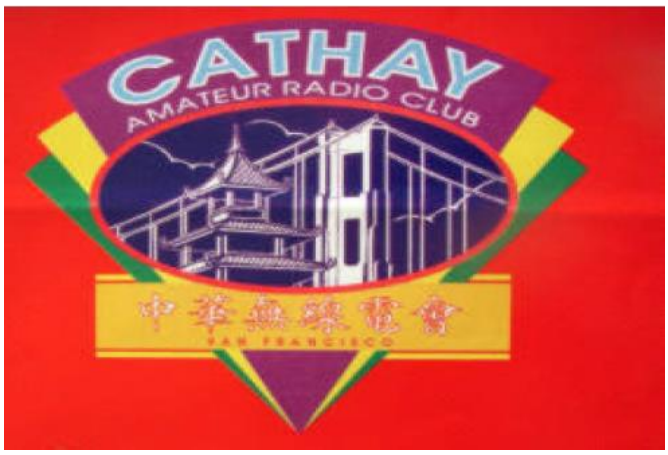

Cathay March 2025

www.cathayradio.org

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Treasurer: Rodney Yee, *KJ6DZI* - **email:**rodyee2000@yahoo.com
Web Master: Edison Fong – *WB6IQN* - **email:**edison_fong@hotmail.com
Mission: The Cathay Amateur Radio Club is basically an active social club of Ham Radio Operators and their spouses. We support local community requests for HAM emergency communications. Several of us are trained in CPR/ First Aid and are involved with community disaster preparedness.

Monday Night Net Time: 9 PM Local Time/PST, As of 8/21/2023 we are switching over from using Repeater: WB6TCS to **Nick Cassarino's Repeater: WA6GEL UHF 444.800 Mhz, Offset +5 Mhz, CTCCS/Tone PL 179.9 Hz on Monument Peak, Milpitas.**

If you cannot reach the fore-mentioned machine, please use Ralph Kugler's KC6YDH cross band repeater at 147.51MHz VHF (Simplex, Carrier Access) during the radio net time. Coverage is western side of San Francisco and central Daly City.

The CARC Monday night net is the best way to find out the latest club news. All check-in are welcome.

Message on Behalf of the President: Leonard Tom, *NX6E*

Hello CARC Members and Friends;

Many thanks to both Nick Cassarino for the use of repeater – WA6GEL and Ralph Kugler's cross band repeater - KC6YDH for our CARC Monday Night Net.

Additional folks are needed to help out with conducting the CARC radio net on Monday nights. Please contact Ed Fong (edison_fong@hotmail.com) if you are interested.

I wish to thank our CARC members that set aside their valuable time to participate in our Monday night's nets.

Introduction to Tech Section:

A fast radio burst (FRB) is a brief, intense burst of radio waves that originates from deep space. See latest news on it in the Tech Section of this newsletter.

CARC Final News Wrap Up

Chat sub s'em to all you CARC members! - Leonard Tom, *NX6E*

Public Service Announcements

HAM CRAM / HAM Licensing

For upcoming HAM Licensing locations please refer to:
http://www.arrl.org/find-an-amateur-radio-license-exam-session

Auxiliary Communications Service (ACS)

The Auxiliary Communications Service (ACS) is a unit of trained professionals who supply communications support to the agencies of the City and County of San Francisco, particularly during major events/incidents. ACS goals are the support of gathering and distribution of information necessary to respond to and recover from a disaster.

The ACS Net begins at 1930 hours (7:30 p.m. PT) local time each Thursday evening, on the WA6GG repeater at 442.050 MHz, positive offset, tone 127.3 Hz. The purpose of this net is to practice Net Control skills,practice checking in with deployment status in a formal net, and to share information regarding upcoming ACS events. Guests are welcome to check in. ACS members perform Net Control duty on a regular basis. On the second Thursday of each month, the net is conducted in simplex mode on the output frequency of the WA6GG repeater, 442.050 MHz no offset, tone 127.3 Hz.

ACS holds its General Meetings on the third Tuesday of each month

from 1900 hours to 2100 hours local time. Currently meetings are exclusively conducted over Zoom during the COVID-19 pandemic, ACS looks forward to meeting in person again as soon as possible.

Upcoming meeting dates in 2025 are:

- Mar 18, 2025
- Apr 15, 2025
- May 20, 2025

Location of in person future ACS meetings are yet to be determined as the regular location is under reconstruction. All interested persons are welcome to attend. For further information contact Corey Siegel KJ6LDJ <kj6ldj@gmail.com>.

For more information, please attend an ACS meeting, check in on the ACS radio net, or call 415-558-2717.

