



SearchLites

Vol. 30 No. 3, Summer 2024

The Quarterly Newsletter of The SETI League, Inc.

Andrew Siemion Receives Drake Award

Courtesy of the SETI Institute

The SETI Institute is pleased to announce that Dr. Andrew Siemion has been honored with the prestigious 2024 Drake Award for his exceptional and pioneering contributions to SETI and radio astronomy and his leadership in the field. Siemion's distinguished career includes his role as the Bernard M. Oliver Chair for SETI at the SETI Institute, Principal Investigator for the Breakthrough Listen Initiative at the University of Oxford, along with holding an Honorary Professorship at the University of Manchester, an Adjunct Appointment at the University of Malta, and directing the Berkeley SETI Research Center at the University of California, Berkeley. His dedication to SETI science and funding has been crucial in advocating for the scientific validity and importance of the field.

Named after Dr. Frank Drake, the SETI Institute's inaugural president of its Board of Trustees and the architect of the Drake Equation, the Drake Award celebrates remarkable achievements in the realms of SETI and astrobiology. Drake, often heralded as the father of SETI, launched the first SETI experiment, Project Ozma, at the Green Bank Radio Observatory in 1960, and his Drake Equation has become a fundamental framework for astrobiology. Drake Award recipients are nominated by the SETI Institute's Science Advisory Board and ratified by its Board of Trustees. The 2024 Drake Award presentation marks a significant occasion as it continues to honor the legacy of Dr. Drake following his passing in 2022.

"It is profoundly humbling to receive an award named after Frank Drake," said Siemion. "I was privileged to know Frank as both a friend and a colleague, and his immense generosity of spirit and scientific curiosity made an indelible imprint on me as a scientist and human. As we mark the 40th anniversary of the SETI Institute and look toward the next forty years in the search for technologically capable life, we see how far Frank's vision and leadership have brought us and the amazing opportunities for discovery ahead."

"Andrew Siemion, in a still young career, has become one of the world's most prominent and productive SETI researchers," said Bill Diamond, CEO of the SETI Institute. "From leading the transformation of the Allen Telescope Array to world-class status to conceiving the COSMIC project on the VLA to presiding over the Breakthrough Listen initiative, Andrew has transformed the field of radio SETI research and left his permanent mark on this profound endeavor. We are delighted to honor Andrew as our 2024 Drake Award recipient."

Interstellar Propulsion in The Three Body Problem

by Paul Gilster, *Centauri Dreams*

You never know when a new interstellar propulsion concept is going to pop up. Some of us have been kicking around fusion runway ideas, motivated by *Netflix's* streaming presentation of the Liu Cixin novel *The Three Body Problem*. There Earth is faced with invasion from an extraterrestrial civilization, but with centuries to solve the problem because it will take that long for the fleet to arrive. Faced with the need to get as much information as possible about the invaders, scientists desperately search for a way to get human technology up to 1.2 percent of lightspeed to intercept the fleet.

So how would you do that with technology not much more advanced than today's? The *Netflix* show's solution is ingenious, though confusing for those who assume that the *Netflix* '3 Body Problem' is based solely on the first of the Cixin novels. Actually it edges into the rest of the trilogy, which includes 2008's *The Dark Forest* and 2010's *Death's End*. The whole sequence is known as *Remembrance of Earth's Past*, and I had to dig into not just *The Three Body Problem* but *The Dark Forest* to find much discussion of any kind of propulsion.

Now we're in a dark wood indeed. For in *The Dark Forest* (the title is an allusion to the Fermi paradox, usually linked with concerns over METI), the idea of a precursor scouting of the alien invasion fleet does not appear, nor does it appear in the first novel. What we do get is a lot of confusing discussion, such as this:

If controlled nuclear fusion is achieved, spacecraft research will begin immediately. Doctor, you know about the two current research forks: media-propelled spacecraft and non-media radiation-drive spacecraft. Two opposing factions have formed around these two directions of research: the aerospace faction advocates research into media-propelled spacecraft, while the space force is pushing radiation-drive spacecraft... The fusion people and I are in favor of the radiation drive. For my part, I feel that it's the only plan that enables interstellar cosmic voyages.

The book's many references to a 'radiation drive' seem to be referring to antimatter. What Cixin calls 'media-propelled spacecraft' is opaque to me, and I'd welcome reader comments on what it represents. Then there is a 'curvature drive' that appears in the final volume of the trilogy, but let's leave that out of the discussion today.

Perhaps it's a kind of Alcubierre concept, but in any case I want to focus on fusion runways and sails for now, because the *Netflix* eight-part video presents the idea of sending a relatively small payload toward the invasion fleet using a form of nuclear pulse propulsion.

