



SearchLites

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The Quarterly Newsletter of The SETI League, Inc.

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Annual Meeting Goes Virtual

Since its founding in 1994, the membership-supported SETI League has been pleased to host an in-person Annual Meeting every April. That is, until the emergence of the COVID-19 pandemic last year. In March of 2020, the Trustees of the SETI League deemed a physical gathering unsafe. Unfortunately, we were lacking the infrastructure to conduct an online meeting, or the time to organize one. We were able hold only the Board meeting which our Bylaws require, and that over the Skype platform. Three of our four Trustees attended, but no SETI League members.

As the pandemic dragged on, most of the world's scientific meetings were canceled, postponed, or replaced with virtual gatherings. Zoom became the online platform of choice for maintaining social, if not physical, contact. In fact, during Year One of the New Normal, my family and I personally participated in a Zoom graduation, a Zoom wedding, several Zoom birthday parties, a couple of Zoom concerts, three Zoom conventions, and (sadly) a Zoom funeral. (I joked with my relatives that all we were missing were a Zoom birth and a Zoom divorce.)

This February, it became clear that there could be no traditional SETI League Annual Membership Meeting in 2021. By then, we were all rather well versed in Zoom technology, so the decision to go virtual pretty much made itself. Our members and supporters are thus invited to join us, online, at the originally scheduled date and time, for The SETI League's first virtual mass gathering. It remains to be seen how successful this will be, but then, SETI success has always been elusive.

Our first (and, we can only hope, our last) virtual meeting will convene at 1 PM EDT (GMT minus 4 hours) on Sunday, 18 April 2021, to be followed by our Board of Trustees meeting one hour later. Members and supporters wishing to tune in are asked to email SETI League Secretary Heather Wood not less than two days prior, at [hwood50_at_aol_dot_com](mailto:hwood50@aol.com), so she can email you logon details in advance of the meeting.

I personally miss seeing my fellow SETIzens in the flesh. One can only hope that will again be possible, some day. Until then, there's always Zoom.

Guest Editorials:

The Spirit of Arecibo

by Joseph Lazio, JPL

The Arecibo Observatory has had a prominent role within the International Astronomical Union, both scientifically and from a human capital perspective, and its loss will be keenly felt.

With its unparalleled sensitivity for more than 50 years, it provided unique insights into the structure of the Milky Way Galaxy, star forming regions, and evolved stars by observing a variety of atomic and molecular lines, most notably observations of the 21 cm line of neutral hydrogen.

Discoveries with the Arecibo Observatory helped lay the foundation for the emerging era of multi-messenger astronomy, highlighted by the discovery that the orbits of a pair of neutron stars were decaying, as expected if the binary system was emitting gravitational waves as predicted by the Theory of General Relativity. Precise timing of radio pulsars provided equally novel advances in areas such as the equation of state of nuclear matter and advances toward the direct detection of nanohertz gravitational waves.

Both observations with and transmissions from the Arecibo Observatory injected new elements into the search for life in the Universe, primarily in the area of searching for signatures of other technologies, and, for half a century, Arecibo stood as the defining marker for interstellar transmissions.

Within the Solar System, the Arecibo Planetary Radar (often affectionately known as “El Radar”) helped change our view of the planets Mercury and Venus, crucially providing the first views of the surface of Venus. More recently, the Arecibo Planetary Radar obtained crucial information about near-Earth asteroids, leading not only to scientific discoveries but precise orbit determinations for the purposes of planetary defense.

These scientific discoveries only happened, though, because of the immense amount of talent that was cultivated at the Arecibo Observatory. Numerous scientists and engineers, from the island of Puerto Rico and internationally, developed their skills at the Arecibo Observatory, leading to further discoveries through the field of astronomy.

While the members of the Radio Astronomy Commission of the International Astronomical Union are saddened by its loss, there is no doubt that data acquired by the Arecibo Observatory will continue to be critical to new discoveries for many years to come. The National Science Foundation is also exploring new scientific roles and opportunities for the observatory.

