

# THE EVENT HORIZON



## ST. LOUIS ASTRONOMICAL SOCIETY

*Devoted to the Interest and Advancement of the Science of Astronomy*

**VOLUME 28, Issue 7  
July, 2018**

### **After the Space Shuttle –the Boeing CST-100 Starliner by Tyler Frost**

Tyler Frost of The Boeing Company will be featured at the July meeting of the St. Louis Astronomical Society. The meeting will begin at 7:30 PM Friday, July 20, in McDonnell Hall, Room 162, on the Washington University campus, Saint Louis, MO 63130.

Since the final flight of a Space Shuttle in July, 2011, American astronauts have had to use Russian rockets to reach the International Space Station (ISS). NASA has been working with several aerospace companies to restore American launch and landing capability. Robot-controlled rockets have already been used to deliver cargo to the ISS. Boeing's Crew Space Transportation (CST)-100 Starliner spacecraft is being developed in collaboration with NASA's Commercial Crew Program. The Starliner was designed to accommodate seven passengers, or a mix of crew and cargo, for missions to low-Earth orbit. The spacecraft will be reusable up to 10 times, with a six-month turnaround time. Mr. Frost will present an overview of the Starliner project, an introduction to the new space suit, and an explanation of the Landing Recovery System.

Tyler Frost is currently the F/A-18 Kuwait Super Hornet Lead Supplier Program Manager. This project will support the 28 F/A-18 Super Hornet fighter jets purchased by the State of Kuwait. He also manages the upcoming upgrade of the Super Hornet, which will add a new glass cockpit, improvements in structural life and networked communication, and conformal fuel tanks. Tyler is a graduate of the University of Missouri-Rolla with a Master of Science in Mechanical Engineering. He holds an MBA (Arizona State University) and Bachelor of Science in Aerospace Engineering (University of Cincinnati.)

#### **Upcoming Meetings: 2018**

**August** Anna Schonwald Wash U The Apollo Missions: The Farside of the Moon & Continued Studies From a Distance  
**September** Francesc Ferrer, PhD, Washington U.

In the wake of the Higgs, what will the next breakthrough at the LHC?

**October** Mao Xiaochen Washington University The Dawn Mission: Vesta and Ceres

**November** Bard Joliff, PhD Washington University Lunar Geology

**December** Pamela Gay, PhD ASP Secret Squirrel Part 2

### **A Special Solar Saturday: Celebrating the Apollo 11 Landing on the Moon**

This Saturday, Solar Saturday will be held in the main building of the Science Center with multiple displays of material about the Moon. It is in celebration of the 49th anniversary of the landing of Apollo 11 on the Moon. There will be interactive displays, photographs and other information about the landing, including some vintage news clippings about the events. It's also the anniversary of the Viking landing on Mars, so some information about that will be on display, too. Come join us and be sure to take in the travelling display of Apollo memorabilia on exhibit at the Science Center.

#### Mid States Region



#### **Inside This Issue**

President's Corner,	<b>2</b>
Perseid Meteor opportunities	
StarBQ announcement	<b>3</b>
Starlight Festival Gallery	<b>4</b>
MSRAL Gallery	<b>5</b>
MSRAL and Astro events Gallery	<b>6</b>
ALCON Gallery	<b>7</b>
Board minutes	<b>8</b>
Financials	<b>9</b>
Events	<b>10</b>
Contacts	<b>11</b>

### Presidents Corner *by* Jim Small

It's been a terrific summer so far. The Starlight Festival at Yerkes Observatory Memorial Day weekend, MSRAL in Springdale, AR in June, then ALCON in Minneapolis last week. Lots of time spent with some of the same people in different situations. There were over 100 in attendance at MSRAL and over 350 at ALCON. Lots of great comradery!

I was in Sky Safari and took a glance at Sky Week in the app and was reading about upcoming events, and one of the articles said if you were going to ALCON, that on July 11, there would be an opportunity for a grazing occultation of Aldebaran by the Moon about 3:30 am. After much study of maps and possible locations, I found an intersection in google maps that confirmed a good eastern horizon in the street view. I left about 6 pm from St. Louis and arrived at the location on Hwy 82 northeast of De Soto, WI about 2:30 am. I set up the 80mm refractor on my GM8 mount, set it to track and attached my Nikon to the telescope. The image was pretty good once I pulled it out a bit to be able to focus. I tried adding a 2x barlow, and was in

a panic trying to find the image just before the occultation began. I finally gave up and pulled the barlow when I realized it would not come to focus with the barlow in. In fact, it was so far out of focus that an image could not be seen! I got it focused and began shooting hi res video of the occultation. It was hard to tell if I was capturing it or not, but later investigation confirmed I did! Whew! I then drove the rest of the way up the Great River Road next to the Mississippi on the way past Goose Island to my hotel in Minneapolis.