Here the presentation is accurate if rudimentary but the idea is fascinating. Because I don't find this in the novels, I am wondering about where, along the route to production, the show acquired a technology made famous originally by Project Orion, with its sequence of nuclear explosions visualized as occurring behind a spacecraft's huge shock absorbers. Wonderfully, the idea opens up to multiple interstellar propulsion ideas in the literature, including Johndale Solem's Medusa concept and various fusion runway notions that emerged decades ago, one by my friend Al Jackson and Daniel Whitmire, another by Jordin Kare, who christened his concept the 'Bussard buzz bomb.'

So we've got a lot to talk about. And out of the blue Adam Crowl wrote to remind me of something Martyn Fogg pointed out in 2017, when I wrote about Medusa then. Here's Martyn's comment:

Suppose these Solem sails were to have a small hole in their centre, they could be steered accurately, and that nuclear propulsion charges could be lined up perfectly in space, perhaps by laser guidance. Then one might imagine an 'Interstellar Solem Sail Runway' which would impart a jolt of pulse propulsion each time its sail overtook each charge, thereby accelerating the outgoing ship as a whole up to interstellar cruise velocity. The vessel would only need fuel to decelerate at the target system: a considerable reduction in the mass it would need to carry.

Talk about prescient! Because this is what shows up on the *Netflix* series. So, art imitates life imitates art.

Disclaimer: *The opinions expressed in editorials are those of the individual authors, and do not necessarily reflect the position of The SETI League, Inc., its Trustees, officers, Advisory Board, members, donors, or commercial sponsors.* ❖

**Minutes of the SETI League Membership Meeting
Conducted online on 21 April 2024**

• **Call to Order**

The 2024 Membership Meeting was called to order by Executive Director Emeritus H. Paul Shuch, virtually (via the Zoom platform) at 13:00 hours EDT.

• **Quorum Call**

Trustees and Officers present: A. Heather Wood, Richard Factor, H. Paul Shuch

Trustees and Officers absent: Martin Schreiber
Additional Members present: Scott Carter, Mike Lukaske, Riuji Kimura

A quorum is present.

• **Minutes of 2023 Annual Membership Meeting**

The Minutes of the 2023 Annual Meeting Meeting having been previously posted to The SETI League's World Wide Web site, a motion was passed to accept the minutes as submitted.

• **Treasurer's Report**

Developed jointly by Dr. Shuch and Secretary/Treasurer Heather Wood, covering the calendar year 2023 (as e-filed).

1. Revenues: Dues and Contributions, \$6,946; Interest Income \$0; Total \$6,946.
2. Expenses: Educational/Scientific Programs \$9,482; Management/General \$2,058; Fundraising \$508; Total \$11,510.
3. Excess or (Deficit): (\$4,564).
4. End of 2023, SETI League account balances equalled \$17,936. 2024 beginning net assets \$12,294.
5. 2024 Budget: Projected Revenues \$10,000; Program Expenses \$8,500; Management/General Expenses \$1,000; Fundraising Expenses 500; Total Expenses \$10,000; Projected surplus (deficit) \$0; Projected Ending Balance \$12,294.
6. This report was accepted by those attending virtually

• **Executive Director's Report**

During 2023, the Executive Director:

1. published four issues of *SearchLites*, the quarterly newsletter of The SETI League, Inc.
2. attended the Second Penn State SETI Symposium
3. performed 52 weekly updates of The SETI League website
4. posted numerous photos, links, and comments to The SETI League Facebook page
5. issued one press release

6. continued to serve as an Emeritus member of the International Academy of Astronautics SETI Committee

7. responded to a small number of email and telephone inquiries from members and prospective members

• **Committee Reports**

1. **Membership**

Ms. Wood reports that four new members joined The SETI League since our last Annual Membership Meeting, and we have roughly 150 Members in Good Standing at the time of this meeting.

2. **OSETI Committee**

Mr. Factor is continuing to collaborate with SETI Institute personnel toward his goal of installing a laser detector on the roof of his Arizona home. He is currently awaiting availability of hardware from the SETI Institute.

3. **Awards Committee**

Absent an Awards Committee Chair, no websites received the SETI SuperStar award during the year 2023. There were no Giordano Bruno Awards or Orville N. Greene Awards presented for contributions during 2023. Nominations from members for all awards are solicited.

• **Old Business**

1. **Annual Report**

Periodic financial updates have been posted to the Website and published in *SearchLites*.

2. **Web Server**

Mr. Factor reports that the current website server continues to function flawlessly. He has acquired a separate server for email distribution and listserv uses, but currently lacks the programming resources to activate same.

