# THE EVENT HORIZON


## ST. LOUIS ASTRONOMICAL SOCIETY

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

**VOLUME 32, Issue 12**
**December, 2022**


## Getting into Astrophotography One Step at a Time

***by***

## Alan Dyer, Canadian Astrophotographer and Author

Alan Dyer, Canadian astrophotographer and author**,** will be featured at the December meeting of the Saint Louis Astronomical Society. The meeting will begin at **7:30 PM Friday, December 16** in McDonnell Hall, Room 362, on the Danforth campus of Washington University, Saint Louis, MO 63105. McDonnell Hall is accessible from Forsyth Boulevard via Tolman Way

Photographing the night sky has become hugely popular, not only among amateur astronomers, but also among daytime photographers wanting to extend their craft to nighttime scenes. But it is all too easy to be overwhelmed by the choices of equipment and techniques. Mr. Dyer will review the steps he thinks are best for beginners to get great results simply and with a minimum of expense. He will advise about the mistakes not to make when venturing into astrophotography and on the best gear to buy when it comes time to upgrade equipment.

Alan Dyer is co-author of the popular guidebook *The Backyard Astronomer's Guide*, now in its fourth edition. He is also a contributing editor to *Sky & Telescope* magazine. His images have appeared in books and calendars, on websites such as SpaceWeather.com, and NASA's Astronomy Picture of the Day, and in publications such as National Geographic magazine. Asteroid #78434 is named for him. His website is www.amazingsky.com

**Upcoming Meetings**
**January** TBD
**February** Haojing Yan JWST Early Universe UM-Columbia
**March** TBD
**April** Jonathan Katz Radio Bursts, or other Wash U.
**May** William McKinnon Missions to Jupiter's Moons Wash U.

## Location change for December meeting: Please Read !!!

**For the December meeting, the lecture hall will be occupied by a group taking an exam, so we will be in Room 362 upstairs.**
**Please make sure you or others do not open the doors or make noise in the halls.**
**Proceed directly to the elevator to the 3rd floor.**

## SLAS Returns to In-Person Meetings! Zoom Conference Meetings will Continue

The SLAS meeting for December has been scheduled for McDonnell Hall, room 362. The lecture hall is being used for an exam, so we need to move upstairs. Be sure to come! Attendance prizes, presentation of the special recognition awards, some great hospitality items and a great talk will run the day! Come support your fellow SLAS members!
You still ***cannot park in any red spaces***. There are 18 yellow slots on Forsyth which are ok after 5 pm Friday. There are also many yellow slots by the greenhouses west of McDonnell that are eligible after 5 pm. There is also an underground parking garage east of McDonnell at Wrighton Way. Park in any yellow slot. There are also two car chargers near McDonnell and several in the garage.
We will still run the meeting via Zoom Conference in addition to live and in person. The Zoom room will be open from 7-10 pm.
**To join Zoom Meeting for SLAS Regular Meeting with computer or smartphone: Just click the link below:**
**https://zoom.us/j/8604505790**
Meeting ID: 860 450 5790

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# President's Corner
*by*
## Jim Small

Perhaps you already got this month's Sky and Telescope. Maybe you saw the spectacular panporamic of the Milky Way on the cover. Did you note the photographer? Hey, it's Alan Dyer, our speaker for this month!! What perfect timing. Now, we didn't pay to have him fly to St. Louis from Canada, but it will still be a good talk! The way this one will work is we watch his video presentation first (his internet is spotty enough to make it hard to show all the images reliably) and we will have him live to answer questions before and after the talk. I can't wait. I attended his talk for the RASC GA conference this summer and immediately asked him to talk to our group! This marks the 3rd speaker to come from this conference.

Please attend this month's meeting in person if you can. We are presenting our special awards and the recipients are making a special effort to be present. It would be fabulous if they had good support. We will also have attendance prizes along with a terrific cake and other goodies for the meeting.

Speaking of the meeting, this month there is an exam taking place in the lecture hall of McDonnell, so we are moving the meeting upstairs to **room 362.** PLEASE be careful not to accidentally walk into the lecture hall and disturb the exam from either door of the lecture hall. Help us to make sure others don't make the mistake either. We will have signs up to remind people.

We will present the awards, and present and vote on the budget at this meeting. We will also discuss the **MSRAL By Laws Revisions.**. The document to be discussed may be found here: https://www.slasonline.org/images/MSRAL/MSRAL_bylaws.pdf Read through it and be prepared to discuss it at the meeting.

Don Snyder passed on November 22. Don was a great contributor to SLAS and will be greatly missed.

In addition, Jim Kaler, author of the book Stars passed. I had hoped to have him present to us at one time but never got the chance. His work is extensively found in the descriptions of stars found in the app Sky Safari.

See you at the meeting!
jrs

## SLAS Memberships Expiring in December

| FIRST NAME | LAST NAME |
|---|---|
| Brent | Buch |
| Linda & John | Follis |
| Angie | Forrester |
| Nora | Gettins |
| Jack | Gillette |
| Irvin | Hamilton |
| Katherine | Holzem |
| Jamie | Lyon |
| Chris | Miles |
| Marc | Oden |
| Elisabeth | Spratt |

## SLAS Memberships Expiring in January

| FIRST NAME | LAST NAME |
|---|---|
| Robert | Drzymala |
| Thomas | Duncan |
| Dale & Gaylene | Engelbrecht |
| Ty | Frauenfelder |
| Greg | Gaines |
| Mike | Hays |
| Richard | Heuermann |
| Catherine | Hooper |
| Ron | Jones |
| Tom | Keutzer |
| Ken | Kibort |
| Nicholas | Kirschman |
| Alex | Miller |
| Brooke | Myers |
| Rosanne | Naunheim |
| Patrick | Rauls |
| John | Schwartz |
| James | Timper |

# MSRAL By Laws Revision *by* Cook Feldman

Over the course of the last 2 years, Peggy Walker (MSRAL Regional Representative), Bruce McMath (Central Arkansas Astronomical Society) and Cook Feldman (St. Louis Astronomical Society) have been working on the framework to revise the Region's bylaws to conform to the League's bylaws. It was determined almost 2 years ago, that the League's bylaws did not conform to Missouri statutes. This determination resulted in the League's need to revise the national bylaws.

Over the course of the last 6 months, the 22 clubs that make up the Mid-States Region have been asked for their input regarding revising the Region's bylaws. The requests were sent to the Presidents of the member clubs.

Out of the 22 member clubs, there has been 11 clubs that have taken the mantle and provided input on how to word the various articles and sections of the revised bylaws. The help that has been received has been immeasurable. The clubs that have helped out with the 2-year project are:

Central Arkansas Astronomical Society
Astronomical Society of Kansas City
Omaha Astronomical Society
Bartlesville Astronomical Society
Prairie Astronomy Club
Sugar Creek Astronomical Society
Astronomical Society of Eastern Mo.
Astronomical Society of S.E. Mo.
Astronomy Club of Tulsa
Broken Arrow Sidewalk Astronomers
Platte Valley Astronomical Observers

We have gone through the draft of the National Bylaws as a reference. They are not final at this date or time but we have tried to conform to the latest revision.