ALCON was a terrific experience. I got to tour three observatories and would have stayed longer at the StarBQ to observe, but the mosquitos were huge and relentless! I bailed before I could observe through the Eagle Lake Observatory and was persuaded by Pamela Gay and Phil Plait to take them back to the hotel! (Didn't take much) The talks and the banquet were great. Brent Buch and his parents and Jim and Ann Trull were also in attendance.

After ALCON I visited the Carpenter Nature Center which is run by a friend who used to work at World Bird Sanctuary. It was a great visit. Sunday night, I set up the camera to shoot Venus and the Moon setting together and got lucky with some good shots!

### Come Explore the Night Sky and the Perseid Meteor Shower on August 11 at Jefferson College with Staff and Students and Members of SLASI

On Saturday, August 11th from 8:30 pm to 2:00 am, the St. Louis Astronomical Society will be partner with the faculty of Jefferson College to host a special night sky viewing event featuring Mars, Saturn, Jupiter, the Perseid Meteor shower and the opportunity to view deep sky objects on a Moonless night.

Members of the St. Louis Astronomical Society and faculty of Jefferson College will set up telescopes for free public observing. The viewing area will be located in a recreational area field near the entrance of the college. The public is encouraged to bring lawn chairs to enjoy the night sky and blankets and/or jackets in case the night air turns cool.

Public observing will begin at 8:30 pm and continue until 2am providing plenty of time to enjoy the evening sky and the possibility of Perseid meteors.

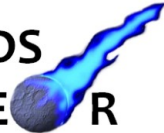
Of course, this event is subject to cancellation if weather conditions do not permit viewing. For event cancellation information, please visit [www.slasonline.org/perseids2018](http://www.slasonline.org/perseids2018)

#### Directions:

**From southbound Missouri route 21**, take the Hayden road exit. Turn right onto Hayden and then a quick left turn onto Jefferson College Drive. In about 1500 ft, turn right onto Farm road (street not marked). In about 400 ft. turn left and park in the softball field parking lot.

**From northbound Missouri route 21**, take the exit for Missouri route A. Turn left to cross over highway 21, then turn right onto Jefferson College Drive. Drive about 1 mile and turn left onto Farm road (street not marked), which is the first left past the main entrance to Jefferson College. **From westbound Missouri route A**, pass over Missouri route 21 and follow the above directions.

## PERSEIDS METEOR SHOWER SHOWCASE



Washington State Park  
Petroglyph Site

Saturday, August 11<sup>th</sup> – Sunday, August  
12<sup>th</sup>, 2018

Join Washington State Park Staff at the Petroglyph Site for an overnight campout and chance to view the Perseids meteor showers! This overnight campout and viewing is for tent/open air campers only (no stakes, vehicles, or recreational vehicles). Camping will take place on the Petroglyph Site parking lot only (sorry - no camping on the grass, glade, or petroglyphs). A community fire pit and portable toilet facilities will be provided. Check-in at the site is from 7:00 p.m. – 9:00 p.m. on Saturday night, with a meteor program for participants to follow. Check out is Sunday at 9:00 a.m.

This event is free but reservations are required to attend. Reservations open June 1st, 2018 and can be made by calling the Washington State Park office at 636-586-5768.

# 16th Annual SLAS Star-B-Q

## Saturday, September 29, 2018

### Walnut Grove Picnic area

Come join fellow members of SLAS at Babler State Park for a day of food, softball, games, and observing. SLAS will once again provide the Bar-B-Q. We ask is for you to bring your favorite drinks and side dish or dessert. ***This area has a large shelter, restrooms, and baseball fields. There is also plenty of room to set up volleyball or horseshoes if you wish to bring them. We will observe from the ball fields.*** Don't have a telescope? Don't worry this is a great chance to see other member's telescopes.

Remember: Members should bring a drinks and a favorite side dish or dessert. **Don't forget to bring your telescope or binoculars, chairs and bug spray!**