3. **Telecommunications**

SETI League headquarters remains unstaffed, with volunteers all working from home. Ms. Wood continues to receive calls occasionally via cellphone. She reports that the organization's primary means of contact are now email and the Facebook page.

• **New Business**

1. **Special Projects**

Coordinator Scott Carter, who chairs this recently established committee, reports some recent Regional Coordinator changes; the establishment of a new SETI League Canada website; and the reactivation of our Hardware and Software Committees. He updated us on the status of Project Argus, as well as three new initiatives: Project Locus, a targeted SETI search; Project Capellan, a Radio SETI SDR plug-in; and Project Talos,

the pending development of a SETI League Optical SETI software suite.

2. Election of Officers

The following slate of officers was retained for an additional one-year term:

- President - Richard Factor, serving without compensation
- Secretary/Treasurer - A. Heather Wood
- Executive Director Emeritus - H. Paul Shuch, serving on a volunteer basis
- Registered Agent - Anthony Agnello

3. Annual Budget

The draft 2024 Budget was presented to the Board for consideration.

4. Tax Return Filing

The Secretary/Treasurer reports that she was successful in eFiling our 2023 organizational tax return using the electronic Form 990N postcard, and having it timely accepted by the IRS.

5. Mid-Year Renewal Letter

Given elevation to Life Member status of several of our most active long-term members, no annual renewal letter was sent. One will be sent out during 2024, but we should thus expect a decline in the number of dues-paying members.

6. New Jersey Charities Registration

Ms. Wood has submitted our annual New Jersey Charities registration forms and fees, which have been accepted.

7. Outreach

Special Projects Coordinator Scott Carter last year proposed the SETI League develop a short documentary video for online dissemination, summarizing our mission and accomplishments. This item remains on our to-do list.

8. Next Meeting

Pending confirmation by Mr. Factor of the dates of other technical meetings, the next Annual Meeting is tentatively scheduled for Sunday 20 April 2025. Ms. Wood notes that this date coincides with Easter, and those present confirmed that this would not be an issue for them. The meeting will once again be held virtually via Zoom, at 13:00 hours EDT, to be followed immediately by the Board of Trustees meeting. The date and time will be announced to the membership via the website and newsletter.

• Good and Welfare

The SETI League's Facebook page www.facebook.com/setileague has attracted roughly 1600 "likes" and a similar number of "followers", numerous member posts, and considerable discussion among members and nonmembers alike. Mr. Carter reports having recently established a SETI League discussion channel on

the Discord server.

The Executive Director welcomed two new members in attendance, and invited them to introduce themselves.

• Adjournment

The 2024 SETI League Annual Meeting was adjourned by the Executive Director Emeritus at 13:41 hours EDT on 21 April 2024. The required annual Board of Trustees Meeting followed immediately.

• Board of Trustees actions

- The Board of Trustees Meeting was called to order by the Executive Director Emeritus, at 13:45 hours EDT.
- The Board members present accepted all reports presented at the Annual Membership Meeting, and adopted the proposed 2024 Budget.

• Personnel matters

The Executive Director Emeritus reviewed with the Board of Trustees the previously adopted terms for cost-sharing of his health insurance premiums, as a program expense, which will continue at last year's percentage, pending availability of funds and subject to periodic review.

- Dr. Shuch reports that in view of his plans to relocate and significantly downsize, he has chosen to donate his microwave circuits laboratory and ham radio equipment to the American Radio Relay League. ARRL is planning to activate a microwave EME (moonbounce) beacon similar to the one previously operated by The SETI League, which will incorporate some of his equipment. Mr. Factor has offered the ARRL the use of components from the former SETI League beacon.
- The Meeting was adjourned at 13:53 hours EDT.
- Members in attendance were invited to remain online to continue informal discussions on the Zoom platform, which continued until 14:15 hours EDT.

Respectfully submitted by, H. Paul Shuch, Executive Director Emeritus



SETI League members are encouraged to nominate SETI-relevant websites for our monthly SETI SuperStar Award. Nominating emails to our Awards Committee may be sent to:

Awards_at_setileague_dot_org

Please be sure to indicate the URL of the candidate website you are nominating, and a brief explanation as to why you consider the site worthy of recognition.

Event Horizon

SearchLites readers are apprised of the following conferences and meetings at which SETI-related information will be presented. League members are invited to check our World Wide Web site (www.setileague.org) under *Event Horizon*, or email to us at info@setileague.org, to obtain further details. Members are also encouraged to send in information about upcoming events of which we may be unaware.

August 8 - 12, 2024: *81st World Science Fiction Convention*, Glasgow, Scotland.

