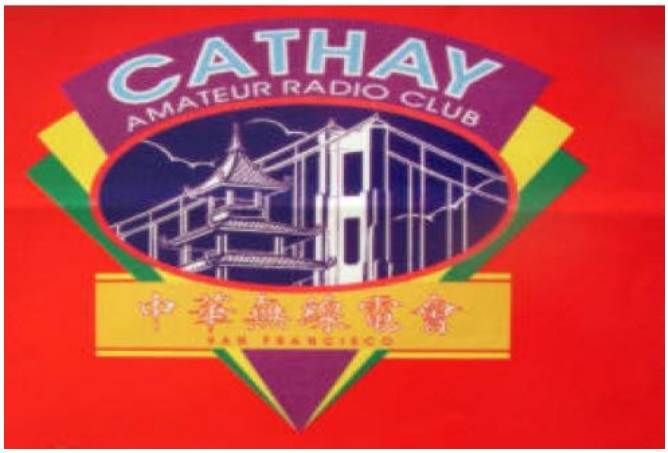

Cathay November 2023

www.cathayradio.org

President: George Chong, W6BUR **email:** *W6BUR@comcast.net*
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Vice President South: Bill Fong, *W6BBA* - **email:** w6bba@arrl.net
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Editor: Rodney Yee, *KJ6DZI* - **email:** rodyee2000@yahoo.com
Treasurer: Vince Chinn aka Mingie, *W6EE* - **email:** vince@vincechinncpa.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 Carsion's Repeater: WA6GEL UHF 444.80000 Mhz, Offset +5Mhz, CTCCS/Tone PL 179.9 Hz on Monument Peak, Milpitas.**

If you cannot reach the fore-mentioned machine, please use WA6GEL UHF 448.8 Mhz Offset +5 Mhz, CTCCS/Tone PL173.8 which is on Mt. San Bruno.

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

Message from the President: George Chong, *W6BUR*

Hello CARC Members and Friends;

Many thanks to Nick Carsion for the use of repeater – WA6GEL for our CARC Monday Night Net.

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

CARC Annual Christmas Party

Ed Fong is hosting his CARC/SARES Annual Christmas party. Details are at the end of newsletter.

Introduction Tech Article:

Excessive heat is the enemy of electric components. Please read the Tech Article about a new approach to dealing with the transfer of heat.

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 2023 are:

- November 21, 2023
- January 16, 2024

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

NERT Full Training Oct 18-Nov 29
10/18/23 to 11/29/23 5:30pm - 9:00pm
2310 Folsom San Francisco, CA 94110
Registration

+ Recertifications

NERT Recertification Class: November 15th and 29th
11/15/23 to 11/29/23 5:30pm - 9:00pm
2310 Folsom San Francisco, CA 94110

Registration

***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 for a training class by contacting the ALERT Program Coordinator, Marina at sfpdalert@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.

