

# THE EVENT HORIZON



## ST. LOUIS ASTRONOMICAL SOCIETY

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

**VOLUME 28, Issue 6  
June, 2018**

### Mapping the Milky Way's Stardust in 3D

by  
**Dr. Edward Schlafly**  
**Lawrence Berkeley National Laboratory**

Dr. Edward Schlafly will be featured at the June meeting of the St. Louis Astronomical Society. The meeting will begin at 7:30 PM Friday, June 15, in McDonnell Hall, Room 162, on the Washington University campus, Saint Louis, MO 63130.

While at least 100 billion stars form the disk of our Milky Way galaxy, we see only the closer ones, their light blending to form the white path across the dark night sky. Stardust blocks the view of more distant regions. We see the night sky directly only in two dimensions – there is no depth perception, even with telescopes. So the effort to map the Milky Way's dust in three dimensions is difficult. Astronomers must somehow estimate the distances to stars and the amount of stardust that lies between them and the Earth. Dr. Schlafly will talk about how distances are determined and how stardust is measured. His research team is attempting to compile a three dimensional map of the entire Milky Way. It can be used for accurately correcting astronomical observations for the effects of dust. The map also

provides new estimates of the distances to star forming regions and may eventually map out the Galaxy's spiral arms.

Dr. Edward Schlafly was awarded a Hubble Fellowship to study the structure of our Milky Way galaxy. A native of St. Louis, he received his doctorate in Physics from Harvard. The Lawrence Berkeley National Laboratory is a member of the national laboratory system supported by the U.S. Department of Energy through its Office of Science. It is managed by the University of California.

### Upcoming Meetings: 2018

**July** Erika Gibb, PhD, UMSL Comets  
**August** Ryan Clegg-Watkins, PhD, Washington Univ

Exploring the Moon from Orbit: Paving the Way for Future Astronaut Explorers

**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

## SLAS Election Results

Elections were held at the May meeting and the slate of officers who were nominated were elected into office for another exciting year! Thanks to all for your service and here's to a great 2018-2019!

**President:** Jim Small

**Secretary:** Mark Jones

**Hospitality:** Larry Campbell

**Vice President:** Bradley Waller

**Treasurer:** Bill Winningham

**Board Member at Large:** Brent Buch

### Inside This Issue

President's Corner, **2**  
Motion,  
Washington State  
Park  
NCRAL  
Convention

Are You Ready for Mars? **3**

Board Minutes **5**

Financials **7**

Events **8**

Contacts **9**



## Presidents Corner by Jim Small

MSRAL is coming up next week June, 22-24 in Springdale, Arkansas in NW Arkansas. It will be held at the Explore Scientific facility and David Levy will be the keynote speaker. By the way, if you need further incentive to attend, David Levy will be there ALL weekend, not just the banquet!

I'm looking forward to ALCON in July. If you are planning on attending, let me know and I'll see you up there!

We did manage to get rained out of the two large events last Saturday. We had maybe 40 visitors before the skies opened up and really let us have it. Fortunately we were able to get packed up before the equipment was drowned!

Congratulations to the newly elected slate of officers for 2018-19! It is greatly appreciated that we have a group that really enjoys what they are doing and wish to continue. Thanks so much and keep up the terrific work!

The Starlight Festival at Yerkes was terrific and was a great spot to interact with other astronomers and the general public that attended. I'll put together an article for next month's newsletter.

We reordered SLAS eclipse mugs. When they come in we will give you a new one if you already purchased one of the original mugs. The new ones will be white with a black interior and a full color imprint of the image. This time it will be an integral part of the mug, not a stick on label.

Washington State Park is hosting an event for the Perseid Meteor Shower on August 11th. It will be dark of the Moon and should be a terrific opportunity to see the show!

I received an invitation from the Popular Astronomy club to attend the NECRAL 2019 annual convention in Moline, IL next year on May 3 and 4. Some of their members will be attending MSRAL with us next week! Yet another gathering close to our area!

