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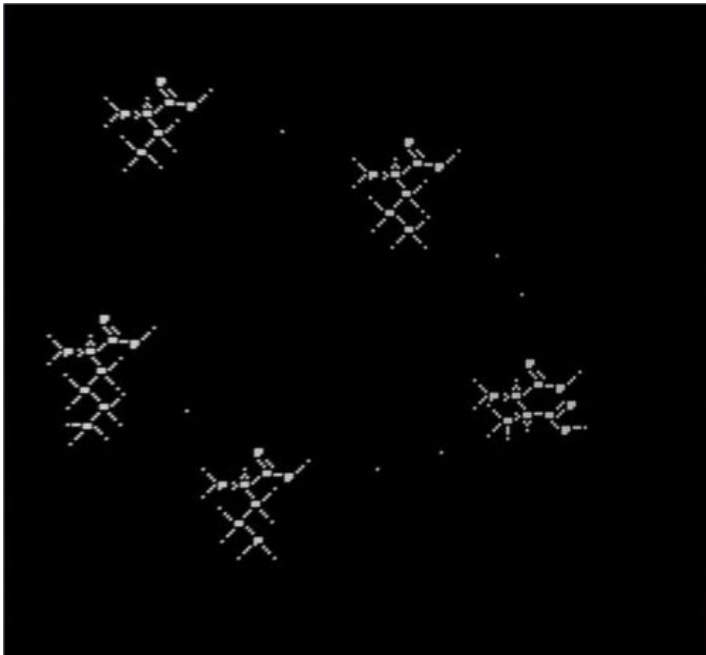
Vol. 30 No. 4, Autumn 2024
The Quarterly Newsletter of The SETI League, Inc.

A Sign in Space Message Decoded by Daniela DePaulis

Finally, after more than one year since launching the project, on 7 June 2024 at 21:50 CEST the message we designed for A Sign in Space has been successfully decoded by John and Sarah (names have been changed for privacy), a father and daughter team, who wish to remain anonymous for now.

John submitted the solution with these words: "My decoded message is a simple image with 5 amino acids displayed in a universal (hopefully) organic molecular diagram notation and a few single pixel points that appear between the clusters and molecular diagrams. I used a Margolus reversible 2x2 block cellular automata (BCA) with the simplest reversible rule, which is called 'single point (CCW) rotation', acting only on 2x2 cells that contain only a single point or pixel per the header instructions, conserving pixel or point count, 625 pixels in and 625 out. The starmap image appears to have the molecular forms encoded in a 3D local degree of freedom set of basis vectors (also shown in the header). The CA effectively transforms and projects this 3D info onto a 2D plane. I can run my Unity game engine based simulator forwards (CCW rotation) and backwards (CW rotation) in time and transform the starmap representation to the amino acid diagrams in 6625 generations and reverse the rotation process to transform the amino acid diagrams back to the starmap image in 6625 generations. I say starmap but I really read from the binary message file each run. The decoded image is only visible for 1 frame lasting about 1/10th of a second, but I can pause and manually step as well as reverse my CA engine...Here is a screen capture of my decoded image."

"The 'blocks' have 1, 6, 7 or 8 'pixels' representing the atomic number of hydrogen, carbon, nitrogen and oxygen. Single and double bonds are designated as single and double lines. C-H bond angle is indicated with a caret ^ sign. These signs were produced by the CA. I have not edited the image in any way. It's absolutely obvious to me what this is, as well as to my chemist friend I ran this by. It is amazing to watch all of the CA gliders or spaceships carry the binary bits of the message all over the "galaxy" and then suddenly come together in coherence and meaning..."



Now that John and Sarah have successfully decoded the message, we invite the community to contribute. Here are some ways to engage:

Utilise the description and solution provided above to conduct your own analysis and post the results in the solution channel. Be sure to describe the method you used; replication is fundamental in scientific exploration.

We have the message, but what does it signify? The exploration continues.

New LaserSETI Observatory Installed in Sedona, AZ

Submitted by SETI Institute

July marked a significant milestone in optical SETI research, as the SETI Institute team installed two new LaserSETI stations in Sedona, AZ. This installation brings the number of active LaserSETI observatories to three, enhancing our ability to scan the entire sky and monitor for extrasolar laser pulses continuously. LaserSETI stations need to be strategically placed around the globe to achieve this goal.

Initially constructed at LaserSETI Director Eliot Gillum's home, the new stations were moved and finalized at the San Francisco SETI Institute/Unistellar offices. After completing them, we shipped them to Sedona, AZ on behalf of Richard Factor, who generously offered his roof as the site for the LaserSETI installation. Despite a brief disruption caused by a CrowdStrike outage, the entire team arrived on time and proceeded with the installation as planned.