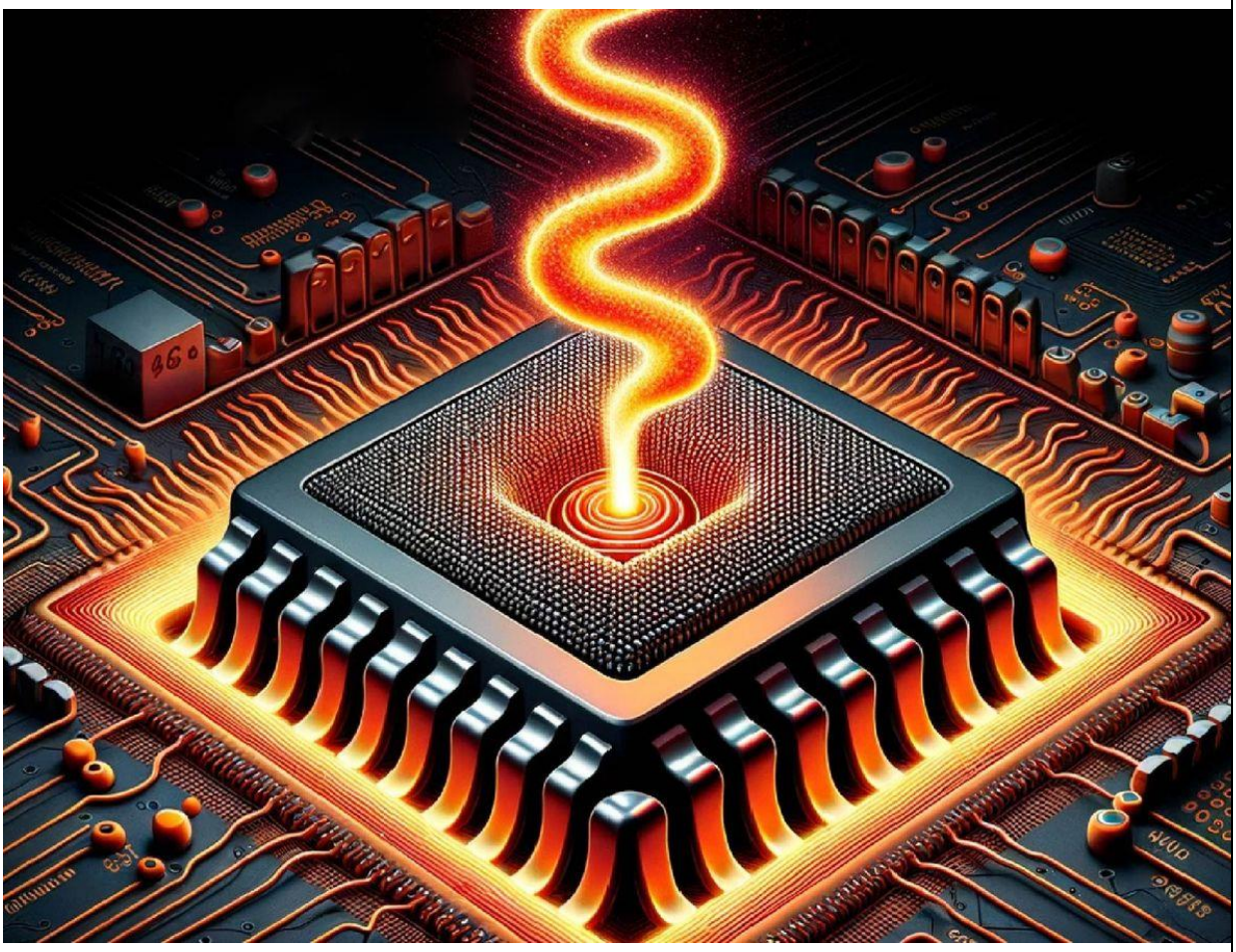
For additional information on the web please refer to:
https://sfgov.org/policecommission/alert

Tech Article

https://spectrum.ieee.org/thermal-transistor

IEEE Spectrum FOR THE TECHNOLOGY INSIDER

Thermal Transistors Handle Heat With No Moving Parts
The technology offers a new way to cool down chips quickly



A UCLA-developed thermal transistor uses an electric field to control heat flow, as shown in this illustration. H-Lab/UCLA

Electronic transistors are central to modern electronics. These devices precisely control the flow of electricity, but in doing so, they generate heat. Now, researchers at the University of California, Los Angeles have developed a solid-state *thermal* transistor—the first device of its kind that can use an electric field to control the flow of heat through

electronics. Their study, which was recently published in *Science*, demonstrates the capabilities of the new technology.

“There has been a strong desire from engineers and scientists to control heat transfer the same way we control electronics, but it has been very challenging,” says study lead author Yongjie Hu, a professor of mechanical and aerospace engineering at UCLA.

Historically, electronics have been cooled down with heat sinks that passively draw the excess heat away. More active approaches to thermal management have also been proposed, but these often rely on moving parts or fluids and can take a long time—typically minutes to hours—to ramp up or ramp down the material’s thermal conductivity.

With thermal transistors, the researchers can actively modulate the flow of heat faster and with more precision. This speed makes them a promising option for managing heat in electronic devices.

Analogous to an electronic transistor, the UCLA group’s thermal transistor also uses electric fields to modulate the conductance of a channel, in this case thermal conductance rather than electrical. This is done with a thin film of cagelike molecules engineered by the researchers that acts as the channel of the transistor; applying an electric field makes the molecular bonds in the film stronger, which increases its thermal conductance. “Our contribution was literally only one molecule thin,” says Paul Weiss, a professor of chemistry, bioengineering, and materials science at UCLA and the study’s coauthor.