## 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.



**NCRAL 2019 Annual Convention**  
Presented by the **Popular Astronomy Club**  
**Astronomical Voyages of Discovery:**  
**Past, Present and Future**  
**May 3 – 4, 2019**

Convention Location: Stoney Creek Hotel & Conference Center  
101 18th St., Moline, IL 61265

To be the first to know as plans are finalized, please send your name, club affiliation, and email address to: 2019NCRALInfo@gmail.com

## MSRAL and ALCON Conferences coming up

MSRAL (Mid-States Region of the Astronomical League) Convention will be held June 22-24 in Springdale Arkansas at the Explore Scientific facilities. David Levy will be the keynote speaker for the banquet Saturday night. **DEADLINE for EARLY registration is now passed.** Here is a link:

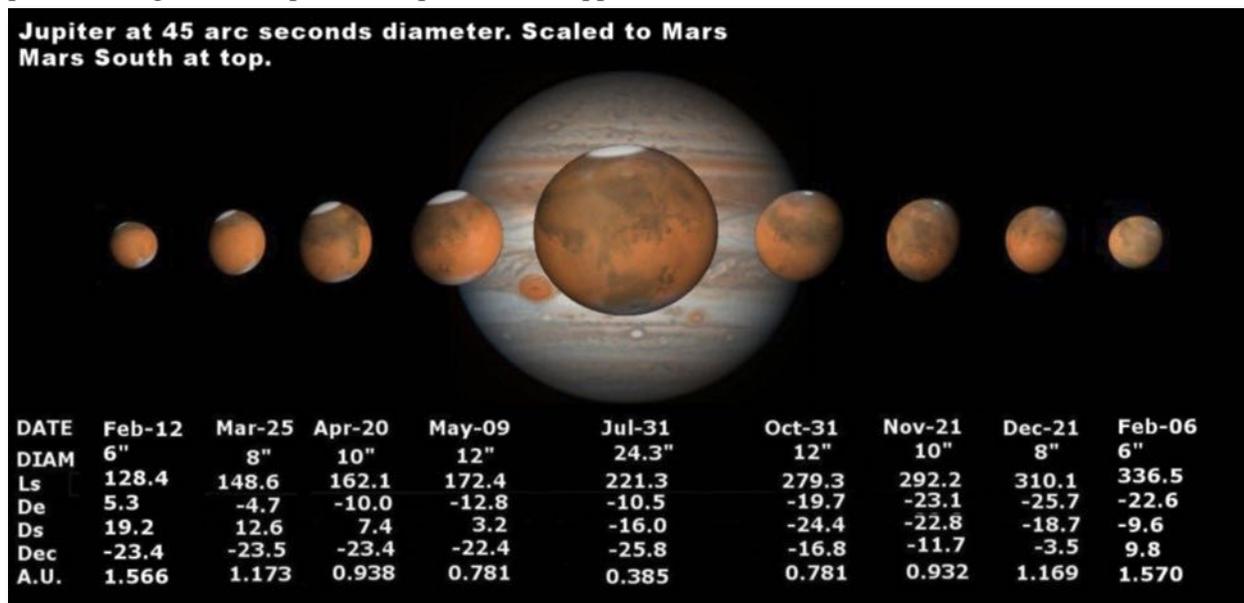
<http://nwa.space/msral-2018>

ALCON (Astronomical League Convention) will be held in Minneapolis, Minnesota July 11-14. Here is a link:

<https://alcon2018.astroleague.org/registration/>

## Are You Ready for Mars? *by Grant Martin*

This July 31st, Mars will appear larger in the sky than it has since 2003...but not quite as big as the full moon unfortunately. How big? About 24 arc seconds big. How big is that? Well, it won't get THIS big for another 17 years. Here's a little graphic showing Mars compared to Jupiter for this apparition:



About every 2 years and 50 days, Earth gets between the sun and Mars. The exact moment when Earth lies on the line connecting Mars to the Sun is called opposition. Because of orbital mechanics, the planet won't appear at its largest and brightest until a few days afterwards. It's called closest approach. Not like there's a really detectable size difference between these two events but there are nit pickers reading this who would like to pipe up so this just heads them off at the pass ;)

Anyway, it's very NEAR opposition that Mars will appear as bright and as large as it can get until the next opposition (and from here on out, I'm gonna use the word Opposition instead of the words "closest approach" because it requires less typing thankyouverymuch).

