



Cathay November 2017

www.cathayradio.org

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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,

~~Frequencies: 146.67MHz -600KHz PL85.4 and 442.70 +5MHz PL 173.8. The repeaters are linked only during the CARC Monday night net. Update: Link to repeater 442.70 is currently not active until further notice.~~

QSY Change to transmission on another frequency / Repeater:

Repeater: WB6TCS - RX 147.210,TX 147.810, Offset +0.6 MHz, CTSS/Tone 100 PL Hz
The CARC Monday night net is the best way to find out the latest club news.

All check-ins are welcome.

Message from the President: George Chong, W6BUR

Hello CARC Members and Friends;

As many of know our normal Monday Night Nets using W6BUR Repeater was running into too much interference. Denis L. Moore – WB6TCS has come to our rescue and has generously allowed the CARC club to use his repeater: WB6TCS for our Monday night nets.

Until further notice, our Monday night nets will use Denis L. Moore's 2 meter repeater

Repeater: WB6TCS

Location: Oakland, Oakland Hills County: Alameda State: California

RX 147.210 TX 147.810 Offset +0.6 MHz CTSS/Tone 100 PL Hz

Veteran's Day Cathay Luncheon: 11am – 1pm Saturday 11/11/2017

Please join us for the CARC annual luncheon celebration of Veteran's Day, 11am – 1pm on Saturday November 11, 2016 at the restaurant below:

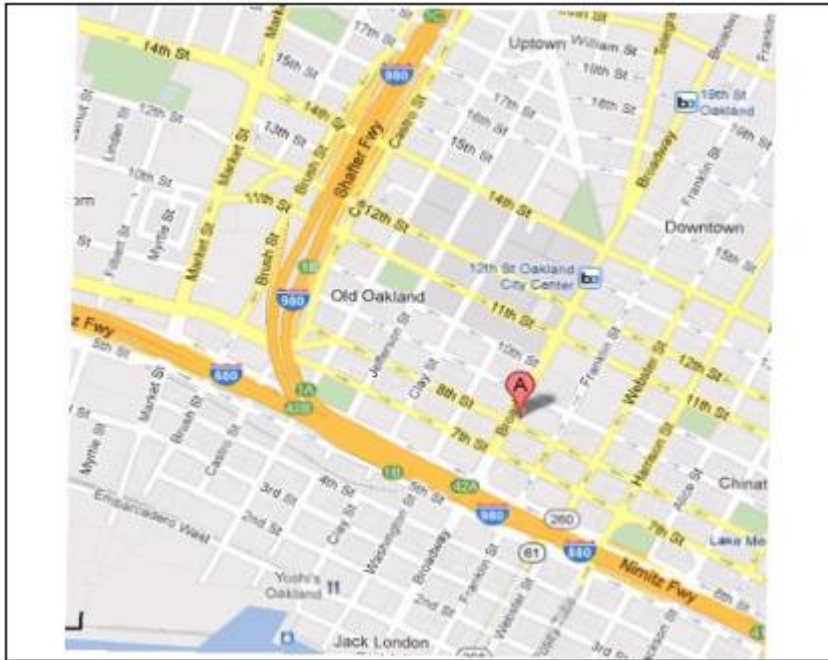
Buffet Fortuna
800 Broadway Street
Oakland, CA 94607
(510) 839-1688

The restaurant is an all you can eat American, Japanese and Chinese seafood Buffet style food. The cost is \$10.99 per person and for seniors it is \$9.99. All soft drinks, coffee and tea are included with the price plus tipping is optional. Please note that prices are subject to change.

I recommend you arrive early since the dinning period is limited to 2 hours, however have never seen it enforced for the luncheon period. Of course it does help a lot that CARC member Gilbert Gin, (KJ6HKD) is with going to be with us and he has considerable influence with the restaurant owners.

I am usually stuffed to the gills within the first hour of eating the delicious food. It is truly a bargain value luncheon. We owe Joe Lee a debt of gratitude his selection of this restaurant over these many years.

Map of the Buffet Fortuna restaurant location is shown below:



Save The Date – Ed Fong Annual Christmas Party

Ed Fong is going to host his annual blowout Christmas Party Saturday December 9, 2017 at his home. More details to follow in next month's December 2017 newsletter.

Tech Article Introduction

This month's newsletter Tech Article is about getting one step closer to controlled nuclear fusion with the Massachusetts Institute of Technology (MIT) breakthrough experiments producing a ten fold increase in ion energy using radio frequency heating and a new hydrogen fuel mixture.