We will complete the final revisions during December 2022, with the bylaws being sent to all the Region's Presidents during January 2023 for board review and to share with their general membership. We will be needing all the member clubs Presidents or their proxies to be present at the final meeting to ratify the revised bylaws, tentatively scheduled for the first or second week of January 2023 with the exact date to be determined. The quorum requirement is 2/5 (40%) of the Presidents (or their proxies) of the member clubs. Since we currently have 22 member clubs, the total number needed is 9, of which 3 clubs need to be represented. Click here to view revisions. It is also online.

We are hoping that the member clubs not mentioned above will be able to attend the January 2023 meetings (via Zoom) when a call to vote on ratification is held. Once the ratification has taken place at the regional level, a final review by the League's Executive Committee is required prior to implementation.

Mid-States Regional Astronomical League Bylaw Committee

## A Remembrance of Professor Donald Snyder (1935-2022): A Life of Dedication to Astronomy, Medical Imaging and Education

***by*** **Bill Neubert**

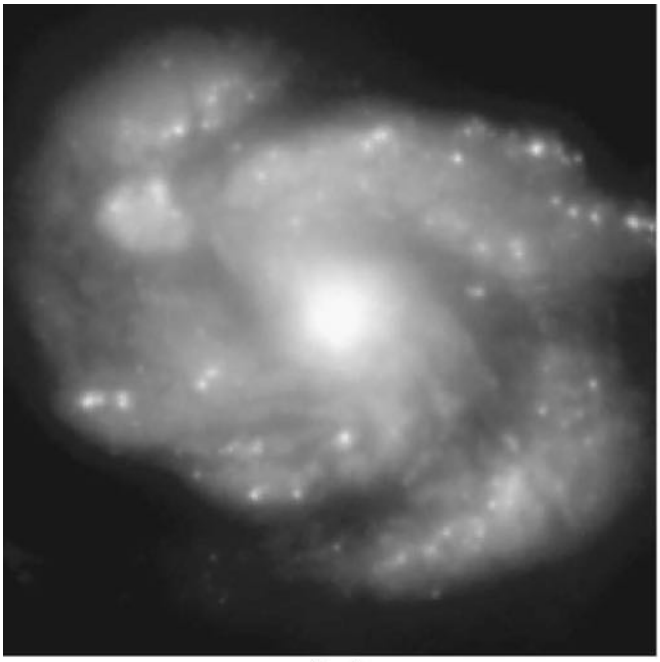
One unexpected benefit of the 2017 eclipse was that I reconnected with Professor Donald Snyder of the Washington University Electrical Engineering Department. I had the opportunity to express my thanks for the many things he motivated me to explore. I wish I would have also thanked him for this many contribution to make all of our lives better, safer and healthier.

There are many online listings of Professor Snyder's impressive accomplishments, but one area touches all of us and our families in unexpected ways: image de-blurring. He taught this under the topic of de-convolution or image restoration. Since I don't fully understand his advanced research, I'll have to provide a simple summary of one topic that caught my imagination.

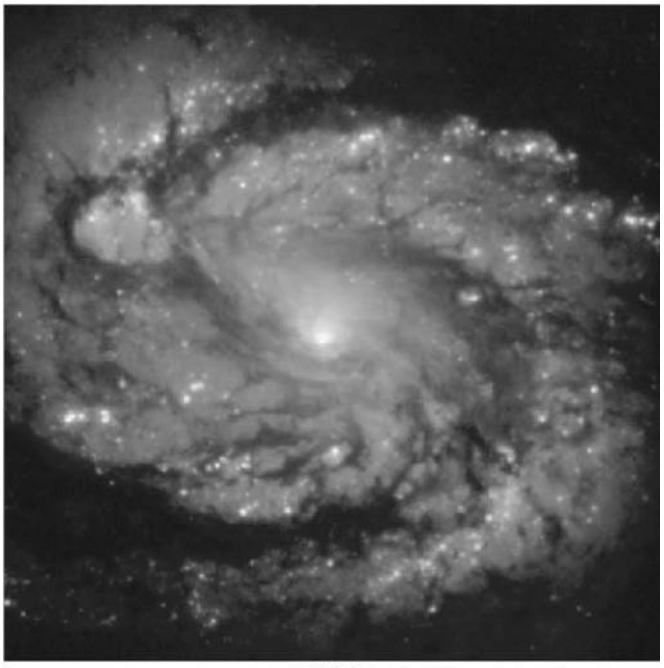
Imagine taking a photograph of the planet Jupiter using a cheap telescope and camera. The light from Jupiter is mixed by the atmosphere, blurred by imperfections in the telescope, distorted by variations in the camera sensor and made noisy by the camera electronics. The result is a rather disappointing blurry oval disk. Many techniques were developed over the last hundred years to try and correct for these effects with some limited degree of success in very specific situations. The approach advanced by Professor Snyder is novel. He created statistical optical models of the atmosphere, which effectively treated it as a lens. He used existing mathematical models of telescopes, and created new statistical models of how photons, sensors and electronics introduced imperfections. The result allowed him to predict how a system wold convolve all these effects when creating an image. Now for the hardest part: he developed a statistical method to undo or de-convolve these defects and dramatically improve image quality. Again, I can't begin to understand the details, but he would describe it as finding the most likely object shape that would result in the detected image. The technique compares the image you might get from a perfect telescope to that of your actual telescope. Rather than being a single mathematical formulae, his "maximum likelihood" model was an iterative series of hundreds or thousands of refined "guesses" until the the best possible image was estimated.

These tools found urgent and important applications in 1990 with the launch of the Hubble Space Telescope. The primary mirror had a precise amount of spherical aberration that blurred its vision. Because the defect was accurately modeled, the "Maximum Likelihood" de-blurring technique excellently corrected the images and restored function to the space telescope. Professor Snyder participate in the early efforts at the Hubble Space Telescope Institute conferences on image restoration. His contribution was so valued that it was cited several hundred times in follow on studies. Professor Snyder taught the basics of his technique to students of his courses and had us correct images; it was an elegant and powerful solution to a serious problem.

As one example, the image (a) is an early Hubble image of the galaxy M100. Image (b) is after de-blurring using these statistical techniques.



(a)



(b)

(https://www.researchgate.net/figure/Hubble-space-telescope-image-of-the-M100-galaxy-before-and-after-implementation-of-1993_fig2_252709898)

We see various de-blurring methods commonly used today, but with an important difference. Because of the mathe-

*(Continued on page 4)*

(Continued from page 3)

matical and physical rigor of Professor Snyder's methods, the resulting images are scientifically useful and free of false features. As a result, it can be used—and is used—in medical imaging. Professor Snyder realized he could model the properties of how X-Rays and Gamma Rays moved through human tissues. The dramatic improvements in medical images made non—invasive medically meaningful 3D images available for a medical diagnosis. We all know someone who had an MRI, CT, SPECT or PET scan and how important the images are to life saving treatments.

Beyond his scientific accomplishments, Professor Snyder was an highly regarded expert at the design, construction and history of sundials. He developed mathematical techniques to make discontinuous three dimensional and spline curved sundials. Some marked key dates, such as the birth dates of his children. He also was proficient at work working and make a complete replica of a harpsichord. These instruments are particularly challenging because of the stresses that the strings impart onto the wood frames.

