Star Party – Alpha Ridge**
- **May 30 /June 2 Cherry Springs – Coudersport, PA**
- **June 26-29 – Greenbank Star Quest 16 in WV**

Next month's meeting is on Thursday,  
May 17th, 2019 at 7 PM  
AstroSchool at 6:15

Guest Speaker

Kirby Daniel Runyon, PhD, Postdoctoral Planetary  
Geomorphologist, Johns Hopkins APL, Visiting Scientist,  
Johns Hopkins University

Title: "Exploring Planets and Worlds in the Kuiper Belt  
with New Horizons"