Free Disaster Preparedness Classes In San Francisco – NERT Taught by San Francisco Fire Department (SFFD).

https://sf-fire.org/nert/nert-calendar-meetings-trainings-events

Training Classes: see above website. TBD

+ Recertifications
TBD

***SFFD DOT** is the Fire Department Division of Training. All participants walking, biking or driving **enter through the driveway gate on 19th St.** between Folsom and Shotwell. Parking is allowed along the back toward the cinderblock wall.

Visit ***www.sfgov.org/sffdnert*** to learn more about the training, other locations, and register on line. Upcoming Special NERT Events.

San Francisco Police Department: Auxiliary Law Enforcement Response Team (ALERT)

The Auxiliary Law Enforcement Response Team (ALERT) is a citizen disaster preparedness program designed. The ALERT program is for volunteers 16 years of age or older, who live, work, or attend high school in San Francisco.

Graduates of the San Francisco Police Activities League (P.A.L) Law Enforcement Cadet Academy are also eligible to join.

ALERT volunteers will no longer need to complete the Fire Department's Neighborhood Emergency Response Team (NERT) (www.sfgov.org/sfnert) training and then graduate into two 8 hour Police Department course specifically designed for ALERT team members.

ALERT members will work closely with full-time and/or Reserve Police Officers in the event they are deployed after a disaster. The Basic ALERT volunteer will have no law enforcement powers other than those available to all citizens.

SFPD ALERT Training (New Members)

The next SFPD ALERT training class has been scheduled for: TBD

*Class date indicated are only for new members

IMPORTANT- All participants must complete the background interview process in order to be eligible to attend the ALERT training class.

Eligible ALERT participants may register fora training class by contacting the ALERT Program Coordinator, marina.chacon@sfgov.org, or by telephone at 415-401-4615.

SFPD ALERT Practice/Training Drill

All active/trained ALERT members are asked to join us for our next training drill, via scheduled for on TBD

For more information on the San Francisco Police Department ALERT Program, email us at sfpdalert@sfgov.org, or call Lt. Marina Chacon (SFPD Ret.), SFPD ALERT Program Coordinator, at (415) 401-4615.

For additional information on the web please refer to:
https://sfgov.org/policecommission/alert

Tech Article

UC Berkeley Research

https://vcresearch.berkeley.edu/news/astronomers-thought-they-understood-fast-radio-bursts

Astronomers Thought They Understood Fast Radio Bursts

Date: January 21, 2025

By: Robert Sanders

The new ability to pinpoint sources of fast radio bursts places one recent burst in a surprising location.

The CHIME telescopes in British Columbia detected the unusual fast radio burst, dubbed FRB 20240209A, in February 2024. CHIME, Andre Renard, Dunlap Institute for Astronomy & Astrophysics, University of Toronto

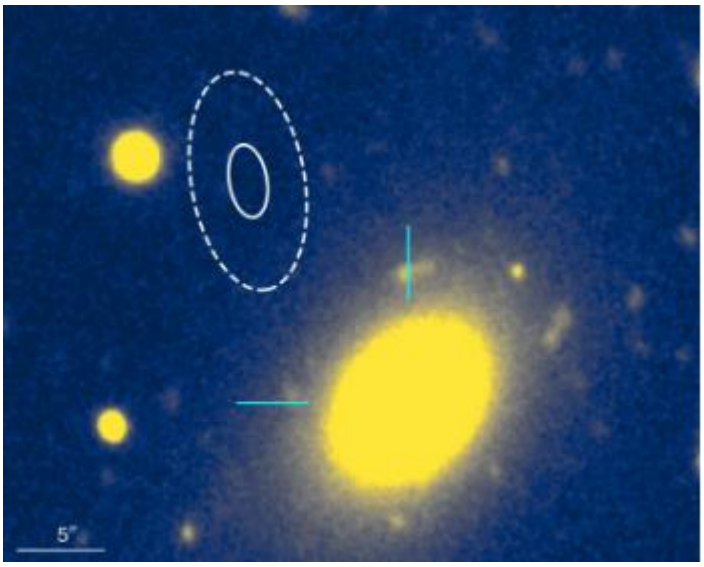
Astronomer Calvin Leung was excited last summer to crunch data from a newly commissioned radio telescope to precisely pinpoint the origin of repeated bursts of intense radio waves — so-called fast radio bursts (FRBs) — emanating from somewhere in the northern constellation Ursa Minor.

Leung, a Miller Postdoctoral Fellowship recipient at the University of California, Berkeley, hopes eventually to understand the origins of these mysterious bursts and use them as probes to trace the large-scale structure of the universe, a key to its origin and evolution. He had written most of the computer code that allowed him and his colleagues to combine data from several telescopes to triangulate the position of a burst to within a hair's width at arm's length.