#### Schedule of Events

2pm Setup

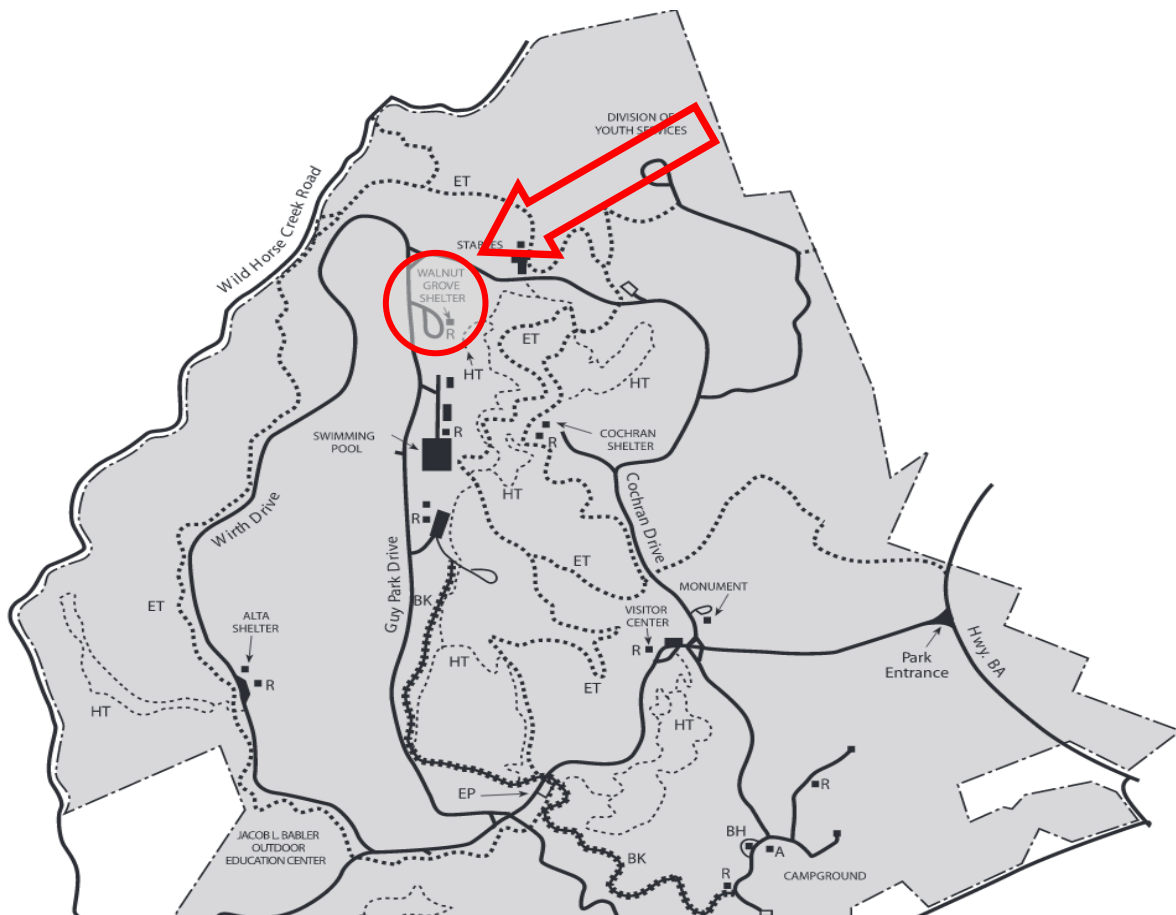
3pm – Picnic begins

4pm-6pm Food line open

6pm-7pm Trivia Contest (with prizes)

6:50pm Sunset

7:30pm- Midnight Observing at picnic site





### Starlight Festival held at Yerkes Observatory *by Jim Small*

Memorial Day weekend this year was the date for the Starlight Festival held at Yerkes Observatory. Speakers, equipment displays from Explore Scientific, tours of the observatory, hands on use of the 40” Yerkes refractor and lots of comradery were the order of the weekend at the famous observatory. It was held to recognize the 150th anniversary of Yerkes’ founder, George Ellery Hale and to bring awareness to Yerkes. The event allowed attendees to sign up for time to use the refractor on a limited basis. Time for that activity quickly sold out!

For those who aren’t aware, the University of Chicago, which currently owns Yerkes, plans on closing the facility in October. If you want the opportunity to use the giant refractor, be sure to sign up for time before then. A group of people are in the process of setting up a non-profit to take over management of Yerkes, but it’s still in process. Stay tuned as we will keep you up to date.