Here are the future "Oppositions" until 2035 when Mars will once again be as close as it will be in July of this year (OK, in 2035 it will be ever so closer resulting in nearly an extra arc second of size but let's not quibble over fractional arc seconds. The ephemeris generator rounds and I'm not anal enough to spend more time getting more precise values):

Date	diameter	magnitude
2018 Jul 27	24"	-2.8
2020 Oct 13	22"	-2.6
2022 Dec 7	17"	-1.9
2025 Jan 15	15"	-1.4
2027 Feb 19	14"	-1.2
2029 Mar 25	14"	-1.3
2031 May 4	17"	-1.8
2033 Jun 27	22"	-2.5
2035 Sep 15	25"	-2.8
2037 Nov 19	19"	-2.2

So comparing the May/October sizes of Mars in the image above to the July 31st image gives you an idea of the size extremes we will see between now and September 2035 opposition. Anyone who has used a telescope knows size is everything - for both THE scope as well as the object IN the scope.

So now you know one reason to get out and watch Mars for the next several months. It's really neat to see that sucker get noticeably brighter from night to night until opposition and then get dimmer afterwards.

Another reason is because this year, the Astronomical League unveiled a new observing program. Interestingly enough, it's called the Mars Observing Program.

It's ALL about Mars. It's all about making dozens of visual (or digital) observations between now and the beginning of

*(Continued from page 3)*

November. For any number of reasons (especially for those of us in high, swampy latitudes like St. Louis), the only time these program requirements can be fulfilled is around the period leading up to opposition and the period following.

It's an involved program for sure. It will require a good bit of dedication as well. We're talking about getting up after the crack of 3am to make observations till July, and then after midnight up till opposition. Following that, from August till November, observing windows get a bit more civilized. But still, you may need to leave that dinner party to take a quick view of Mars on the back deck. But hey, bring the party outside for an impromptu outreach event! That would count towards the annual SLAS Outreach participation pin as well! (Just make sure you document it.)

At the June SLAS meeting, I'll do a short presentation on the dynamics of the appearance of Mars through this apparition and how it affects our abilities to complete the Mars Observing Program THIS year so we won't have to wait till 2035. I'll guarantee you that when you complete this program, you will know far more about Mars than you ever thought you would – and THAT'S the point of the various AL programs: Learning something new about things in the night sky. So don't wait 17 years to do this!

— Grant Martin



**Above and Left:** "What's Outside" was a program that brought together over 30 different groups in Sunset Hills. These shots were BEFORE the skies opened up and rained us out. **Right:** Grant at the refractor at Yerkes which he plans to use on Mars this summer to record the opposition ;-)



**Left:** Michael Bouchard of Washington U talking to SLAS last month about the Mars Rovers including what's coming. **Above:** Don Ficken at the Arnold Library star party.

## SLAS Executive Board Meeting Minutes May 3, 2018

**1. Opening Activities:** Jim S. brought the meeting to quasi-order at 7:31 p.m. **Attending:** Jim Small, Bradley Waller, Bill Winningham, Larry Campbell, Brent Buch, Rich Heuermann  
**Minutes from April distributed before the meeting. Motion to accept April minutes by Brad W., second by Larry C. Minutes approved as amended.**

**2. External Business Next board meeting:** 6:30 p.m. June 7, July 5, August 2, September 6, October 4, November 1, December 6 Board meetings will be held at Nicoletti's Restaurant, 1366 Big Bend Road in Ballwin until further notice.

**MSRAL 2018** set for June 22-24 at the Explore Scientific facility located at 1010 S. 48th Street, Springdale, Arkansas 72762.  
**ALCON 2018** will be held in Minneapolis, Minnesota, July 11-14

### 3. Director Reports:

**President – Jim Small:** Table runners arrived. Second banner not provided, table runners did not have upgrades with logo on top and sides. Will request a rerun or refund from Totally Promotional. Last month, a Board motion was proposed and accepted that SLAS buy two additional table covers that match our existing table cover. As part of purchase we will get 2 free banners having same design as table cover. Vendor already has artwork on file. Cost is \$288 plus shipping. The increasing frequency of two SLAS-covered on the same day makes it advisable to have duplicate materials. After discussion, motion was approved and the expense will be presented to the SLAS membership attending the regular May membership monthly meeting. To fund this purchase in time to take advantage of the vendor's special free banner promotion, 50% of the cost will come from the Library Telescope Project budget and 50% from the SLAS Library budget. If the membership approves the expense, the SLAS Library budget will be reimbursed for its portion of the cost. We have a full vendor credit of \$442 for SLAS mugs. New and improved SLAS mugs will be ordered to replace the ones we got. The images will be integrated into the ceramic, rather than being printed separately and adhered.