Personally, I always found Professor Snyder to be a kind and humble person that cared for each of his students. He frequently smiled during lecture that made his work seem less intimidating. Even when we met again in 2017, he was still teaching me. He gave me several books on optical imaging from his library to help me get started with CCD imaging and to improve my image processing. He treated everyone with this kindness.

I'm grateful for the life-long dedication of Professor Snyder each time I snap a telescope image. When I casually use a de-convolution process in today's astronomy software, I think about all of his decades of contribution that made it work. And I am especially grateful whenever anyone tells me that their medical image successfully detected the source of their illness. *WJN*

Links to Obituaries for Donald Snyder:
Washington University

STL Today

North American Sundial Society

## Assumption Summary – 2023

## St. Louis Astronomical Society Annual Budget

Work began on the 2023 budget after the financial close for August 2022. The year-to-date information is therefore through August 31, 2022 with an estimated projection of activity from September 1, 2022 through December 31, 2022.

The budget information was assembled partially based on assumptions developed from the August 2022 year to date actual in areas such as membership information available at that time. The balances of the budgetary items were prepared on a line-by-line basis by the individual committees and committee chairperson

**Revenue / Income:**

The primary source of Revenue for the Society stems from membership fees that are assessed on an annual basis that is based on the member's individual anniversary date. The current fee structure was adopted in 2004 where the "Family Membership" was created and set at an annual rate of $40.00 per year. At the same time, the fees for the Youth membership were decreased from $15.00 to $10.00 per year.

The total revenue from the membership fees for 2023 is based on:

| | | |
|---|---|---|
| Regular (Adult) Memberships | 160 @ $25.00/year | $4,000 |
| Youth Memberships | 3 @ $10.00/year | 30 |
| Family Memberships | 40@ $40.00/year | 1,600 |

Albeit that the Society does receive donations for the outreach activities, these donations have been ignored for the purpose of the 2023 budget due to the uncertainty.

As indicated in the budget, this will provide operating revenues in the total of $5,630 for 2023. The actual revenues that will be realized during the calendar year may be different due to any changes in the actual membership numbers.

Magazine subscriptions are referenced as a memo item. The Society acts solely as an agent in these transactions as a convenience to the membership. It should be noted that the same "Club" rates for the subscriptions are available to each member in good standing through the Night Sky Network for those who choose that option.

**Operating Expenses:**

These are expenses that are incurred to run the Society on a month-to-month basis to provide goods and services to the membership. Some of the expense categories are required to meet specific obligations that enable Society to function as an organization. The balance of the expense categories are considered discretionary and may be adjusted accordingly. The items that will be discussed in detail are the discretionary items.

**Newsletter Expense:**

The newsletter expense consists of $225 for paper, toner and other supplies, $175 for postage, and $200 for an updated copy of Publisher.

**Events**

The Homemade Fest budget was increased from $100 to $125. This budget is primarily used to purchase refreshments, plates, plasticware and door prizes. SLAS hopes to continue getting the meeting room free of charge from the Science Center or the Kirkwood Community Center. Kirkwood waived the fee in the past because of our hosting telescope viewing at Kirkwood Park at least twice a year.

The Star-B-Que budget was increased from $200 to $240. This event will again be member potluck with SLAS providing the meat, paper goods, and trivia quiz prizes. SLAS hopes to continue getting the picnic pavilion free of charge. This is normally an $80 charge, but Babler has waived the fee because of our hosting Night Skies Over Babler twice a year.

The members in attendance will be asked to provide items as with the Homemade Fest to complement the main course provided by SLAS. This will require that the membership provide their RSVP and number of attendees so the event can be planned accordingly.

**Library Telescope Program:**

The SLAS Library Telescope program was launched into the St. Louis area on November 2014. In just a few short years, the program has grown to one of the largest and most successful programs in the country. On all fronts, the library telescope program is demonstrating success. The LTP committee is not requesting any funds for 2023 as there are sufficient funds in the LTP Escrow to cover expected costs.

**Meeting Expense:**

Meeting expense is comprised of Meeting Refreshments and Meeting Speaker Fees. The meeting refreshments are self-explanatory and have been budgeted at $360 same as the 2022 budget level. The Meeting Speaker Fees are used primarily to present honorariums to guest speakers and occasionally to partially offset travel expenses. The speaker budget has ranged between $250 and $600 in recent years. The 2023 speaker budget will be $400, which includes expected travel expenses (unlikely) for 1 to 2 speakers and a stipend for 1 to 2 graduate student speaker and the cost of mailing mugs or other gifts to speakers that present remotely.

**Membership Initiatives:**

SLAS regularly holds "Welcome Aboard" meetings for new SLAS members. These meetings take place before the Monthly Meeting. New SLAS Members are given a SLAS Informational Folder containing information about SLAS resources and other related Astronomy topics.

The budget for Membership Initiatives was increased from $500 to $650 for 2023 to reflect the increased cost of mailing prizes due to meeting being on Zoom. Membership Initiative intends to continue the practice of awarding attendance and other prizes to the membership. Examples of some of possible prizes for 2023 include sponsoring a membership to McDonald Observatory, telescope eyepieces, and cell phone adapters for telescopes. Please feel free to suggest your ideas for membership prizes to Brad Waller at vicepresident@slasonline.org. The budget reflects the potential cost of having to mail attendance prizes for Zoom based meetings.

**Membership Recognition:**

The membership recognition budget for 2023 is $500. This budget include cost for Night Sky Network pins and certificates, recognition of members for continuous membership in SLAS and for contributing time for other SLAS functions, including the recently adopted award program. The budget includes the costs for the five new awards that were made available beginning in 2020, including plates for the main award displays, individual plaques for award winners and associated mailing costs. A membership recognition committee was formed and an email address, recognition@slasonline.org was set up so that recommendations can be submitted to the committee.

**Merchandise:**

The merchandise budget includes $200 for a mug design/setup and $450 for mug inventory. Some of the mugs will be used for speaker gifts, the rest will be available for sale to the membership.

**Library:**

Library expenses for 2023 includes approximately $500 for a model James Webb telescope and the purchases DVD's and

books.

**Loaner Scope Program:**
For 2023 the budget is $100 which is intended to cover miscellaneous repair cost. This amount does not include proceeds from the sale of excess loaner scope inventory, which will be reinvested into the loaner scope program.

**JC Observatory:**
$4,000 to upgrade the electronics for the 2002 Meade LX200 16" scope by purchasing the Explore Scientific 16" Meade PMC-Eight control system, customized specifically for the SLAS 16" scope. The Scope will be down for 2-3 months for the upgrade. $1,000 is budgeted for other observatory expenses.

**Outreach:**
The outreach budget for 2023 is $500. The budget includes $250 for the purchase of shirts for members who complete outreach training and participate in outreach events, handed out quarterly. The budget also includes $250 for the purchase of yard signs, including Stacy Park.

**Website/Technology:**
The budget for the Website and internet related technology remains $750 for 2023. The budget includes approximately $260 for website hosting, $110 to maintain Group.IO (replacement for SLAS Dialogs), various web address licenses, and $200 to purchase a SLAS owned ZOOM account for virtual meetings and virtual sky tours.

**Dark Sky**
SLAS will donate $400 to the International Dark Sky Association of Missouri to help support their operating costs.