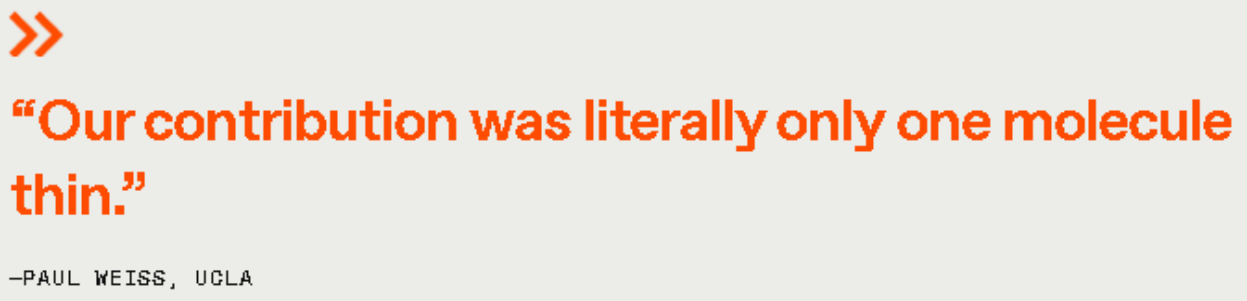
With that single-molecule layer, the researchers were able to reach the maximum change in conductivity at a frequency of more than 1 megahertz, several orders of magnitude faster than other heat-management systems. Molecular motion typically controls heat flow in other types of thermal switches. But molecular motion is quite slow compared with the motion of electrons, explains Weiss. By leveraging electric fields, the researchers are able to speed up the switch from millihertz to megahertz frequencies.

Molecular motion also can’t achieve as large a difference in thermal conductance between the on state and the off state. The UCLA device, by comparison, achieves a 13-fold difference. “It really is an enormous difference, both in terms of magnitude and speed,” Weiss says.

With these improvements, the device could be important for cooling processors. The transistors are especially promising for semiconductors because they use a small amount of power to control the heat flow, compared with other routes of active energy

dissipation. Many thermal transistors could also be integrated on the same chip in the same way that electronic transistors are, Hu says.

In particular, thermal transistors could effectively manage heat in new semiconductor designs, such as in 3D-stacked chiplets, where they would reduce hot spots, thereby allowing for more freedom in the design of the chiplets. They may also help cool power electronics made from wide-bandgap semiconductors like gallium nitride and silicon carbide, Hu says.



Beyond these applications in electronics, the UCLA researchers’ work on thermal transistors could also provide insights into molecular-level mechanisms of how living cells regulate temperature. Hu thinks there may be a similar effect connecting heat flow and electric potential at work in our cells. In a separate ongoing project, he is studying the mechanisms of ion channels—the proteins that act as gates to control the flow of ions across a cell membrane. When it comes to heat flow in the human body, “the macroscopic picture has been established in physiology; however, the molecular-level mechanism still remains largely unknown,” Hu says.

“I think we are living in a kind of thermal renaissance,” says Miguel Muñoz Rojo, a senior researcher at the Materials Science Institute of Madrid. Muñoz Rojo is excited about the possibility of thermal transistors adding to the stock of heat--management technologies, and is interested in the possibility of using them for a wide array of large-scale applications, like refrigeration, in addition to the nanoscale cooling of electronics. He and his colleague Andrej Kitanovski, a thermal-engineering professor at the University of Ljubljana, in Slovenia, are working together to develop these thermal-management technologies. For Muñoz Rojo, that range of potential uses makes thermal transistors the pinnacle of heat-management technology.

The demonstration of this technology is an exciting advance and will likely motivate more fundamental research, says Geoff Wehmeyer, an assistant professor of mechanical engineering at Rice University, in Houston. “It will be interesting to see if thermal engineers can find ways to integrate these molecular thermal switches into switchable thermal-management systems for electronics or batteries.”

While this proof of concept is promising, the UCLA researchers acknowledge that the technology is still early in its development. Going forward, Hu says they aim to further improve the device’s performance.

Annual CARC Christmas Party

Ed Fong Annual Christmas Party – Saturday, December 9, 2023 6-10 PM

Where: 1163 Quince Ave. Sunnyvale, CA –

Format: Potluck – bring your favorite dish.