**Vice President: Bradley R Waller** Brad had previously circulated the speaker and topic information for the remaining 2018 monthly meeting presentations.

18-May-2018	Michael C Bouchard	"Mars 2020 Rover"	Wash U
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-August-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	Washington University
21-Dec2018	Pamela Gay, PhD	"Secret Squirrel Stuff #2"	ASP

\*LBNL: Lawrence Berkeley National Laboratory      \*ASP: Astronomical Society of the Pacific

\*Welcome Aboard Meetings for new members are still planned for each month.

Brad is continuing to work on a new SLAS card to replace the brochure. The brochure design review is postponed until next month. The proposed card will have SLAS photo on one side and SLAS info on the other. Card will include: logo, website, free lectures, social media, free telescope viewing, mission statement. If anyone has ideas for the design, contact Brad and also be prepared to discuss them at the June Board meeting. Brad delivered his report in a record-shattering 1 minute 02 seconds. If brevity is indeed the soul of wit, it was a soulful report.

**Secretary – Mark Jones:** No report - Mark was unable to attend the meeting

**Treasurer/ALCor – Bill Winningham:** Financial reports were circulated and reviewed during the meeting. The IRS 990N tax document was filed as required. A \$300 donation from St. Louis County Library, in appreciation for library telescope programs and support, was received. There was some discussion about adding a donation button to the website so that credit cards or PayPal can be used to donate to SLAS.

**Hospitality – Larry Campbell:** Meeting refreshments seem to be popular with attendees. Suggestions for changes are welcome and should be sent to Larry.

**Membership recognition –** Still have a lot of membership recognition pins to give away

### Board member at large reports

**Brent Buch (2018)** Videos of meeting presentations are not playing reliably on pc's. Brent purchased a \$49 "all video player", pro version (one-time fee, no annual charge for the upgrade), and registered it to the SLAS domain. It may allow formats in addition to mp4 (perhaps wmv, html 5, etc.) The SLAS logo can be incorporated into the videos.

**Rich Heuermann (2019)** The request for room reservations for the May 18, June 15, July 20, and August 17 meetings has been placed with the Department of Earth and Planetary Sciences. We expect confirmation from the University's Events Scheduling office to be issued soon.

**Tom Nickelson: (2020)** No report – Tom was unable to attend the meeting.

### 4. Committee Reports:

**Library Telescope Program:** The program is continuing to run well, with 135 telescopes now in circulation. Don Ficken is part of a team developing a nationwide program. More help is needed to service the telescopes as adjustments and repairs become necessary. John Beaury now handles most work. He is beginning to train other SLAS volunteers.

**Membership –** Don Ficken circulated the May membership report in advance of the meeting.

(Continued on page 6)

(Continued from page 5)

**Merchandise** – As mentioned in the President's report, SLAS Has received a vendor credit for the eclipse mugs, without the need to return the shipment. The dissatisfaction is due to the images being adhered to the basic mug. The concern is that the sticker-like image strip will peel or wear prematurely after repeated use.

**Librarian** – No additional issues, beyond payment for the table coverings as indicated above.

**Newsletter** – Jim issued the recurrent plea for articles and pictures (especially pictures). He suggested that those attending a telescope viewing session should submit pictures and comments. Please forward to [newsletter@slasonline.org](mailto:newsletter@slasonline.org)

**Social Networking** – still need a volunteer to chair networking committee

**Loaner scopes** - A 3" f/9 reflector has been donated. We have received a request from a caretaker at a nursing home for the donation of a telescope. There was some discussion about the request.