**2023/2024 Eclipse**
The budget includes $500 to fund an escrow account for to fund preparatory activities for the upcoming 2023 annular and 2024 total eclipse.

**SLAS Brochures:**
The SLAS brochure is due for a complete redesign. The brochure expense consists of $600 for paper and toner and potentially another order of "Quarter Card" handouts.

**Summary:**
The Board and participating committee members have adjusted several budget items for 2023. The budget includes a significant one-time expense to upgrade the motors and tracking system for the 16" Mead Scope at the Jefferson College Observatory. The budget also includes the addition of a Zoom license that will allow SLAS to host and record virtual meetings. Note up until now, Zoom meetings were conducted using SLAS member's Zoom accounts. Expected revenue is up slightly for 2023 due to an increase in membership during the year. The net result is 2023 budget as presented equals a net loss from operations of $8,555, compared a budgeted net loss of $3,617 for the 2022 and a budgeted net loss of $3,657 for the 2021. Meeting the projected expenses for the upcoming year will require supplementing the operations from cash reserves to the extent donations and other revenue sources do not make up the shortfall. All attempts have been made during this process to continue to provide valued programs for the membership.

If you have questions about the amounts presented in this budget, please direct them either to me or the relevant committee chairs.

Respectfully, Bill Winningham, Treasurer

**ST. LOUIS ASTRONOMICAL SOCIETY**
**PRELIMINARY OPERATING BUDGET - 2023**

| | Budget | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Annual 2015 | Annual 2016 | Annual 2017 | Annual 2018 | Annual 2019 | Annual 2020 | Annual 2021 | Annual 2022 | Annual 2023 |
| **Income** | | | | | | | | | |
| **Magazine Subscription** | | | | | | | | | |
| Total Magazine Subscription | $ 2,034.10 | $ 1,734.40 | $ 952.50 | $ 1,338.90 | $ 1,338.90 | $ 1,338.90 | $ 1,338.90 | $ 1,338.90 | $ 1,338.90 |
| Membership Dues | $ 3,440.00 | $ 3,725.00 | $ 3,600.00 | $ 3,970.00 | $ 4,170.00 | $ 4,265.00 | $ 4,215.00 | $ 5,600.00 | $ 5,630.00 |
| St. Louis County Library Events | | | | | | 1,620.00 | - | - | - |
| Merchandise Sales | - | - | - | - | - | | | | |
| **Total Income** | $ 5,474.10 | $ 5,459.40 | $ 4,552.50 | $ 5,308.90 | $ 5,508.90 | $ 7,223.90 | $ 5,553.90 | $ 6,938.90 | $ 6,968.90 |
| **Cost of Goods Sold** | | | | | | | | | |
| Total Magazine Subscriptions | $ 2,034.10 | $ 1,734.40 | $ 952.50 | $ 1,338.90 | $ 1,338.90 | $ 1,338.90 | $ 1,338.90 | $ 1,338.90 | $ 1,338.90 |
| Merchandise | | | | | | | | | |
| **Total Cost of Goods Sold** | $ 2,034.10 | $ 1,734.40 | $ 952.50 | $ 1,338.90 | $ 1,338.90 | $ 1,338.90 | $ 1,338.90 | $ 1,338.90 | $ 1,338.90 |
| **Gross Profit** | $ 3,440.00 | $ 3,725.00 | $ 3,600.00 | $ 3,970.00 | $ 4,170.00 | $ 5,885.00 | $ 4,215.00 | $ 5,600.00 | $ 5,630.00 |
| **Operating Expense** | | | | | | | | | |
| **Programs & Events** | | | | | | | | | |
| Home Made Fest | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 125.00 |
| Star BBQ Expense | 175.00 | 175.00 | 175.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 240.00 |
| Library Scope Program Expense | 600.00 | *200.00* | *200.00* | *200.00* | 450.00 | 650.00 | 300.00 | 300.00 | - |
| Outreach | | | *547.90* | | 650.00 | 1,100.00 | 700.00 | 620.00 | 500.00 |
| **Meeting Expenses** | | | | | | | | | |
| Meeting Refreshments | 450.00 | 350.00 | 350.00 | 350.00 | 350.00 | 360.00 | 360.00 | 360.00 | 360.00 |
| Meeting Speaker Fees | 250.00 | 250.00 | 800.00 | 600.00 | 500.00 | 500.00 | 400.00 | 400.00 | 400.00 |
| Total Meeting Expenses | $ 700.00 | $ 600.00 | $ 950.00 | $ 950.00 | $ 850.00 | $ 860.00 | $ 760.00 | $ 760.00 | $ 760.00 |
| Membership Initiatives | $ 200.00 | $ 200.00 | $ 200.00 | $ 200.00 | $ 400.00 | $ 400.00 | $ 450.00 | $ 500.00 | $ 600.00 |
| Merchandise | $ 120.00 | 45.00 | 45.00 | 45.00 | 100.00 | - | | 650.00 | 650.00 |
| Membership Recognition | 200.00 | 260.00 | 300.00 | 300.00 | 300.00 | 900.00 | 420.00 | 550.00 | 500.00 |
| Programs & Events | $ 2,495.00 | $ 1,780.00 | $ 2,270.00 | $ 1,995.00 | $ 3,050.00 | $ 4,210.00 | $ 2,930.00 | $ 3,680.00 | $ 3,375.00 |
| Newsletter (Postage only pre 2019) | $ 180.00 | $ 200.00 | $ 175.00 | $ 175.00 | $ 500.00 | $ 600.00 | $ 600.00 | $ 600.00 | $ 600.00 |
| Newsletter Printing | | | | | | | | | |
| Total Newsletter | $ 180.00 | $ 200.00 | $ 175.00 | $ 175.00 | $ 500.00 | $ 600.00 | $ 600.00 | $ 600.00 | $ 600.00 |
| Library expense | $ 300.00 | $ 100.00 | $ 300.00 | $ 300.00 | $ 470.00 | $ 500.00 | $ 500.00 | $ 500.00 | $ 500.00 |
| Astronomical League Dues | 650.00 | 695.00 | 670.00 | 760.00 | 825.00 | 860.00 | 860.00 | 1,025.00 | 1,200.00 |
| Dark Sky Association | | | | | | | 400.00 | 400.00 | 400.00 |
| Loaner Scopes | 200.00 | 50.00 | 50.00 | 600.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Observator Upgrade | | | | | | | | | 5,000.00 |
| Insurance | 380.00 | 380.00 | 380.00 | 825.00 | 825.00 | 1,050.00 | 1,050.00 | 1,050.00 | 1,150.00 |
| Website/Zoom | 135.00 | 150.00 | 170.00 | 170.00 | 285.00 | 625.00 | 690.00 | 750.00 | 750.00 |