Grant Martin and myself were the only attendees from the area.s Several hundred people attended the festivities For more information about the festival, see the website at [www.starlightfestival.com](http://www.starlightfestival.com)



**Left:** Yerkes Observatory from the back of the property.

**Above:** Scott Roberts of Explore Scientific helping to make a video about Yerkes.



**Right:** Grant Martin at the eyepiece of the 40 inch refractor while observing Jupiter  
**Below:** A star party was held on the front lawn of the Yerkes campus and featured private telescopes along with Explore Scientific telescopes





## Mid-States Region of the Astronomical League Convention a Success by Jim Small

MSRAL 2018 was held in Springdale, AR at the headquarters of Explore Scientific on the weekend of June 22-24. It was a good conference with more than 100 people from the region attending. There were quite a few SLAS members attending the conference. There were good displays of equipment and activities outside the event and it was really fun having the show room for the company right next to the meeting room where you could browse through all the equipment ES offers. Scott Roberts, the exec for ES, also offered tours of the facility at the site, so attendees got a behind-the-scenes look at the operations. Speakers for the conference were good, ranging from the Jack Horkheimer winner for the AL youth awards, to a former NASA head to David Levy as the keynote speaker. The food was good, the skies were clear for star parties and a good time was had by all!



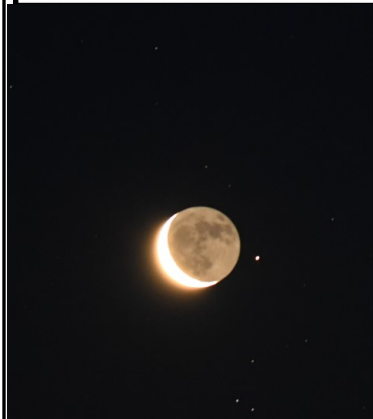
**Above left:** The John Dobson Sidewalk Telescope is transferred to ASKC to use for their public outreach. **Above right:** MSRAL attendees from SLAS  
**Above:** MSRAL group shot in front of Explore Scientific **Left:** Cook awaits a view through a 16" dob behind Betty Iorg at the telescope. **Below left:** David Levy awards the grand door prize, his signature telescope "Comet Hunter" made by Explore Scientific. **Below center:** Mark Jones hands Bruce McMath of Central Arkansas Astronomical Society his award for Amateur of the Year **Below right:** David Levy provides an inspiring keynote talk at the banquet.







**Top left:** More door prizes between speakers at MSRAL. **Top right:** Abby Bollenbach after her talk on the Cassini Mission with a display of material collected about the mission. **Above left:** At the banquet visiting with Scott Roberts. **Above right:** Getting a tour from of the 24" Brasheer refractor obtained by the Sugar Creek

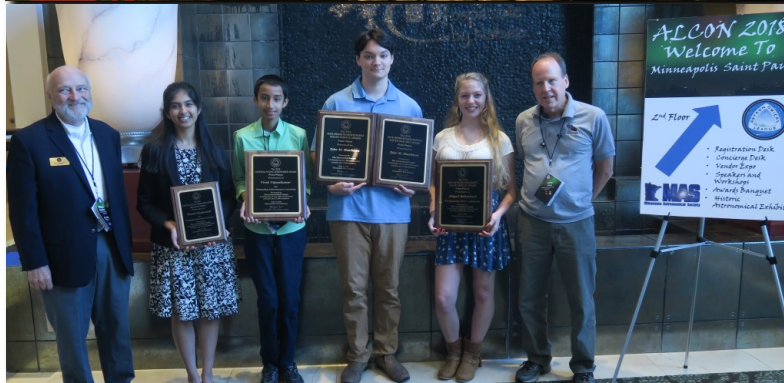


**Left:** The Moon and Aldebaran just after the grazing occultation around 3:30 am, Tuesday, July 11. It was advised in a blurb in Sky Safari in Sky Week that if you were on the way to ALCON that this opportunity was close. The photo was shot at hwy 82 and Lawrence Ridge Road just northeast of De Soto, WI.  
**Right:** The Moon and Venus just before moonset Sunday, July 15 from Newport, MN.



**Above left:** It looks bleak for the star party at the Audubon Center at Riverlands July 3. **Above center:** Alton fireworks in the background as people view celestial fireworks through the scope at Audubon. **Above right:** Getting a look through the TMB 10" refractor at the JJ Casby Observatory at ALCON. **Left:** Sunrise with the Moon just after the grazing occultation early July 11.





**Top left:** Tate Observatory at U of MN **Top right:** Eagle Lake Observatory owned by MAS. **Above left:** Bill Bogardus hands John Goss a plaque commemorating his service as AL President. Bill will be the new president. **Above right:** Pamela Gay wraps up her keynote talk to a standing ovation. **Above left:** Pravena Hyseni talks about her experience starting astronomy in Kosovo **Above center:** A Unitron 80mm f15 refractor as part of the historic telescope display. **Above right:** Phil Plait (Bad Astronomy) speaks at ALCON. **Above left:** 18 awardees receiving the Master Observer award. **Above right:** SLAS attendees at ALCON 2018 **Left:** Youth awardees for ALCON 2018



## SLAS Executive Board Meeting Minutes June 7, 2018

**1. Opening Activities: Attending: Jim Small, Brent Buch, Larry Campbell, Rich Heuermann, Bradley Waller, Mark Jones, Tom Nickelson** Meeting opened at 6:45pm May meeting minutes were reviewed and motion by Jim S and second by Larry C to approve. Motion passed minutes approved

**2. External Business Next board meeting:** July 5, August 2, Sept 6, Oct 4, Nov 1, Dec 6 Board meetings will be held at Nicoletti's Restaurant in Valley Park until further notice.