**Publicity** – Press release not yet out.

**Star Parties-** Bill Breeden sent out star party list before the meeting. Check NSN for event details

**5. Old Business** None

**6. New Business** The Board received a message of complaint from member John Beaury, regarding the circulation of the Event Horizon newsletter. The newsletter typically is published and mailed shortly before the monthly general meeting. The April issue was delayed until after the meeting. *Motion by John Beaury, made on his behalf by Rich H. and seconded by Brad W.: "I propose that the Board of Directors take the following actions to rectify these problems. All SLAS members who have paid membership dues between March 27, 2017 to March 17, 2018 should be refunded the cost of the April 2018 newsletter issue, both printing cost and postage if applicable."* The proposal would apply to those members who receive printed, mailed copies. The cost/refunded is estimated to be less than \$1, including postage. John pointed out in his message that, in addition to notice of topic and speaker for the May meeting, the slate of officers was not published in print prior to the election on May 18. There was considerable discussion. The following points were made: - The newsletter editorship position has been vacant for many months. In the absence of a volunteer, Jim Small has published and mailed the newsletter for all of those months. He has not even received much member support for newsletter content, much less for edit/publishing assistance. Jim should be recognized with appreciation for editing, assembling, and mailing the newsletter – and for that matter for managing the website. The website editor/coordinator position has also been vacant for months.

- The topic and speaker listing for all of 2018 has been published in prior newsletters and announced at monthly meetings, as well as posted on the website. The newsletter is a secondary vehicle.

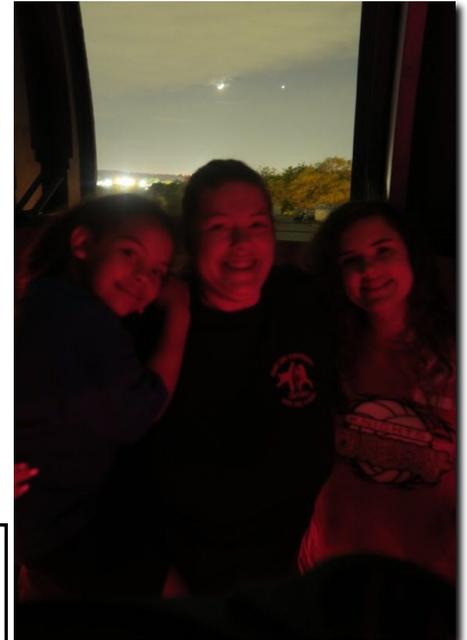
- The proposed slate of officers was announced at the April meeting, at which time additional nominations were solicited. None were forthcoming. The proposed slate of officers was published on the website in advance of the May meeting.

- The By-Laws stipulate that elections will be held annually at the May meeting. They do not specify the means for publishing nominations in advance of the meeting.

A vote was taken on the motion to refund newsletter recipients for the cost of the May newsletter. The motion was defeated.

A motion was submitted in absentia by Mark Jones: *"It is acknowledged that requests to General Membership for Board nominations were not published in April 2018 newsletter or delivered prior to the May general meeting. However, the Board agrees that nominations for Board positions made at the April and May 2018 general meetings are sufficient to meet the complete interpretation of Article VIII of the By-Laws."* The motion was seconded by Bill W. Following discussion, the motion was approved.