**ST. LOUIS ASTRONOMICAL SOCIETY**
**PRELIMINARY OPERATING BUDGET - 2023**

| | Budget | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Annual 2015 | Annual 2016 | Annual 2017 | Annual 2018 | Annual 2019 | Annual 2020 | Annual 2021 | Annual 2022 | Annual 2023 |
| **Administrative Expenses** | | | | | | | | | |
| Corporate Filings | - | 20.00 | - | 20.00 | - | 20.50 | 12.00 | 12.00 | - |
| Office Supplies | 165.00 | 165.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Banking Fees | | | 25.00 | 25.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 |
| PayPal Fees | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 45.00 | 100.00 | 120.00 | 180.00 |
| Postage | 75.00 | 90.00 | 90.00 | 90.00 | 90.00 | 100.00 | 200.00 | 250.00 | 250.00 |
| Printing / Copying Expense (combined 2015) | 888.00 | 1,115.00 | 1,370.00 | 1,370.00 | - | | | | |
| Brochures | | | | | 610.00 | 600.00 | 300.00 | 600.00 | 600.00 |
| Administrative Expenses | $ 1,168.00 | $ 1,430.00 | $ 1,625.00 | $ 1,645.00 | $ 870.00 | $ 895.50 | $ 742.00 | $ 1,112.00 | $ 1,160.00 |
| **Total Operating Expense** | $ 5,508.00 | $ 4,785.00 | $ 5,640.00 | $ 6,470.00 | $ 6,925.00 | $ 8,840.50 | $ 7,872.00 | $ 9,217.00 | $ 14,235.00 |
| **Net Income/(Loss) From Operations** | **$ (2,068.00)** | **$ (1,060.00)** | **$ (2,040.00)** | **$ (2,500.00)** | **$ (2,755.00)** | **$ (2,955.50)** | **$ (3,657.00)** | **$ (3,617.00)** | **$ (8,605.00)** |
| **Other Income / Expense** | | | | | | | | | |
| **Other Income** | | | | | | | | | |
| **Donations** | | | | | | | | | |
| SLAS Club Members | - | - | - | - | - | | | | |
| Donations - Other | - | - | - | - | - | | | | |
| Total Donations | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Interest Income | $ 100.00 | $ 100.00 | $ 100.00 | $ 100.00 | $ 100.00 | $ 200.00 | $ 50.00 | $ 50.00 | $ 50.00 |
| Non-Operating Income (Astro Mag Award) | - | - | - | - | - | | | | |
| Total Other Income | $ 100.00 | $ 100.00 | $ 100.00 | $ 100.00 | $ 100.00 | $ 200.00 | $ 50.00 | $ 50.00 | $ 50.00 |
| **Other Expense** | | | | | | | | | |
| Physical Inventory Adjustment | $ - | $ - | $ - | $ - | $ - | | | | |
| Astro Mag Award Disbursements | | | | | | | | | |
| Depreciation Expense (JC Scope and Dome) | | | | | | 3,200.00 | 3,200.00 | 3,200.00 | 2,492.06 |
| **Total Other Expense** | $ - | $ 1,800.00 | $ 2,000.00 | $ 2,500.00 | $ 500.00 | $ 3,200.00 | $ 3,200.00 | $ 3,200.00 | $ 2,492.06 |
| **Net Other Income / (Expense)** | $ 100.00 | $ (1,700.00) | $ (1,900.00) | $ (2,400.00) | $ (400.00) | $ (3,000.00) | $ (3,150.00) | $ (3,150.00) | $ (2,442.06) |
| **Net Income / (Loss)**** | **$ (1,968.00)** | **$ (2,760.00)** | **$ (3,940.00)** | **$ (4,900.00)** | **$ (3,155.00)** | **$ (5,955.50)** | **$ (6,807.00)** | **$ (6,767.00)** | **$ (11,047.06)** |
| **Required versus Discretionary Spending** | | | | | | | | | |
| Gross Profit | $ 3,440.00 | $ 3,725.00 | $ 3,700.00 | $ 4,070.00 | $ 4,270.00 | $ 6,085.00 | $ 4,265.00 | $ 5,650.00 | $ 5,680.00 |
| **Required Expenses** | | | | | | | | | |
| Newsletter (postage only pre 2019) | $ 180.00 | $ 200.00 | $ 175.00 | $ 175.00 | $ 500.00 | $ 600.00 | $ 600.00 | $ 600.00 | $ 600.00 |
| Astronomical League Dues | 650.00 | 695.00 | 670.00 | 760.00 | 825.00 | 860.00 | 860.00 | 1,025.00 | 1,200.00 |
| Insurance | 380.00 | 380.00 | 380.00 | 825.00 | 825.00 | 1,050.00 | 1,050.00 | 1,050.00 | 1,150.00 |
| Website | 135.00 | 150.00 | 170.00 | 170.00 | 285.00 | 625.00 | 690.00 | 750.00 | 750.00 |
| Corporate Filings | - | 20.00 | | 20.00 | - | 20.50 | 12.00 | 12.00 | - |
| Office Supplies | 165.00 | 165.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Banking Fees | - | - | 25.00 | 25.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 |
| PayPal Fees | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 45.00 | 100.00 | 120.00 | 180.00 |
| Postage | 75.00 | 90.00 | 90.00 | 90.00 | 90.00 | 100.00 | 200.00 | 250.00 | 250.00 |
| Brochures | | | | | 610.00 | 600.00 | 300.00 | 600.00 | 600.00 |
| Printing / Copying Expense | 888.00 | 1,115.00 | 1,370.00 | 1,370.00 | - | - | - | - | - |
| | $ 2,513.00 | $ 2,855.00 | $ 3,020.00 | $ 3,575.00 | $ 3,305.00 | $ 4,030.50 | $ 3,942.00 | $ 4,537.00 | $ 4,860.00 |
| Balance for Discretionary Items | **$ 927.00** | **$ 870.00** | **$ 680.00** | **$ 495.00** | **$ 965.00** | **$ 2,054.50** | **$ 323.00** | **$ 1,113.00** | **$ 820.00** |
| **Discretionary Spending** | | | | | | | | | |
| Home Made Fest | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 125.00 |
| Meeting Refreshments | 450.00 | 350.00 | 350.00 | 350.00 | 350.00 | 360.00 | 360.00 | 360.00 | 360.00 |
| Meeting Speaker Fees | 250.00 | 250.00 | 600.00 | 600.00 | 500.00 | 500.00 | 400.00 | 400.00 | 400.00 |
| Membership Initiatives | 200.00 | 200.00 | 200.00 | 400.00 | 400.00 | 400.00 | 450.00 | 500.00 | 600.00 |
| Merchandise | 120.00 | 45.00 | 45.00 | 45.00 | 100.00 | - | - | 650.00 | 650.00 |
| Membership Recognition | 200.00 | 260.00 | 300.00 | 300.00 | 300.00 | 900.00 | 420.00 | 550.00 | 500.00 |
| Astronomy Day/Outreach | - | - | 300.00 | - | 650.00 | 1,100.00 | 700.00 | 620.00 | 500.00 |
| Star BBQ Expense | 175.00 | 175.00 | 175.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 240.00 |
| Library expense | 300.00 | 100.00 | 300.00 | 300.00 | 470.00 | 500.00 | 500.00 | 500.00 | 500.00 |
| Loaner Scopes | 200.00 | 50.00 | 50.00 | 600.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Observatory Upgrade | | | | | | | | | 5,000.00 |
| Library Scope Program Expense | *600.00* | 200.00 | 200.00 | 200.00 | 450.00 | 650.00 | 300.00 | 300.00 | - |
| Dark Sky Association | | | | | | | 400.00 | 400.00 | 400.00 |
| | $ 2,995.00 | $ 1,930.00 | $ 2,620.00 | $ 3,095.00 | $ 3,620.00 | $ 4,810.00 | $ 3,930.00 | $ 4,680.00 | $ 9,375.00 |
| **Net Income/(Loss) From Operations** | **$ (2,068.00)** | **$ (1,060.00)** | **$ (1,940.00)** | **$ (2,600.00)** | **$ (2,655.00)** | **$ (2,755.50)** | **$ (3,607.00)** | **$ (3,567.00)** | **$ (8,555.00)** |
| **Other Expense** | | | | | | | | | |
| 2023/2024 Eclipse Escrow Funding | | $ 800.00 | $ 1,000.00 | N/A | N/A | N/A | | | 500 |
| Library Telescope Program Escrow Funding | | 1,000.00 | 1,000.00 | 500.00 | 500.00 | - | 0 | 0 | 0 |
| Depreciation Expense (JC Scope and Dome) | | | | | | 3,200.00 | 3,200.00 | 2,492.06 | 2,492.06 |
| **Total Other Expense** | N/A | $ 1,800.00 | $ 2,000.00 | $ 500.00 | $ 500.00 | $ 3,200.00 | $ 3,200.00 | $ 2,492.06 | $ 2,992.06 |
| **Actual Historical Net Income for prior years** | **$ 368.42** (2015) | **$ 30,000.32** (2016) | **$ 10,680.08** (2017) | **$ 4,325.86** (2018) | **$ 2,924.55** (2019) | **$ 1,631.18** (2020) | **$ 2,942.04** (2021) | | |