**MSRAL 2018** set for June 22-24 at Explore Scientific. More than 50 people have registered across the region

**ALCON 2018** in Minneapolis July 11-14

### 3. Director Reports:

**President – Jim Small:** Table runners have arrived. Second banner not provided, table runners did not have upgrades with logo on top and sides. Jim will request a refund or another set from Totally Promotional Motion tabled until next month. Motion was tabled at the last meeting: I propose that SLAS invest with member approval \$166 +Shipping (about \$16.17) to purchase a second table cover and new Banner for use at outreach events (OR \$144 each plus 16.17 shipping for two covers and banners). Multiple events on the same day deems it necessary to have duplicate materials. We have the proof for the replacement SLAS mugs. They will be white on the outside with a full wrap around image imbedded under the glaze for the mug this time. Interior will be black. We have a full credit of \$442 for SLAS mugs. We will have a small amount of money left over after this order. Motion made by Jim S to approve the artwork and order the replacement mugs, and second by Tom N. Motion passed

**Vice President: Bradley R Waller** New SLAS brochure. Brad and John Newcomer are working together on new concept card Potential SLAS speaker, Astro Bob lives in Minnesota. Bob would like us to cover air fare to STL. Jim will contact him while at Alcon. SLAS member Shanna Ramirez brought back a Hawaiian constellation book for a door prize. July's Moon prize for moon rocks \$40-50 each. Jim will order for Brad

### 2018 Presentations

15-Jun-2018	Edward Schlafly , PhD	Mapping the Milky Way's Dust in Three Dimensions	LBNL
20-Jul-2018	Erika Gibb, PhD	Comets	UMSL
17-Aug-2018	Ryan Clegg-Watkins, PhD	Exploring the Moon from Orbit: Paving the Way for Future Astronaut Explorers	Wash U
21-Sep-2018	Francesc Ferrer, PhD	In the wake of the Higgs, what will the next breakthrough at the LHC?	Wash U
19-Oct-2018	Mao Xiaochen	The Dawn Mission: Vesta and Ceres	Wash U
16-Nov-2018	Brad Jolliff, PhD	Lunar Geology	Wash U
21-Dec-2018	Pamela Gay, PhD	Super-Secret Squirrel Stuff...Again :)	ASP
Skype Event	*ASP: Astronomical Society of the Pacific		*LBNL: Lawrence Berkeley National Laboratory

### 2019 Presentations

15-Feb-2019	K Michael Malolepszy	The Year in Planetary Exploration	SLAS
15-Mar-2019	Bruce Stinchcomb, PhD	Meteorites	Flo-Valley
20-Sep-2019	Don Hampton	Aurora Borealis & Steve	UAF
15-Nov-2019	Claire Chandler, PhD	Super-Earths and the Formation of the Solar System	NRAO
20-Dec-2019	Duncan Lorimer, PhD	Fast Radio Bursts: "Lorimer Bursts"	UWVA

Skype Event \*NRAO: National Radio Astronomy Observatory \*UAF: University of Alaska: Fairbanks \*UWVA: University of West Va.

\*Astro 101: June meeting will be Summer Solstice prize drawing \*Welcome Aboard Meetings for new members are still planned for each month.

**Secretary – Mark Jones:** Lens sales 4 more lenses sold should be getting payment soon.

**Treasurer/ALCor – Bill Winningham:** Recommendations for new SLAS website: Changes in financial information, fix paypal buttons, create donation button, link to planispheres

**Hospitality – Larry Campbell:** Please assign someone to look into including a "Donation Link" in our new SLAS website. Also, I would like to have a "Mars Cake" at the July meeting. It would not have to be a photo cake. Costco has cakes for about \$20. We need to discuss "recognition" for long term members and for key volunteers both past and present [officers and committee heads]. Larry will get a Moon cake for July meeting, Mark will supply the Lunar Lander model **Membership recognition** – Brad has the Outreach certificates and Larry has the remaining membership anniversary certificates for distribution

### Board member at large reports

**Brent Buch (2018)** Webstite problems with the phishing For meeting videos Brent purchased Pro version for Joomla. However, currently Brent can't upload more than 10Mb file to our website

**Rich Heuermann (2019)** No report

**Tom Nickelson: (2020)** No report

### 4. Committee Reports: If needed

**Library Telescope Program:** New build later this Summer. Repairs and maintenance of existing scopes is an ongoing process, with John Beaury providing much support

**Membership** – The SLAS membership report for May 2018 was distributed before the meeting. At the end of May 2018, we had 181 members. This is four members lower than the 185 member count recorded at the end of December 2017 but 17 members over the 164 member count recorded at the end of May 2017. Reviewing the report details, we now have 10 youth members which is high for us (we started the year at 7 youth members). Also, there appears to be a shift from family memberships (we count family membership as two members) to individual memberships.