Door Prize - Lenovo Thinkpad PC, uSDX_ HF transceiver, or Nano VNA-4H and more– each attendees gets one raffle ticket for FREE. Tickets will not be sold. If you bring a friend or spouse, each one will get a raffle ticket - FREE

Best directions given on www.googlemaps.com Call if you get lost 408-245-8210

Covid -19 is finally over and the annual Cathay Christmas party returns. This year we will not only have unsurpassed prizes but a few new World Famous folks have promised to attend.

Do you folks know of Prof. Hiroki Kato's AH6CY (formerly of Harvard University) work on preserving the history of WWII spy radios? Meet him in person. He is an authority on WWII secret organizations such as SOE (special operations executives). These were the brave folks that snuck into enemy lines and provide vital information to win the War. He is a fascinating person and just a world of knowledge. He was only 3 years old when the Bomb dropped in Hiroshima and he survived.

There is no excuse not to attend. Not only that, it is FREE to all attendees. Just bring a dish to share. If you have ever been to our Cathay Radio Christmas Party, you know this is the event to taste foods from all over the world. Does not matter whether you like – barbecue ribs, salads, seafood, Chinese, Mexican, Italian, Korean, it will be there. All kinds of desserts served at the dessert table. Get ready to eat your heart out and meet new friends as well.

Just some of the food at previous year's event.

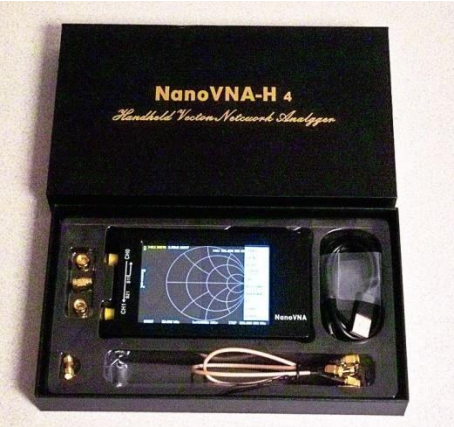
Get a chance to meet some really cool folks that are movers and shakers in the Silicon Valley. Dr. Steven Stearns, Keith Synder, Ron Quan, Nick Cassarino, and Jim Walker.

Rules for the raffle - Every attendee will receive one raffle ticket - no charge at the door. This will make you eligible for the grand prize and raffle. This is our way of saying thank you for your support during the year at the events we have held.

So mark your calendars. You must be present to win.

1st Prize Lenovo – Thinkpad X240 i5 processor with 8GB of memory and 256GB SSD

- Windows 10 Pro operating system
- CNET rates this laptop a 4.3/5
- Up to 15 hours battery life.
- PC benchmark 4,717 - very respectable.
- Less than 3 pounds 0.8 inches thick
- USB 3.0
- 12.5 inch screen - just perfect to carry around.
- Intel HD4400 graphics processor
- USB 3.0
- Intel Cetrino Wifi.



Nano VNA - H4 - 4 inch 1.5 GHz VNA - Tuned antennas, duplexers, filters etc.

Full touch screen. Latest version includes functions for TDR – time domain reflectometer.

Includes cables and full calibration kit.

uSDX+ - QRP HF transceiver - Covers 160-6 meters – SSB, CW, digital QRP transceiver. 5 watts CW – 10 watt SSB.

Built in CW decoder, full DSP noise reduction.

Complete with 4000 MaH LiOn battery, AC adapter/charger, Speaker/microphone

Cambridge Sound Works Ensemble II speakers with subwoofer. – These speakers were designed famous speaker designer - Dr. Henry Kloss - the Ensemble II is known for it small size but great sound.

Baofeng UV5R x2 dual band handie talkie

Drop in LiOn smart charge, 1800 Mahr LiOn, battery, belt clip, antenna

Frequency coverage:

- 65-108 MHz – FM broadcast – receive only
- 136-174 MHZ – VHF – TX/RX
- 420- 520 - MHz - TX/RX

Full CTSS and DCS coding

Remaining prizes

Mil spec - 800 lumen aircraft aluminum LED flashlight with 18650 3000mAh battery and AAA battery adapter.

40 meter Pixie 500mW CW transceiver – completely built and tested.

Includes headphone, and rechargeable NiMH 9v battery