**7. Closing Activities** Bill made the motion to adjourn the meeting, second by Larry C. Meeting adjourned at 8:20pm.



**Right:** The last evening at the Pattonville Observatory for the season. The Moon and Venus in the background.

**Below:** First Friday on the Archery Field at the James S. McDonnell Planetarium



8:51 AM  
06/07/18  
Accrual Basis

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

	<u>Jan - May 18</u>	<u>Budget</u>	<u>\$ Over Budget</u>
Ordinary Income/Expense			
Income			
Total Magazine Subscription	611.20	479.25	131.95
Membership Dues	1,800.00	1,880.00	(80.00)
Total Income	<u>2,411.20</u>	<u>2,359.25</u>	<u>51.95</u>
Cost of Goods Sold			
Total Magazine Subscriptions	612.05	479.25	132.80
Merchandise			
Inventory Adjustment	(294.59)	0.00	(294.59)
Merchandise - Other	153.44	45.00	108.44
Total Merchandise	<u>(141.15)</u>	<u>45.00</u>	<u>(186.15)</u>
Total COGS	<u>470.90</u>	<u>524.25</u>	<u>(53.35)</u>
Gross Profit	<u>1,940.30</u>	<u>1,835.00</u>	<u>105.30</u>
Expense			
1-Programs & Events	737.19	988.00	(250.81)
2-Newsletter		73.00	(73.00)
3-Library expense	192.09	125.00	67.09
5-Loaner Scopes		600.00	(600.00)
7-Insurance	825.00	825.00	
8-Website	228.40	170.00	58.40
9-Administrative Expenses	<u>52.49</u>	<u>699.00</u>	<u>(646.51)</u>
Total Expense	<u>2,035.17</u>	<u>3,480.00</u>	<u>(1,444.83)</u>
Net Ordinary Income	<u>(94.87)</u>	<u>(1,645.00)</u>	<u>1,550.13</u>
Other Income/Expense			
Other Income			
Donations	627.50	0.00	627.50
Interest Income	25.41	42.00	(16.59)
LTP Receipts	1,790.65	0.00	1,790.65
Total Other Income	<u>2,443.56</u>	<u>42.00</u>	<u>2,401.56</u>
Other Expense			
LTP Disbursements	1,356.93	0.00	1,356.93
LTP Escrow Funding	500.00	500.00	
Total Other Expense	<u>1,856.93</u>	<u>500.00</u>	<u>1,356.93</u>
Net Other Income	<u>586.63</u>	<u>(458.00)</u>	<u>1,044.63</u>
Net Income	<u>491.76</u>	<u>(2,103.00)</u>	<u>2,594.76</u>

**St. Louis Astronomical Society  
Balance Sheet  
As of May 31, 2018**

	<u>Dec 31, 17</u>	<u>May 31, 18</u>
<b>ASSETS</b>		
Current Assets		
Checking/Savings		
Checking - First Bank	5,182.74	5,505.94
Deposit, Certificate of	20,188.79	20,188.98
Library Telescope Escrow	298.98	703.04
PayPal	583.55	77.49
Savings - First Bank	48,297.03	48,427.25
YMCA Trout Lodge Escrow	482.87	482.87
Total Checking/Savings	<u>72,994.96</u>	<u>73,395.57</u>
Other Current Assets		
Inventory Asset	511.28	652.43
Undeposited Funds	50.00	0.00
Total Other Current Assets	<u>561.28</u>	<u>652.43</u>
Total Current Assets	<u>73,556.24</u>	<u>74,048.00</u>
Total Fixed Assets	0.00	0.00
<b>TOTAL ASSETS</b>	<u>73,556.24</u>	<u>74,048.00</u>
<b>LIABILITIES &amp; EQUITY</b>		
Equity		
Opening Bal Equity	8,137.88	8,137.88
Retained Earnings	54,813.50	65,418.58
Net Income	10,605.08	491.78
Total Equity	<u>73,556.24</u>	<u>74,048.00</u>
<b>TOTAL LIABILITIES &amp; EQUITY</b>	<u>73,556.24</u>	<u>74,048.00</u>

**We could use articles for the newsletter. The following topics are fine for submission.**

- 1. Star party reports. Let us know how a star party you attended went! Photos would be most welcome in addition to the article.**
- 2. Observing reports. Actually made it out observing? Let us know how it went. Taken some astro photos? Please submit!**
- 3. Bought something or built something? How about a review or an article!**

**Send to [newsletter@slasonline.org](mailto:newsletter@slasonline.org)**

## 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: July 5, August 2, Sept 6, Oct 4, Nov 1, Dec 6

### Dark Sky Observing Dates

June 16, July 14, August 11, September 8, October 6, November 3

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

June 20, 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

7-6, 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:

### 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 EVENTS

### June

15 Fri SLAS Regular Meeting  
16 Sat SLAS Sidewalk Solar  
16 Sat SLAS Dark Sky Observing  
16 Sat Babler Park  
20 Wed Francis Park  
21 Thur Scott Air Force Base  
22 Fri MSRAL  
23 Sat MSRAL  
23 Sat Stargazing at the Gateway Arch  
23 Sat Des Peres Park  
24 Sun MSRAL  
27 Wed Jamestown Bluffs Library