## St. Louis Astronomical Society
### *Devoted to the Interest and Advancement of the Science of Astronomy*
### Executive Board Meeting Minutes 11/3/2022

**1. Opening Activities** a. Attendance: Jim Small, Larry Campbell, Mark Jones, Bill Winningham, Brad Waller, Brent Buch b. Open Meeting; Meeting opened at 7:03 pm c. Approval of last month's meeting minutes Motion by Jim second by Larry, minutes approved d. Next Board meeting date: Dates for 2022: Dec 1 Meetings will be via Zoom until further notice: SLSC Will Synder SLSC Update – Archery Field probably not going to open in 2023 but working on opening Doors for observing on front like used for Solar Sundays. See New Business section for more discussion.

**2. Upcoming General Membership meeting topics:** a. **Speaker**: Brett McGuire b. Special Awards needed: SLAS membership Anniversary pins and certificates. Larry has the pins and Brad print the certificates c. Speaker Press Release: Action: Brad to get title and info for Brett talk. We can reuse bio from Nov 2020 d. Special Business – Review of proposed 2023 Budget e. A101 – not this month f. Hospitality: usual snacks

**3. SLAS Financial Report (as of Sep 30)** a. Balance Sheet: $93K total assets, $77K cash b. Profit/Loss report: scopes sale $2341, lens sales $3600, net income $9331 c. Annual Budget meetings. Bill sent Budget documents prior to meeting. 2023 operating expense increased from $9217 to $14,235. Projected Net Income (negative $8555) compared to (negative $3567) in 2022. New escrow funding for 2023/2024 eclipses. Motion by Mark to accept 2023 Budget as presented. Second by Jim Small and motion approved. d. Corporate filings: Up to date until May 2023

**4. Speaker Committee** a. Budget - $400, balance $400 b. Upcoming speakers:

**SLAS Monthly Meeting Presentations 2022-2023**

| Month | Name | Topic | Sponsor |
|---|---|---|---|
| 18-Nov-2022 | Brett McGuire | TBD | MIT |
| 16-Dec-2022 | Alan Dyer | Astrophotography Author | |
| 20-Jan-2023 | | | |
| 17-Feb-2023 | Haojing Yan | JWST Early Universe | UM-Columbia |
| 17-Mar-2023 | | | |
| 21-April-2023 | Jonathan Katz | Radio Bursts, or other | Wash U. |
| 19-May-2023 | William McKinnon | Missions to Jupiter's Moons | Wash U. |

d. Topics of interest Katie Bouman e. Stipends f. Travel Action: Brad to contact Nov and Dec speakers for Press Release info Action: Brad to generate list of solstice prizes from June meeting and submit for reimbursement Action: Brad to submit invoices for Stephen Hummel including coffee mugs and postage. Brad has sent to mugs to all speakers for 2021 and 2022, except Stephen Hummel Action; Brad to ship mug to Stephen Hummel Action: Brad will submit expenses for Summer and Fall prizes

**5. Membership Initiatives** a. Budget - $500, balance $380 b. Welcome Aboard Meetings – none planned c. Raffles – no planned d. Attendance prizes – Next will be in December, Brad has prizes ready

**6. Membership Recognition** a. Total Budget $550, Balance $11 b. NSN Outreach Awards: 747 hours reported as of Nov 3. Per NSN website, 2022, like last year, our requirements remain loosened a bit to reflect the continuing challenging nature of outreach conditions. Member clubs whose members performed and reported on just (**2**) or more club events in 2022 using the NSN event management system are qualified to receive pins. These events can be in-person or online. Action: Mark to send email to SLAS members remind them of NSN awards and volunteer opportunities. c. Membership Report: Attached is the latest membership report showing 243 members. This is an improvement of one member over last month. We are behind in new memberships compared to last year (49 this year vs 63 last year) and our retention rate lags last year but we are holding our own with our member base at 245 members at the end of October, just two less than the start of the year. A notable trend are members switching from "family memberships" to "individual memberships". This has not helped our counts as we count "family memberships" as two members and "individual memberships" as one member. Action: Bill to create a form letter with links and text form for members to renew. Include links to magazines and renewal. No need to create distribution lists for each month. 90% complete Action; Bill will send email to members who memberships are expiring Standing Action: Bill to provide list of expiring memberships to SLASBoard and Jim for newsletter Standing Action: Jim to display list of expiring memberships at start of Monthly General Meeting d. Member anniversary Action: Brad to print certificates Action: Larry to purchase 3 anniversary plaques for members with more than 50 years for presenting at January meeting.e. New Award program- $600 budget 1. Special Award Committee report: Chairman – Larry Campbell, Jim Small, Mark Jones, Cook Feldman, Sharon Bertram, Fred Schovanez, Bill Neubert 2. New Award Policy and nomination process 3. Submittal deadlines 4. Nomination reviews: 5. Award selection: 6. Plaques purchased: 7. Awards presented: Action: Jim working perpetual plaques Action: Jim to purchase to 2022 plaques for December

**7. Outreach** - a. Budget - $620, balance $541 b. Member Training Program Status: on hold for the time being. c. Purchase of T-shirts for volunteers completed training d. Purchase of lawn signs: Brad purchased FP signs and they were received. e. Upcoming outreach events: Tower Grove, JCO, various libraries f. Awards/recognitions – planned for February g. NSN Outreach hours YTD: 747 hours reported as of Nov 3.