**Merchandise** – New facsimile of the SLAS eclipse mug received from vendor. The following motion was approved Motion by Mark J. Second Tom N. "I move that that any member who purchased an old eclipse mug can get a new replacement mug at no charge. Member must bring in old mug a proof of purchase in order to get new mug. Member can keep old mug. Any remaining old mugs will be used by speakers committee for mug shots. Sales of new or old mugs will go to reimburse speaker committee budget. Excess fund go into merchandize budget as previously agreed to in original motion."

**Newsletter** – Articles and pictures (especially pictures) are welcome to beef up the newsletter and our social media outlets. Please forward to [newsletter@slasonline.org](mailto:newsletter@slasonline.org) Discussion about redesign of brochure and what to do with them. (content, replace with cards, supplement with cards, reduce to front and back handout, etc.)

**Website** New website format is up and running! The new site will allow more members to contribute without need for special software. Some bugs being worked.

**Social Networking** – Public FaceBook page now more than 160 "follows"



**St. Louis Astronomical Society  
Profit & Loss Budget vs. Actual  
January through June 2018**

asis

	<u>Jan - Jun 18</u>	<u>Budget</u>	<u>\$ Over Budget</u>
<b>Ordinary Income/Expense</b>			
<b>Income</b>			
Total Magazine Subscription	873.90	741.95	131.95
Membership Dues	2,120.00	2,230.00	(110.00)
<b>Total Income</b>	<u>2,993.90</u>	<u>2,971.95</u>	<u>21.95</u>
<b>Cost of Goods Sold</b>			
Total Magazine Subscriptions	866.65	741.95	124.70
<b>Merchandise</b>			
Inventory Adjustment	(294.59)	0.00	(294.59)
Merchandise - Other	190.26	45.00	145.26
<b>Total Merchandise</b>	<u>(104.33)</u>	<u>45.00</u>	<u>(149.33)</u>
<b>Total COGS</b>	<u>762.32</u>	<u>786.95</u>	<u>(24.63)</u>
<b>Gross Profit</b>	<u>2,231.58</u>	<u>2,185.00</u>	<u>46.58</u>
<b>Expense</b>			
Total 1-Programs & Events	820.44	1,125.00	(304.56)
Total 2-Newsletter	50.00	87.00	(37.00)
3-Library expense	192.09	150.00	42.09
5-Loaner Scopes		600.00	(600.00)
7-Insurance	825.00	825.00	
8-Website	228.40	170.00	58.40
<b>Total 9-Administrative Expenses</b>	<u>63.87</u>	<u>823.00</u>	<u>(759.13)</u>
<b>Total Expense</b>	<u>2,179.80</u>	<u>3,780.00</u>	<u>(1,600.20)</u>
<b>Net Ordinary Income</b>	<u>51.78</u>	<u>(1,595.00)</u>	<u>1,646.78</u>
<b>Other Income/Expense</b>			
<b>Other Income</b>			
Donations	727.50	0.00	727.50
Interest Income	44.04	50.00	(5.96)
LTP Receipts	1,815.65	0.00	1,815.65
Proceeds from Lens Sales	1,803.29	0.00	1,803.29
<b>Total Other Income</b>	<u>4,390.48</u>	<u>50.00</u>	<u>4,340.48</u>
<b>Other Expense</b>			
LTP Disbursements	1,356.93	0.00	1,356.93
LTP Escrow Funding	500.00	500.00	0.00
<b>Total Other Expense</b>	<u>1,856.93</u>	<u>500.00</u>	<u>1,356.93</u>
<b>Net Other Income</b>	<u>2,533.55</u>	<u>(450.00)</u>	<u>2,983.55</u>
<b>Net Income</b>	<u><u>2,585.33</u></u>	<u><u>(2,045.00)</u></u>	<u><u>4,630.33</u></u>