October 11 - 18, 2024: *75th International Astronautical Congress*, Milan, Italy.

June, 2025 (dates to be announced): *Third Penn State SETI Symposium*, State College PA.

August 13 – 17, 2025: *82nd World Science Fiction Convention*, Seattle, Washington USA

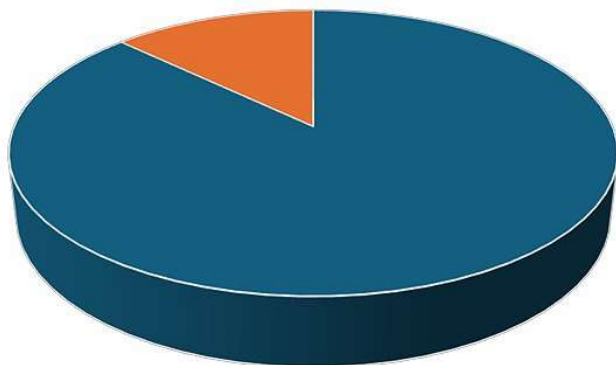
September 29 - October 3, 2025: *76th International Astronautical Congress*, Sydney, Australia.

October 2026 (dates to be announced): *77th International Astronautical Congress*, Antalya, Turkey.

2024 SETI League Budget

990 Line	REVENUES:	2024 (budget)	2024 (filed)
1d	Dues, Grants & Contributions	10,000	pending
4	Interest & Investments	0	pending
12	Total Revenues:	10,000	pending
	EXPENSES:	2024 (budget)	2024 (filed)
13	Educ. and Scientific Programs	8,500	pending
14	Management & General	1,000	pending
15	Fundraising	500	pending
17	Total Expenses:	10,000	pending
18	Excess or (Deficit) for the year	0	pending
	BALANCE SHEET:	2024 (budget)	2024 (filed)
19	Beginning Net Assets	12,294	pending
21	Ending Net Assets	12,294	pending

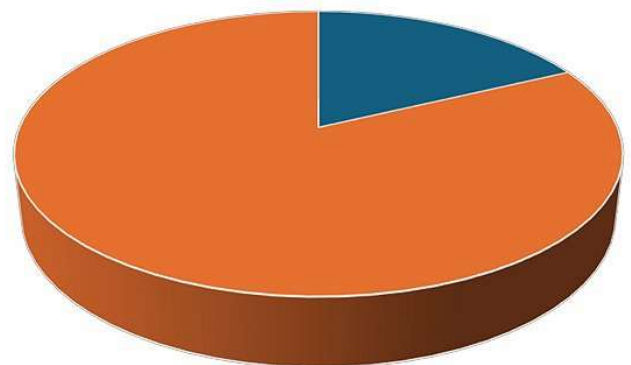
2023 SETI League Revenues



■ Contributions ■ Membership dues & premiums

- Contributions \$6,050.00
- Membership dues & premiums \$895.59

2023 SETI League Expenses



■ Administration ■ Program

- Administration \$2,058.29
- Program \$9,451.96

Annual Report

Scott Carter, Special Projects Coordinator

Regional Coordinator Changes

Canada – I would like to congratulate Lori Walton on her promotion from *Regional Coordinator, Northern Canada* to her new role encompassing all of Canada. Lori can be reached via email to lwalton@setileague.ca. I will be supporting Lori's efforts in her new position by acting as *Deputy Regional Coordinator, Canada*. I will continue as *Special Projects Coordinator* in addition to this post. I can be reached via email to scarter@setileague.ca.

Thailand – I would welcome Peter Wright as *Regional Coordinator, Thailand*. Peter has previously held the position of Regional Coordinator, Germany. I wish Peter the very best of luck in his new role.

Germany – The role of *Regional Coordinator, Germany* is currently vacant.

New Regional Website for Canada

Canada is getting a new SETI League regional website at <http://www.setileague.ca>. The site is currently under construction.

Committees

Software Committee – I am pleased to report that the software committee has been re-activated and currently has three members participating from Japan, Canada, and the United States. Two new software projects are underway (see below), one for Radio SETI and one for Optical SETI. Jon Richards has agreed to act as Chair for the Software Committee, and I would like to welcome him into his new role.

Hardware Committee – The hardware committee has also been re-activated, and has two participants in Canada. This will be helpful in recommending modern hardware options for those wishing to build dedicated SETI stations. I will be temporarily filling in as Chair for this committee. If you are interested in participating, please contact me at scarter@setileague.ca for more information.