The journey wasn't without its hurdles. Minor damage occurred during shipping, but the dedicated team quickly repaired the structures, ensuring they were functional for the installation. Upon arrival, the team's first tasks included securing the stations on the roof and aligning them to the correct portions of the sky. They then ran power and Ethernet cables to the stations. After confirming power, we established remote connectivity.

Unfortunately, the Arizona night sky was too cloudy to complete the final step of focusing the instruments. Additionally, several software updates are still needed before the survey can be fully automated. As a result, the team will have to return for the "first light" once the final pieces are in place, probably before September 2024.

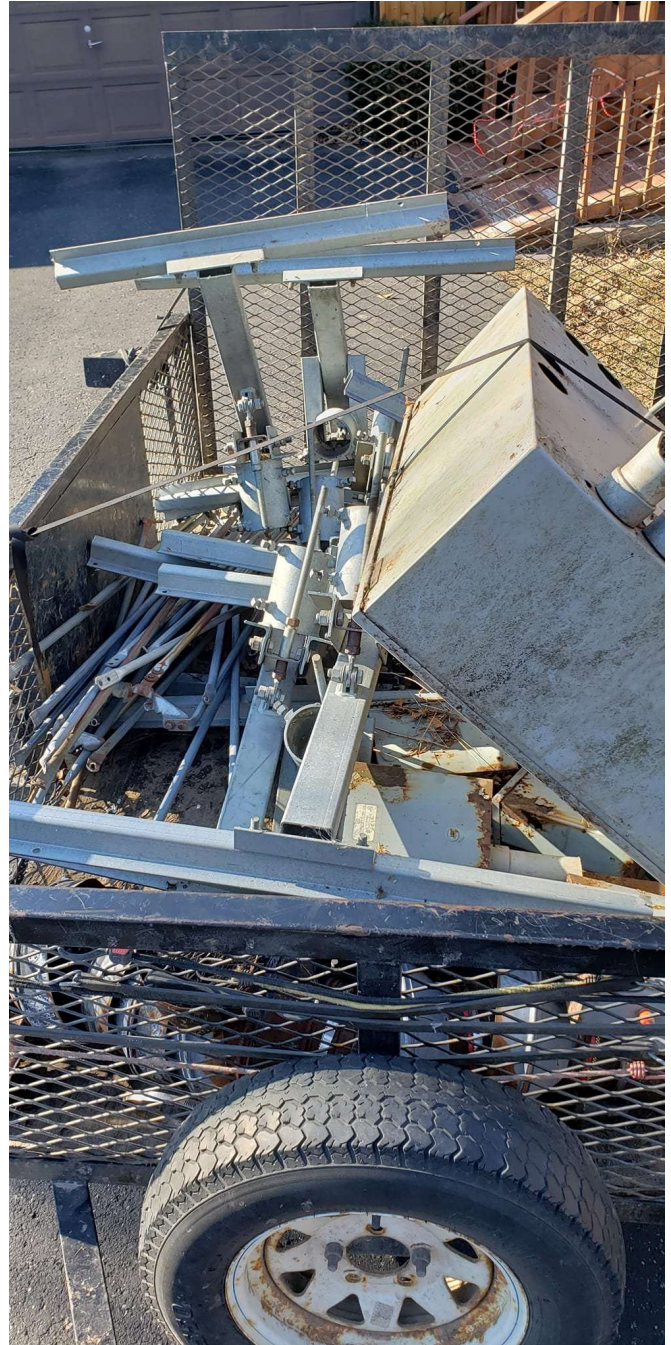
The LaserSETI project has ambitious plans for further expansion. Nine more stations are currently under construction, bringing us closer to our goal of comprehensive sky coverage. The LaserSETI team plans to install these upcoming observatories in the Caribbean, the Arabian Peninsula, Europe, and the Himalayas.

The dedication and perseverance of the LaserSETI team, coupled with the generosity of supporters like Richard Factor, are driving us ever closer to answering one of humanity's most profound questions: Are we alone in the universe?

Farewell Argus Station and VSA: The End Of An Era

As of June 2024, more than two decades after it was constructed (and sadly, not having been built to last), the now-obsolete Very Small Array prototype has been decommissioned, and its masts, mounts, junction boxes, feedhorns, and eight dishes hauled off for recycling. The project proved successful in securing a patent, paving the way for the next generation of radiotelescope arrays, and demonstrating that a single facility can be used successfully for simultaneous radiometry, spectroscopy, and interferometry.

Two months after the demise of the VSA, Project Argus station FN11LH, was similarly decommissioned and recycled after 26 years of operation. The two facilities had occupied the back yard of our Executive Director Emeritus H. Paul Shuch, whose Pennsylvania home is currently being sold to facilitate his retirement and relocation to California.