**St. Louis Astronomical Society  
Balance Sheet  
As of June 30, 2018**

	<u>Dec 31, 17</u>	<u>Jun 30, 18</u>
<b>ASSETS</b>		
<b>Current Assets</b>		
<b>Checking/Savings</b>		
Checking - First Bank	5,162.74	7,500.18
Deposit, Certificate of	20,188.79	20,208.91
Library Telescope Escrow	299.98	703.04
PayPal	583.55	310.01
Savings - First Bank	46,297.03	46,320.95
YMCA Trout Lodge Escrow	482.87	482.87
<b>Total Checking/Savings</b>	<u>72,994.96</u>	<u>75,525.96</u>
<b>Other Current Assets</b>		
Inventory Asset	511.28	615.61
Undeposited Funds	50.00	0.00
<b>Total Other Current Assets</b>	<u>561.28</u>	<u>615.61</u>
<b>Total Current Assets</b>	<u>73,556.24</u>	<u>76,141.57</u>
<b>Total Fixed Assets</b>	0.00	0.00
<b>TOTAL ASSETS</b>	<u><u>73,556.24</u></u>	<u><u>76,141.57</u></u>
<b>LIABILITIES &amp; EQUITY</b>		
<b>Equity</b>		
Opening Bal Equity	8,137.66	8,137.66
Retained Earnings	54,813.50	65,418.58
<b>Net Income</b>	<u>10,605.08</u>	<u>2,585.33</u>
<b>Total Equity</b>	<u>73,556.24</u>	<u>76,141.57</u>
<b>TOTAL LIABILITIES &amp; EQUITY</b>	<u><u>73,556.24</u></u>	<u><u>76,141.57</u></u>

(Continued from page 8)

**Night Sky Network** – Some messaging problems experienced during Memorial Day weekend. Problems appear to be corrected.  
**Loaner – Scopes** Jim plans to order PST carrying cases  
**Publicity** – Press release sent out. Morning show Monday June 18<sup>th</sup> Rich Fefferman will be interview. 8:30pm. Arch Star Parties  
**Star Parties-** See separate report for list. Check NSN for upcoming events  
**5. Old Business** None

## SLAS EVENTS

### Upcoming Star Parties and Other Events

For details on these and other upcoming events, check out the Night Sky Network Calendar linked on the Home Page for SLAS at <http://www.slasonline.org>

SLAS Executive Board Meetings *Location will be at Nicoletti's Restaurant in Valley Park* All meetings are on First Thursdays unless noted.

2018: August 2, Sept 6, Oct 4, Nov 1, Dec 6

#### Dark Sky Observing Dates

August 11, September 8, October 6, November 3

Francis Park Events: These events are on Wednesdays of the week nearest the first quarter Moon

July 18, August 15, September 12, October 17

**Sky Orienteering Events** For members who want to gather and do some relaxed observing at Babler State Park orienteering. Please RSVP if you plan to come!

July 8

SLSC Public Telescope Viewing Events: These events are held the first Friday of the month  
Planetarium shows start at 7pm

8-3, 9-7, 10-5, 11-2, 12-7

#### Pattonville Observatory Public Viewing Dates

Finished until August!

#### Broemmelsiek Astronomy Park Public Viewing

Every Friday night with ASEM members

#### UMSL Observatory

For directions and map

<http://www.umsl.edu/~physics/About%20the%20Department/astro.html>

All sessions include viewing of 1st quarter Moon with additional objects

Skywatch Hotline: 314-516-5706

Saturdays:

20 Fri  
21 Sat  
21 Sat  
24 Tue  
28 Sat

SLAS Regular Meeting  
SLSC Sidewalk Solar  
Stargazing at the Gateway Arch  
Cub Scout Arnold Day  
Library Telescope Build

#### August

2 Thur  
3 Fri  
4 Sat  
6 Mon  
6 Mon  
7 Tue  
11 Sat  
15 Wed  
16 Thur  
17 Fri  
18 Sat  
25 Sat  
29 Wed

SLAS Board Meeting  
SLSC Public Telescope Viewing  
Normandy High School  
Flora Borealis  
Weber Road Library  
Flora Borealis  
SLAS Dark Sky Observing  
Francis Park Stargazing  
Maplewood Library  
SLAS Regular Meeting  
Sidewalk Solar Observing  
Stargazing at the Gateway Arch  
Rock Road Library

#### September

6 Thur  
7 Fri  
8 Sat  
10 Mon  
12 Wed  
12 Wed  
13 Thur  
15 Sat  
15 Sat  
17 Mon  
19 Wed  
20 Thur  
20 Thur  
21 Fri

SLAS Board Meeting  
SLSC Public Telescope Viewing  
SLAS Dark Sky Observing  
Daniel Boone Library  
Francis Park Stargazing  
Oak Bend Library  
Webster Groves Library  
Sidewalk Solar Observing  
Stargazing Crestwood Park  
Natural Bridge Library  
Samuel Sachs Library  
Belleville West Library  
Manchester Parks  
SLAS Regular Meeting

### LET US KNOW YOU ARE COMING!

To RSVP for any of these events log in to the Night Sky Network and submit your RSVP. If the event is canceled, you will be notified immediately according to the preferences you have selected.