Sustain nuclear fusion on an industrial scale is the Holy Grail of energy production that would free up the world from traditional energy sources of burning fossil fuels (i.e. oil and coal). Nuclear fusion is the reaction of joining of atoms and would offer limitless clean energy by using plentiful hydrogen as fuel.

Our current nuclear power plants use nuclear fission that is the splitting of atoms and it much more dangerous than nuclear fusion because of the required use of hazardous and highly toxic nuclear material.

We all reminded of the dangers of an uncontrolled nuclear fission plant melt down with the recent Fukushima Daiichi Japan nuclear disaster that occurred on 14:46 JST Friday

March 11, 2011. All the safety features at the Fukushima plant were overwhelmed by the 9.0 magnitude Tōhoku earthquake and resulting 45 foot high tsunami waves off the Pacific coast of Sendai, Japan.

CARC Final Wrap-up News

During this recent Halloween, I understand Ed Fong was quite busy handing out candy to the neighborhood kids, LOL.

I wish all our CARC members and friends an upcoming joyful Thanksgiving Holiday.

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

Chat sub s'em to all you CARC members! - George W6BUR.

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) was organized by the San Francisco Office of Emergency Services (OES) following the 1989 Loma Prieta Earthquake to support the communications needs of the City and County of San Francisco when responding to emergencies and special events.

The Auxiliary Communications Service holds General Meetings on the third Tuesday of each month at the San Francisco Emergency Operations Center, 1011 Turk Street (between Gough Street and Laguna Street), from 1900 hours to 2100 hours local time. All interested persons are welcome to attend.

The ACS Net begins at 1930 hours (7:30 p.m.) 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 should perform Net Control duty on a regular basis. On the second Thursday of each month, the net will be conducted on the output frequency of the WA6GG repeater, 442.050 MHz no offset, tone 127.3 Hz, simplex.

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

Upcoming meetings: Tuesday 7pm, Nov 21, 2017
Tuesday 7pm, Dec 19, 2017 usually cancelled for xmas party.

Gilbert Gin (KJ6HKD)

Free Disaster Preparedness Classes In Oakland:

<http://www.oaklandnet.com/fire/core/index2.html>

CORE is a free training program for individuals, neighborhood groups and community-based organizations in Oakland. The underlying premise is that a major disaster will overwhelm first responders, leaving many citizens on their own for the first 72 hours or longer after the emergency.

If you have questions about the recertification process, you may contact the CORE Coordinator at 510-238-6351 or core@oaklandnet.com.

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

<http://sf-fire.org/calendar-special-events>

Upcoming events

Nov

18 NERT Citywide Drill, NERT graduates and victims needed.

Please register at:

<https://www.eventbrite.com/e/nert-graduates-citywide-drill-tickets-38022959696>

Dec

16 NERT training Day and Holiday Party, registration open soon

RSVP to sffdnert@sfgov.org or call 415-970-2024 to register.

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 first complete the Fire Department's Neighborhood Emergency Response Team (NERT) (www.sfgov.org/sfnert) training and then graduate into an 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

The next SFPD ALERT training class has been scheduled for TBD. The class will be held at the San Francisco Police Academy, in the parking lot bungalow, from 8am-5pm (one hour lunch break) on Saturday.

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, Mark Hernandez, 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, scheduled for an evening on 6:00pm – 10:30pm Saturday November 4, 2017. Details will be emailed to active ALERT members, prior to the date of the exercise. Participation is not required, but strongly encouraged.