In Memoriam:

**SETI League Secretary/Treasurer
A. Heather Wood**

Heather Wood, a US citizen originally from Britain, was living proof of the existence of intelligent aliens. She came on board at The SETI League's very beginning as the volunteer administrative assistant to our Executive Director, a post she held for two years before being appointed Secretary. A few years later, she took on additional responsibility as Keeper of the Budget. If you ever received a hardcopy of *SearchLites*, The SETI League's quarterly newsletter, it is because it was folded, stapled, and mutilated personally by Heather. If your newsletter didn't arrive, you have only Heather and the Postal Service to blame.



This image shows Heather reading the minutes at one of our earliest SETI League membership meetings. Like most of her fellow Mensans, Heather hadn't quite figured out what she wanted to be when she grew up. She burst upon the folk music scene quite successfully in the 'Sixties, as one third of the vocal group Young Tradition (their collected works have long ago been re-issued on CD), but soon discovered that playing clubs at nine pounds a gig was not the best way to support oneself in royal style. There followed a succession of careers in food service, military service, writing, publishing, music recording, computers, electronics manufacturing, and banking. Which made her eminently qualified for the multi-disciplinary aspects of SETI.

Being by nature anentropic, Heather brought to The SETI League offices a wonderful sense of order. Any piece of documentation which you might have received in a timely and efficient manner came from Heather's desk. All lost forms, as well as any inaccuracies contained therein, were the Executive Director's doing.

Heather was much loved by The SETI League's leadership team and membership. She died suddenly on 15 July 2024 at the age of 79, leaving a void which can never be filled.

You can read all about Heather's checkered past online at her personal website (www.aheatherwood.com) for as long as it remains online. A remembrance of her by SETI League founder and President Richard Factor may be found at:

www.priups.com/rikblog/jul24/240717-heather-never.htm

In Memoriam:

EME pioneer Allen Katz, K2UYH

The SETI League is saddened to announce the death of our dear friend Allen Katz, K2UYH. A pioneer in EME (moonbounce) microwave communications, Al and his 18 foot diameter Kennedy parabolic dish antenna participated in The SETI League's Project Argus all-sky survey from its inception. A close personal friend and colleague to our Executive Director, Al served for two decades as Chairman of our EME committee.

A licensed Radio Amateur since 1956, Al was most active in VHF and Microwave operation. One of his primary research interests was Earth-Moon-Earth (EME) propagation - the use of the Moon as a passive reflector for extended range microwave communications. His task as SETI League EME Chair was to help members use signals reflected off the lunar surface to validate and calibrate their SETI receiving systems.

Dr. Katz served for 54 years as a professor of Electrical Engineering at The College of New Jersey. He had more than 40 years of experience in the microwave and satellite industries. His work spanned the frequency range from UHF through Ka-band and involved both hybrid, MMIC and photonic circuits including the design of the first practical MMIC linearizer. He held numerous patents and authored dozens of technical publications.

Al was founder and President of Linearizer Technology, Inc. He received the ARRL Technical Merit Award in 1976, the John Chambers Award in 1982, an IEEE Centennial Medal in 1984, the GE ASD Technical Excellence Award in 1990, the IEEE Region I Achievement Award in 1992 and the Martin Marietta Astro Inventor of the year award in 1993.

Katz was a Fellow of IEEE and its Microwave Theory and Techniques (MTT) Society, and a member of the MTT Technical Program Committee. He is the 2002 recipient of the American Astronomical Society's Randolph Lovelace II Award. His citation reads: "This award recognizes your technical leadership and contribution to significantly increase satellite communications payload performance through the development of microwave linearizer technology."

Allen Katz was a SETI League Charter Member. We regret that his legendary parabolic dish has now gone silent. He passed away peacefully in West Windsor, NJ, on June 20th, 2024, at the age of 81, surrounded by Sally, his beloved wife of 55.9672 years, and daughters Alisha and Tova.





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SearchLites Volume 30 No. 4, Autumn 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
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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

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.

Order Your Membership Premiums:

	(u)*	(o)*
Pocket protectors	\$ 3	\$ 4
Mouse pads	\$ 5	\$ 7
<i>Tune In The Universe! (CD-ROM)</i>	\$25	\$30
<i>Proceedings of SETICon01</i>	\$20	\$27
<i>Proceedings of SETICon02</i>	\$20	\$27
<i>Proceedings of SETICon03 (CD)</i>	\$15	\$18
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<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 Members Only:	\$30	\$45

***Includes postage to (u) US addresses, or (o) other locations
Payments in US Dollars, check payable through a US bank**

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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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