### July

3 Tue Audubon Center  
5 Thur SLAS Board Meeting  
6 Fri SLSC Public Telescope Viewing  
8 Sun SLAS Sky Orienteering  
9 Mon Flora Borealis  
14 Sat SLAS Dark Sky Observing  
18 Wed Francis Park  
20 Fri SLAS Regular Meeting  
21 Sat SLSC Sidewalk Solar  
21 Sat Stargazing at the Gateway Arch  
24 Tue Cub Scout Arnold Day

### August

2 Thur SLAS Board Meeting  
3 Fri SLSC Public Telescope Viewing  
4 Sat Normandy High School  
6 Mon Flora Borealis  
6 Mon Weber Road Library  
7 Tue Flora Borealis  
11 Sat SLAS Dark Sky Observing  
25 Sat Stargazing at the Gateway Arch

### 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](mailto:galleria@headznthreadz.com)

**Delmar:** 6662C Delmar Blvd St. Louis, MO 63130 Telephone: 314.863.2695

[delmar@headznthreadz.com](mailto:delmar@headznthreadz.com)

[Delmar Map](#)

Simply take the garment, hat, etc you wish to have embroidered and they will take care of it. They have the SLAS logo on file. You may make modifications to the colors if you wish.

**SLAS Logo is also available at Infini-tees**



# SLAS MEMBERSHIP APPLICATION



Name: Last \_\_\_\_\_  
 First, Middle Initial \_\_\_\_\_  
 Address \_\_\_\_\_  
 City, State, Zip Code \_\_\_\_\_  
 email address \_\_\_\_\_

Youth @ \$10.00 / 1 year (18 yrs or younger) \$ \_\_\_\_\_  
 Individual @ \$25.00 / 1 year \$ \_\_\_\_\_  
 Family @ \$40.00/1 year \$ \_\_\_\_\_  
**Publications with discount available with your SLAS membership:**  
 Sky and Telescope @ \$32.95 / 1 year \$ \_\_\_\_\_  
 (S&T may also be renewed at their website:  
<http://www.skyandtelescope.com>)  
 Astronomy @ \$29.95 / 1 year \$ \_\_\_\_\_  
**TOTAL ENCLOSED** \$ \_\_\_\_\_

Please send completed form with check (no cash please) made payable to  
 St Louis Astronomical Society  
 Don Ficken, Membership  
 13024 Barrett Crossing CT  
 St. Louis, MO 63122

Check all that apply:  
 Renewal  
 Address Change Only  
 Please send my newsletter by regular mail  
 **New Member!**

## SLAS OFFICERS

<b>President</b>	<b>Jim Small</b>	314-307-0692
president at slasonline.org		
<b>Vice President</b>	<b>Bradley R Waller</b>	314-481-7250
vicepresident at slasonline.org		
<b>Secretary</b>	<b>Mark Jones</b>	636-394-2342
secretary at slasonline.org		
<b>Treasurer</b>	<b>Bill Winningham, (Don Ficken - membership)</b>	636-357-2763
treasurer at slasonline.org		
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***Devoted to the Interest and Advancement of the Science of Astronomy***

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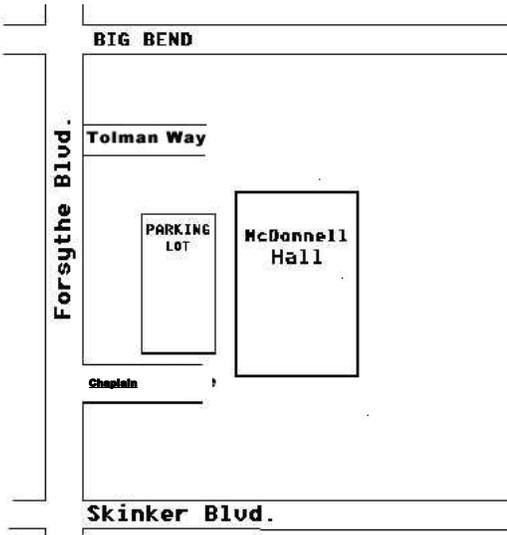


**Who We Are and What We Do**

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.



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