**8. Old Business:** Order has been placed and Bill sent logo. $3056 invoice will be sent. They will send us proof to sign-off on before they print. September Board Meeting – Motion "On Hold" Jim has solicited firm quote specific to our 16" telescope to know exactly what the upgrade will include. Board has decided to delay sending motion to general membership until firm quote can be received and reviewed Action: Jim to purchase new fan motor cable for 16" and Handbox for 10" LX200 from Meade

**9. New Business:** Shanna Ramirez SLAS Member Proposal - I have created an "Astronomy for Toddlers" package. This may be posted to our webpage as a free resource, and printed as pamphlets to parents and teachers at STEAM night. If anyone has additional activity suggestions, they can be added to the chart deck. Board has discussed and want to invite Shanna to present the slides as a A101 during an upcoming meeting. We will also put slides on SLAS website for people to download and use. Action: Jim put slides on Website Action: Mark to contact Shanna and ask her to present as a A101 at a future meetingCook Feldman - SLAS board needs to be proactive with regards of setting up a meeting with SLSC to discuss programming for 2023. To get an idea as to what programs they have in mind and how can SLAS provide support. Representatives of the board also need to try to set up a meeting with Todd Bastean just to open a dialog. The SLSC has been our flagship event, if we are moving away from that premise, then our membership needs to be kept in the loop for future planning. Action: Mark to contact Will Snyder and set up meeting to discuss 2023 planning. First Fridays, Solar Saturdays, special Astro events, SLAS meetings

**10. Other Committee Reports: If needed**

**MSRAL 2022:**

**A. SLSC Business:** a. First Friday actions – b. Other immediate business Standing Action: Invite Will Snyder to monthly SLAS Board Meeting

**B. SLCL Business** a. Annual contract – b. Upcoming events – number of events has accelerated

**C. Jefferson College Business:** a. Committee Meeting report: Permanent signage to find the site. Wifi is working. Science instruments installation. b. Upcoming Outreach Event: Aim for the Stars Nov 6

**D. Library Telescope Committee** a. Budget – $300, balance $300 b. Upcoming builds or maintenance events c. Maintenance budget - $100 d. Mileage re-imbursement – see abovee. Promotional materials - $200

**E. SLAS Social Events** a. Budget - $300, balance $45 b. Homemade Fest - $100 budget, balance $40 c. Star-B-Q - $200 budget, balance $5 d. Promoting Dobson-Fest event on Sep 17th

Other

**F. SLAS Brochures** a. Budget $200, , balance $144 b. Quarter cards –

**G. Loaner scope Program** a. Budget - $100, balance $100 b. New donations: c. Replacement Parts for the LPTs d. Items for sale **several:**

**H. SLAS Library** a. Budget - $500, balance $435 b. Other –

**I. Merchandise New coffee mug design (JCO logo, SLAS Logo) - www.startorialist.com** We used Discountmugs.com in 2018Action: Brent to finalize the design for Mug, schedule meeting to review before December Board Meeting

**J. Telescope Making**

**K. Newsletter** a. Budget $600, balance $266

**L. Website** - a. Budget $750, balance $475

**M. Social Networking** Public Facebook page – 2,090 followers. 70% women, 30% men Private Facebook page – 96 members

**N. Night Sky Network**

**O. SLASdialogs** 177 members

**P. Dark Site**

**Q. Observing Programs**

**R. Star Parties Donation: None for this month**

**11. Closing Activities** Motion to adjourn the meeting by Brad, second by Brent, meeting adjourned at 9:43pm.

## St. Louis Astronomical Society
## Profit & Loss Budget vs. Actual
January through November 2022

| | Jan - Nov 22 | Budget | $ Over Bud... |
|---|---|---|---|
| Ordinary Income/Expense | | | |
| Income | | | |
| Events Income | 2,341.46 | | 2,341.46 |
| Magazine Subscription | 2,999.05 | 3,200.20 | (201.15) |
| Membership Dues | 5,525.00 | 5,095.00 | 430.00 |
| Merchandise Sales | | 650.00 | (650.00) |
| Total Income | 10,865.51 | 8,945.20 | 1,920.31 |
| Cost of Goods Sold | | | |
| Magazine Subscriptions | 2,984.00 | 3,200.20 | (216.20) |
| Total COGS | 2,984.00 | 3,200.20 | (216.20) |
| Gross Profit | 7,881.51 | 5,745.00 | 2,136.51 |
| Expense | | | |
| 1-Programs & Events | 2,164.64 | 3,275.00 | (1,110.36) |
| 2-Newsletter | 333.93 | 475.00 | (141.07) |
| 3-Library expense | 65.00 | 500.00 | (435.00) |
| 4-Astronomical League D... | 1,105.00 | 945.00 | 160.00 |
| 5-Loaner Scopes | 199.38 | | |
| 6-Brochures | 56.35 | 550.00 | (493.65) |
| 7-Insurance | 1,049.50 | 1,050.00 | (0.50) |
| 8-Website | 335.24 | 750.00 | (414.76) |
| 9-Administrative Expenses | 517.71 | 3,502.90 | (2,985.19) |
| Total Expense | 5,826.75 | 11,047.90 | (5,221.15) |
| Net Ordinary Income | 2,054.76 | (5,302.90) | 7,357.66 |
| Other Income/Expense | | | |
| Other Income | | | |
| Donations | 1,052.45 | | 1,052.45 |
| Interest Income | 24.91 | 44.00 | (19.09) |
| LTP Receipts | 3,125.95 | | 3,125.95 |
| Non-Operating Income | 1,749.46 | | |
| Proceeds from Lens Sales | 3,603.69 | | |
| Total Other Income | 9,556.46 | 44.00 | 9,512.46 |
| Other Expense | | | |
| LTP Disbursements | 1,425.04 | | 1,425.04 |
| Total Other Expense | 1,425.04 | | 1,425.04 |
| Net Other Income | 8,131.42 | 44.00 | 8,087.42 |
| **Net Income** | **10,186.18** | **(5,258.90)** | **15,445.08** |

## St. Louis Astronomical Society
## Balance Sheet
As of November 30, 2022

| | Dec 31, 21 | Nov 30, 22 |
|---|---|---|
| ASSETS | | |
| Current Assets | | |
| Checking/Savings | | |
| Checking - First Bank | 7,447.09 | 17,974.06 |
| Deposit, Certificate of | 15,952.97 | 15,974.47 |
| Library Telescope Escrow | 797.00 | 2,459.77 |
| PayPal | 705.80 | 184.23 |
| Savings - First Bank | 41,149.86 | 41,153.27 |
| Total Checking/Savings | 66,052.72 | 77,745.80 |
| Other Current Assets | | |
| Inventory Asset | 675.61 | 675.61 |
| Investment in Mid-States 2... | 2,000.00 | 0.00 |
| Total Other Current Assets | 2,675.61 | 675.61 |
| Total Current Assets | 68,728.33 | 78,421.41 |
| Fixed Assets | 15,783.04 | 15,506.14 |
| **TOTAL ASSETS** | **84,511.37** | **93,927.55** |
| LIABILITIES & EQUITY | | |
| Liabilities | | |
| Current Liabilities | 770.00 | 0.00 |
| Total Liabilities | 770.00 | 0.00 |
| Equity | | |
| Opening Bal Equity | 8,497.66 | 8,497.66 |
| Retained Earnings | 74,279.95 | 75,243.71 |
| Net Income | 963.76 | 10,186.18 |
| Total Equity | 83,741.37 | 93,927.55 |
| **TOTAL LIABILITIES & EQUITY** | **84,511.37** | **93,927.55** |