Support The Next Generation

Arecibo Telescope

by H. Paul Shuch

Since the collapse of the famed Arecibo Radio Telescope on 1 December 2020, much work has been going on behind the scenes to envision a future for this landmark facility. This month, an alliance of more than 50 prominent radio astronomers has released a 96 page White Paper to be presented to the National Science Foundation, proposing the funding and construction of what they are calling the Next Generation Arecibo Telescope (NGAT). They are now appealing to the general public to sign on in support of that proposal. Here is an excerpt from their appeal:

The Arecibo Observatory has been a beacon to the world producing revolutionary science and innovation for more than 50 years.

The observatory’s unique capabilities have helped us better understand our planet’s atmosphere, warned us and educated us about hazardous asteroids, and fed our spirit of exploration by offering a look at new regions of the Cosmos. Arecibo has inspired millions of people, and helped create an entire generation of scientists. We feel it is our duty to continue this great legacy, by developing a new instrument that can further expand human knowledge for decades to come.

“The Future of the Arecibo Observatory: The Next Generation Arecibo Telescope” outlines how investing in a pioneering concept for a new telescope and cutting-edge instrumentation at the Arecibo Observatory will continue to propel discovery and humankind’s understanding in the fields of Planetary Science, Space and Atmospheric Sciences, and Astronomy. Better understanding in each of these areas can potentially impact everything from our planet’s safety and security, the changes in the climate, the technology we rely on for communication and transportation here on Earth and the safety of spacecraft on future missions. Moreover, this facility will serve as a source of inspiration for the students in Puerto Rico, the U.S. mainland, and around the globe to pursue STEM studies.

The ambitious science key areas prioritized in this white paper lay the groundwork for a new concept for a multidisciplinary telescope - the Next Generation Arecibo Telescope (NGAT) - an innovative combination of a compact, phased array of dishes on a steerable plate-like structure with high power radar capabilities. The combined dish would result in a larger collecting area than the legacy 305-m Arecibo telescope, which will provide even more sensitivity and a larger field-of-view, with the ability to point at the center of the galaxy... The NGAT concept presented here is not intended to be the final design, but

it lays the groundwork for the initial engineering and optical studies.

The NGAT will not start from scratch. It will take advantage of the existing infrastructure, decades of experience, and the support of the local people and government...

This paper represents a starting point, that demonstrates that the future is real and full of much more potential than many may understand.

I have already indicated my personal support for this ambitious undertaking, and encourage all SETI League members and SETI enthusiasts to consider supporting this landmark effort. You can read the entire proposal at:

www.naic.edu/NGAT/NGAT_WhitePaper_v2_01022021.pdf

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. ❖



Want a painless way to support The SETI League? Browse to www.smile.amazon.com. In the "Pick your own charitable organization" box, just type in "SETI League." Now, every time you shop Amazon, they will donate a half percent of your purchase price to SETI research!

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.

April 18, 2021, 1300 EDT: Twenty-Seventh SETI League Annual Membership Meeting, Little Ferry, NJ. (Online via Zoom)

August 25 - 29, 2021: 79th World Science Fiction Convention, Washington, DC.

October 25 - 29, 2021: 71st International Astronautical Congress, Dubai, United Arab Emirates.

June 27 - 30, 2022: Penn State SETI Symposium, State College, PA.

September 18 -22, 2022: 72nd International Astronautical Congress, Paris, France.

2023 (dates to be announced): 73rd International Astronautical Congress, Baku, Azerbaijan.

Please note that the global COVID-19 pandemic has resulted in the cancellation or rescheduling of many planned scientific meetings and conferences. We recommend you check with the event sponsors for updates before making travel arrangements.

❖





<< Eddy Cardenty took this recent aerial photo of the damaged Arecibo radio telescope from his Piper PA32.



In December 2020, Project Argus station FN11lh went off the air due to winter weather, and remained there until Spring thaw. The SETI League invited ET to also take a winter holiday.

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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 2020 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

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/c)*	(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
<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 a Song of SETI</i> (Songbook)	\$10	\$13
<i>Sing More Songs of SETI</i> (Songbook)	\$10	\$13
<i>Sing a Song of SETI</i> (music CD)	\$15	\$18
<i>Sing More Songs of SETI</i> (music CD)	\$15	\$18
<i>Demented!</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

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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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