### SLAS Merchandise Available

SLAS merchandise is now set up for embroidery at

Headz n Threadz at <https://hnt.threadthis.com/>

There are two locations:

**Galleria:** 2495 St. Louis Galleria, St. Louis, MO 63117 Telephone: 314.862.2695  
galleria@headznthreadz.com



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president at slasonline.org		
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vicepresident at slasonline.org		
<b>Secretary</b>	<b>Mark Jones</b>	636-394-2342
secretary at slasonline.org		
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<b>ALCOR</b>	<b>Bill Winningham</b>	636-357-2763
(Astronomical League Correspondent ) treasurer at slasonline.org		
<b>MSRAL Rep.</b>	<b>Jim Small</b>	314-909-7211
msral_rep at astroleague.org		

## COMMITTEE CHAIRS

<b>Dark Site Coordinator</b>	<b>Mark Jones</b>	636-394-2342
darksite at slasonline.org		
<b>Librarian</b>	<b>Jim Small</b>	314-909-7211
librarian at slasonline.org		
<b>Library Telescope Program</b>	<b>Don Ficken</b>	636-851-9630
lirbrarytelescope at slasonline.org		
<b>Loaner Equipment</b>	<b>Greg Gaines</b>	314-277-3082
loaner at slasonline.org		
<b>Merchandise</b>	<b>Vacant</b>	
merchandise at slasonline.org		
<b>Membership</b>	<b>Don Ficken</b>	636-225-0269
membership at slasonline.org		
<b>Newsletter Editor</b>	<b>Jim Small</b>	314-909-7211
newsletter at slasonline.org		
<b>Observing Programs</b>	<b>Mark Jones</b>	636-394-2342
observing at slasonline.org		
<b>Publicity</b>	<b>Rich Heuermann</b>	314-962-9231
publicity at slasonline.org		
<b>Recognition</b>	<b>Larry Campbell</b>	636-244-2867
recognition at slasonline.org		
<b>Social Media</b>	<b>Michelle Birch</b>	636-373-1102
social at slasonline.org		
<b>'SLASdialogs' Moderator</b>	<b>Mark Jones, Rhonda Whelan</b>	
dialogsmoderator at yahoo.com		
<b>Star Party Coordinator</b>	<b>Bill Breeden</b>	314-276-3613
starparty at slasonline.org		
<b>Telescope Making</b>	<b>Bill Davis, Jim Melka</b>	314-469-3061
telescope at slasonline.org		
<b>Webmaster</b>	<b>Jim Small</b>	314-909-7211
webmaster at slasonline.org		

***Devoted to the Interest and Advancement of the Science of Astronomy***

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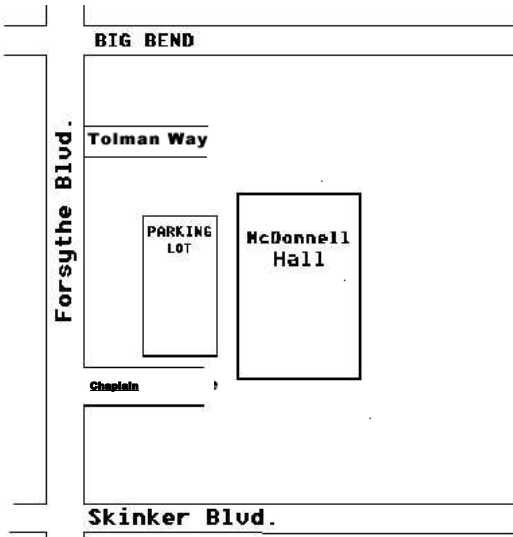


**Who We Are and What We Do**

St. Louis Astronomical Society is a not-for-profit organization established in 1936. SLAS is devoted to the interest and advancement of the science of astronomy. Our mission is to promote an understanding of the science of astronomy to our members and to the public. Membership is open to anyone with an interest in astronomy.

For more information contact any SLAS officer or visit our website listed above. SLAS is affiliated with the Astronomical League, Night Sky Network and the Mid-States Region of the Astronomical League.

Meetings are held the 3rd Friday of each month at McDonnell Hall at Washington University. See the map to the right for directions.



**St. Louis Astronomical Society**  
Jim Small  
13128 Cozyhill Drive  
St. Louis, MO 63122