## For Sale by SLAS

We had a telescope donated to SLAS that we're putting up for sale. Price is $150. The telescope is a Dobsonian 13.1" Coulter Odyssey I. Telescope was built around 1981, Mirror coatings appear to be good. There are chips on the secondary mirror but it is usable. Scope has a 1 1/4" focuser and 22mm FL Eyepiece. Photos are attached. Anyone interested **contact Mark Jones (mjones4106@yahoo.com)**

# 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** All meetings are on First Thursdays unless noted. ***Note: Board meetings will be via Zoom until further notice.*** Dates for 2023: 1/5, 2/2, 3/2, 4/6, 5/4, 6/1, 7/6, 8/3, 9/7, 10/5, 11/2, 12/7

**SLAS Dark Sky Observing Dates** Dec 17

**Francis Park Events: These events are on Wednesdays of the week nearest the first quarter Moon** 4/26, 5/24, 6/21, 7/26, 8/23, 9/20, 1018

**Aim for the Stars** Public events held on 1st Sundays at the Jefferson College Observatory and Patio. 2/5, 3/5, 4/2, 5/7, 6/4, 7/2, 8/6, 9/3, 10/1, 11/5, 12/2

**Stargazing at the Arch** Events for the public held at the Gateway Arch
See you next year!

**Sky Orienteering Events** For members who want to gather and do some relaxed observing at Babler State Park (BSP) or at the Jefferson College Observatory (JCO) Please RSVP if you plan to come!

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

**Pattonville Observatory Public Viewing Dates 2022-2023:** 1/6, 1/27, 2/10, 2/24, 3/10, 3/31, 4/14, 4/28, 5/5, 5/12

**Broemmelsiek Astronomy Park Public Viewing** Every Friday

**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

| | |
|---|---|
| | **December** |
| 16 Fri | SLAS Regular Meeting |
| | **January** |
| 5 Thur | SLAS Board Meeting |
| 18 Wed | Hanna Woods Elementary |
| 20 Fri | SLAS Regular Meeting |
| | **February** |
| 2 Thur | SLAS Board Meeting |
| 17 Fri | SLAS Regular Meeting |
| 27 Mon | Eureka Hills Library |
| | **March** |
| 2 Thur | SLAS Board Meeting |
| 2 Thur | Natural Bridge Library |
| 6 Mon | Mid-County Library |
| 15 Wed | SIUE Lifelong Learning Speaker |
| 17 Thur | SLAS Regular Meeting |
| 28 Tue | Festus Public Library |
| 30 Thur | Samuel C. Sachs Library |
| | **April** |
| 6 Thur | SLAS Board Meeting |
| 21 Fri | SLAS Regular Meeting |
| 25 Tue | Manchester Parks |
| 26 Wed | Francis Park |
| 29 Sat | Tower Grove Stargazing |
| | **May** |
| 4 Thur | SLAS Board Meeting |
| 19 Fri | SLAS Regular Meeting |
| 24 Wed | Francis Park |
| 27 Sat | Tower Grove Stargazing |

**For other events, watch the calendar on the website. Virtual stargazing events and other online activities will be registered there. We hope you can join us for some of these activities!**

## SLAS Merchandise Available

SLAS merchandise is now set up for embroidery at **Headz n Threadz at www.headznthreadz.com**

**There is now only one location:**
1065 Regency Parkway, St. Charles MO 63303
Telephone: 314.528-8100
sales@headznthreadz.com
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 www.Infini-tees.com**

# SLAS MEMBERSHIP APPLICATION

**Name: Last** _____

**First, Middle Initial** _____

**Address** _____

**City, State, Zip Code** _____

**email address** _____

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

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* @ $43.95 / 1 year $_____

(S&T may also be renewed at their website: http://www.skyandtelescope.com)

*Astronomy* @ $34.00 / 1 year $_____

**TOTAL ENCLOSED** **$_____**

Check all that apply:

___ Renewal
___ Address Change Only
___ Please send my newsletter by regular mail
___ ***New Member!***

## SLAS OFFICERS

**President** ***Jim Small*** 314-307-0692
president at slasonline.org

**Vice President** ***Bradley R Waller*** 314-481-7250
vicepresident at slasonline.org

**Secretary** ***Mark Jones*** 636-394-2342
secretary at slasonline.org

**Treasurer** ***Bill Winningham, (Don Ficken - membership)***
treasurer at slasonline.org 636-357-2763

**Hospitality** ***Larry Campbell*** 636-244-2867
hospitality at slasonline.org

**Board Members at Large**:

***Tom Nickelson*** 314-346-9565
board23 at slasonline.org

***Brent Buch*** 314-239-0329
board24 at slasonline.org

***Randy Harrison*** 618-267-1659
board25 at slasonline.org

**ALCOR** ***Bill Winningham*** 636-357-2763
(Astronomical League Correspondent )
treasurer at slasonline.org

**MSRAL Rep.** ***Peggy Walker*** 918-640-0832
msral_rep at astroleague.org

## COMMITTEE CHAIRS

**Dark Site Coordinator** ***Mark Jones*** 636-394-2342
darksite at slasonline.org

**Librarian** ***Jim Small*** 314-909-7211
librarian at slasonline.org

**Library Telescope** Program ***Don Ficken*** 636-851-9630
librarytelescope at slasonline.org

**Loaner Equipment** ***Greg Gaines*** 314-277-3082
loaner at slasonine.org

**Merchandise** ***Vacant***
merchandise at slasonline.org

**Membership** ***Don Ficken*** 636-225-0269
membership at slasonline.org

**Newsletter Editor** ***Jim Small*** 314-909-7211
newsletter at slasonline.org

**Observing Programs** ***Mark Jones*** 636-394-2342
observing at slasonline.org

**Publicity** ***Rich Heuermann*** 314-962-9231
publicity at slasonline.org

**Recognition** ***Larry Campbell*** 636-244-2867
recognition at slasonline.org

**Social Media** *Vacant*

**'SLASdialogs' Moderator** ***Mark Jones***
dialogsmoderator at yahoo.com

**Star Party Coordinator** ***Bill Breeden*** 314-276-3613
starparty at slasonline.org

**Telescope Making** ***Bill Davis, Jim Melka*** 314-469-3061
telescope at slasonline.org

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

# ST. LOUIS ASTRONOMICAL SOCIETY

We're on the Web!
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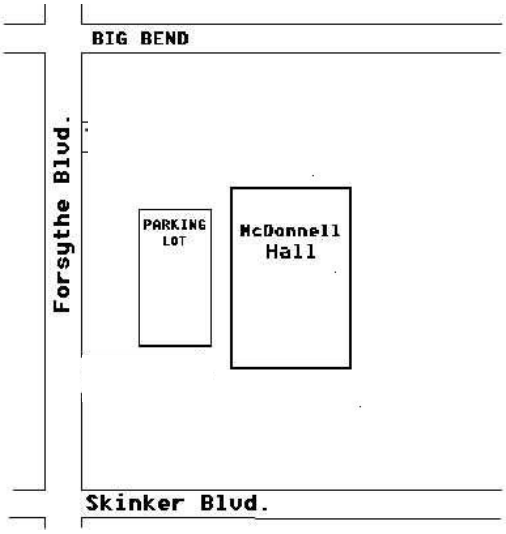
## Who We Are and What We Do

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 any-one 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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