Projects

Project Argus (All-Sky Radio SETI Project)

Collecting data on this project has proven to be difficult. The new SETI software should aid in tracking station status by generating on-demand status reporting. We do have amateur radio operators with Earth-Moon-Earth (EME) stations capable of monitoring, but reporting (and I suspect monitoring time) is limited. Statistic gathering will be vastly improved with the new software that is being developed, as it will be integrated into the software suite. Currently there are three dedicated SETI stations actively being worked on. These include one in Japan, one in Canada, and one in the United States.

Project Locus (Targeted Radio SETI Search)

This project did not get much traction due to the limited radio SETI station participation, and the project is currently on temporary hold. I am looking for a SETI League member to act as a volunteer coordinator for this project. This will involve choosing candidate exoplanets to explore with our radio telescopes, and coordinating efforts to scan the various solar systems. Please contact me at scarter@setileague.ca for more information.

Project Capellan (Radio SETI SDR Plug-in)

I am very excited about this project. Project Capellan will be the SETI League's next generation of Radio SETI software. It is being designed as a plug-in for the popular SDR# Software Defined Radio (SDR) platform. This is an open-source project on Git-Hub called SETI-Stations which involves multiple contributors from the Software Committee. This project is at the beginning stages of development. Features will include the option for active stations to appear on a SETI League dashboard, and it will allow statistical reporting in an automated fashion.

Project Talos

This will be SETI League's Optical SETI software suite which is designed to analyze images from sensitive astronomy cameras to search for laser beams. It has been proposed that lasers may be used by advanced extraterrestrial civilizations to communicate using light as a medium. The project will use a SVBONY SV305 telescope camera at the heart of the system, and will search high-resolution images for techno-signatures that could indicate intelligent life outside of our solar system. This project will be called SETI-viewer in GitHub, and will also be an open-source project.



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SearchLites Volume 30 No. 3, Summer 2024

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Annual Renewal: Is This Your Last SearchLites?

SETI League memberships are issued for the *Calendar Year*. Please check the expiration date indicated on your mailing label. If it reads December 2023 or earlier, you have already expired, and *must* renew your SETI League membership **now!** Please fill out and return this page along with your payment.

Please renew my membership in this category:

Full Member	\$50 / yr
Supporting Member (elderly, retired, or disabled)	\$35 / yr
Scholarship Member (full-time students only)	\$25 / yr
Household Member (same address as a Full Member)	\$15 / yr
Household Life Member (same address as a Life Member)	\$300
Life Member (until we make contact)	\$1,000
Sustaining Life Member – a generous <i>annual</i> pledge of:	\$1,000 / yr
Patron (priority use of The SETI League's radio telescope)	\$10,000
Director (Patron membership plus seat on advisory board)	\$100,000
Benefactor (a major radio telescope named for you)	\$1,000,000

Order Your Membership Premiums:

	(u)*	(o)*
Pocket protectors	\$ 3	\$ 4
Mouse pads	\$ 5	\$ 7
<i>Tune In The Universe!</i> (CD-ROM)	\$25	\$30
<i>Proceedings of SETICon01</i>	\$20	\$27
<i>Proceedings of SETICon02</i>	\$20	\$27
<i>Proceedings of SETICon03 (CD)</i>	\$15	\$18
<i>Proceedings of EuroSETI04 (CD)</i>	\$15	\$18
<i>Proceedings of SETICon04(CD)</i>	\$15	\$18
<i>SARA Conference Proceedings:</i>		
2006, 2007, 2008, 2009 (specify)	\$20	\$27
<i>SETI League Technical Manual (CD)</i>	\$10	\$13
<i>Project Cyclops 2nd Edition</i>	\$20	\$30
<i>The Listeners</i> by James Gunn	\$15	\$21
<i>Sing More Songs of SETI</i> (Songbook)	\$10	\$13
<i>Sing a Song of SETI</i> (music CD)		out of stock
<i>Sing More Songs of SETI</i> (music CD)	\$15	\$18
T-shirts, specify M, L, or XL	\$15	\$22
SETI Nerd Gift Set (one each Mouse Pad, Pocket Protector, <i>Project Cyclops</i> and <i>Tech Manual</i>) at		
20% Savings to <u>Members Only</u> :	\$30	\$45

***Includes postage to (u) US addresses, or (o) other locations**
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Annual memberships are issued for the calendar year. Those processed in January through April expire on 31 December of that year. Those processed in September through December expire on 31 December of the *following* year. Those members joining in May through August should remit half the annual dues indicated, and will expire on 31 December of the same year.

Pleased to Accept PayPal

The SETI League invites you to pay your membership dues and additional contributions via credit card, using the PayPal online payment system. Simply log on to www.paypal.com and specify that your payment be directed to paypal@setileague.org.

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