The excitement turned to perplexity when his collaborators on the Canadian Hydrogen Intensity Mapping Experiment (CHIME) turned optical telescopes on the spot and discovered that the source was in the distant outskirts of a long-dead elliptical galaxy that by all rights should not contain the kind of star thought to produce these bursts.

Instead of finding an expected "magnetar" — a highly magnetized, spinning neutron star left over from the core collapse of a young, massive star — "now the question was: How are you going to explain the presence of a magnetar inside this old, dead galaxy?" Leung said.

The young stellar remnants that theorists think produce these millisecond bursts of radio waves should have disappeared long ago in the 11.3-billion-year-old galaxy, located 2 billion light years from Earth and weighing more than 100 billion times the mass of the sun.



The location of the fast radio burst, indicated by the oval outlines, is on the outskirts of a massive elliptical galaxy, the yellow oval at right. Gemini Observatory

“This is not only the first FRB to be found outside a dead galaxy, but compared to all other FRBs, it’s also the farthest from the galaxy it’s associated with. The FRB’s location is surprising and raises questions about how such energetic events can occur in regions where no new stars are forming,” said Vishwangi Shah, a doctoral student at McGill University in Montreal, Canada, who refined and extended Leung’s initial calculations about the location of the burst, called FRB 20240209A.

Shah is the corresponding author of a study of the FRB published today (Tuesday, Jan. 21) in the *Astrophysical Journal Letters* along with a second paper by colleagues at Northwestern University in Evanston, Illinois. Leung, a co-author of both papers, is a lead developer of three companion telescopes — so-called outriggers — to the original CHIME radio array located near Penticton, British Columbia. He mentored Shah at McGill while Leung was a doctoral student at the Massachusetts Institute of Technology (MIT) and subsequently held an Einstein Postdoctoral Fellowship at UC Berkeley prior to his Miller fellowship.

New CHIME outrigger in California

A third outrigger radio array will go online this week at Hat Creek Observatory, a facility in Northern California formerly owned and operated by UC Berkeley and now managed by the SETI Institute in Mountain View. Together, the four arrays will immensely improve CHIME’s ability to precisely locate FRBs.

The CHIME array outside Penticton, British Columbia, is a novel radio telescope that has no moving parts. Designed to map hydrogen gas in the universe, it is also ideal for detecting fast radio bursts. Courtesy of the CHIME collaboration

“When paired with the three outriggers, we should be able to accurately pinpoint one FRB a day to its galaxy, which is substantial,” Leung said. “That’s 20 times better than CHIME, with two outrigger arrays.”

With this new precision, optical telescopes can pivot to identify the type of star groups — globular clusters, spiral galaxies — that produce the bursts and hopefully identify the stellar source. Of the 5,000 or so sources detected to date — over 95% of which were detected by CHIME — few have been isolated to a specific galaxy, which has hindered efforts to confirm whether magnetars or any other type of star are the source.

As detailed in the new paper, Shah averaged many bursts from the repeating FRB to improve the pinpointing accuracy provided by the CHIME array and one outrigger array in British Columbia. After its discovery in February 2024, astronomers recorded 21 more bursts through July 31. Since the paper was submitted, Shion Andrew at MIT incorporated data from a second outrigger at the Green Bank Observatory in West Virginia to confirm Shah’s published position with 20 times the precision.

“This result challenges existing theories that tie FRB origins to phenomena in star-forming galaxies,” said Shah. “The source could be in a globular cluster, a dense region of old, dead stars outside the galaxy. If confirmed, it would make FRB 20240209A only the second FRB linked to a globular cluster.”

She noted, however, that the other FRB originating in a globular cluster was associated with a live galaxy, not an old elliptical in which star formation ceased billions of years ago.

“It’s clear that there’s still a lot of exciting discovery space when it comes to FRBs and that their environments could hold the key to unlocking their secrets,” said Tarraneh Eftekhari, who has an Einstein Postdoctoral Fellowship at Northwestern and first author of the second paper.

“CHIME and its outrigger telescopes will let us do astrometry at a level unmatched by the Hubble Space Telescope or the James Webb Space Telescope. It’ll be up to them to drill down to find the source,” Leung added. “It’s an amazing radio telescope.”

The studies were supported by Gordon and Betty Moore Foundation, NASA, the Space Telescope Science Institute, the National Science Foundation, the David and Lucile Packard Foundation, the Alfred P. Sloan Foundation, the Research Corporation for Science Advancement, the Canadian Institute for Advanced Research, the Natural Sciences and Engineering Council of Canada, the Canada Foundation for Innovation and the Trottier Space Institute at McGill.