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

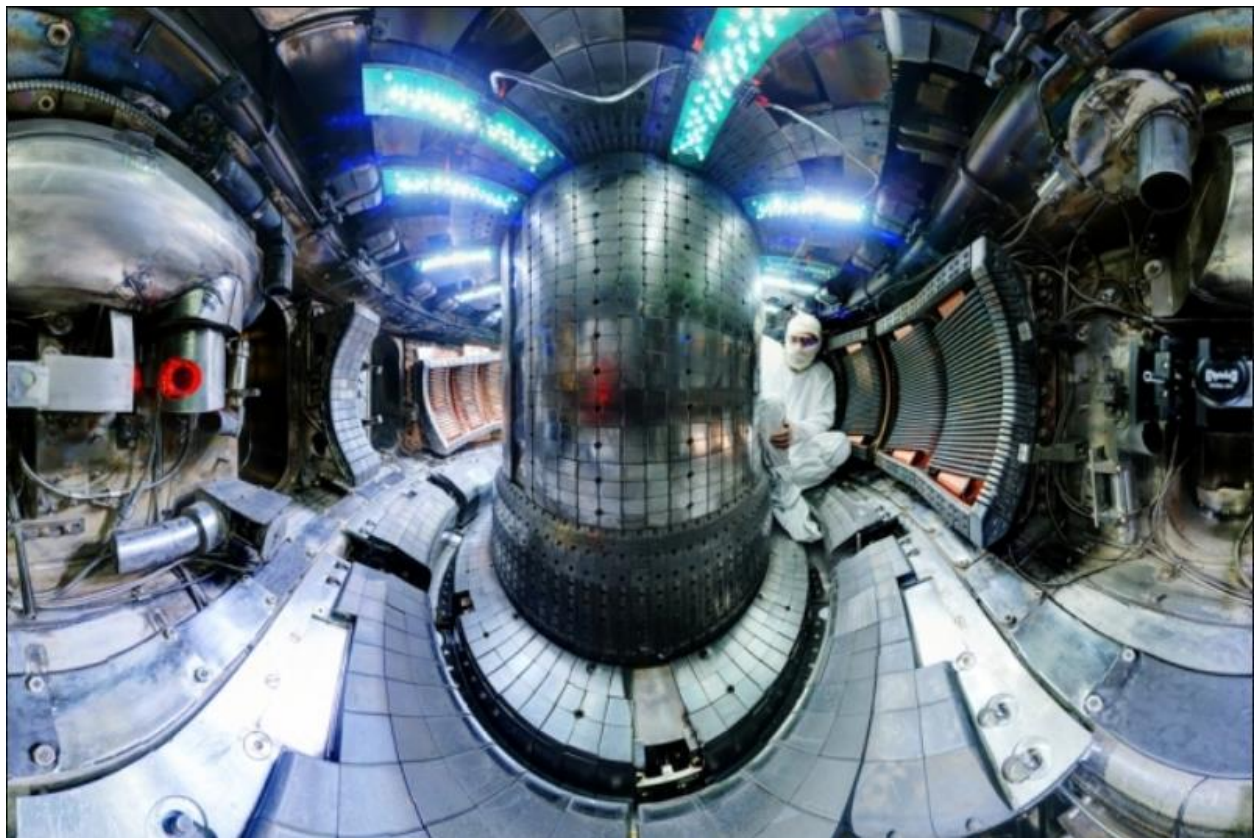
For additional information on the web please refer to:

<http://sf-police.org/index.aspx?page=4019>

Tech Article



<http://news.mit.edu/2017/mit-plasma-research-collaboration-gives-fusion-heating-boost-0821>



The interior of the Alcator C-Mod tokamak, where experiments were conducted that have helped create a new scenario for heating plasma and achieving fusion.

Photo: Bob Mumgaard/Plasma Science and Fusion Center

Fusion heating gets a boost

The Plasma Science and Fusion Center explores a new recipe for heating plasma.

Paul Rivenberg | Plasma Science and Fusion Center

August 21, 2017

In the quest for fusion energy, scientists have spent decades experimenting with ways to make plasma fuel hot and dense enough to generate significant fusion power. At MIT, researchers have focused their attention on using radio-frequency (RF) heating in magnetic confinement fusion experiments like the Alcator C-Mod tokamak, which completed its final run in September 2016.

Now, using data from C-Mod experiments, fusion researchers at MIT's Plasma Science and Fusion Center (PSFC), along with colleagues in Belgium and the UK, have created a new method of heating fusion plasmas in tokamaks. The new method has resulted in raising trace amounts of ions to megaelectronvolt (MeV) energies — an order of magnitude greater than previously achieved.

"These higher energy ranges are in the same range as activated fusion products," PSFC research scientist John C. Wright explains. "To be able to create such energetic ions in a non-activated device — not doing a huge amount of fusion — is beneficial, because we can study how ions with energies comparable to fusion reaction products behave, how well they would be confined."

The new approach, [recently detailed](#) in the journal *Nature Physics*, uses a fuel composed of three ion species: hydrogen, deuterium, and trace amounts (less than 1 percent) of helium-3. Typically, plasma used for fusion research in the laboratory would be composed of two ion species, deuterium and hydrogen or deuterium and He-3, with deuterium dominating the mixture by up to 95 percent. Researchers focus energy on the minority species, which heats up to much higher energies owing to its smaller fraction of the total density. In the new three-species scheme, all the RF energy is absorbed by just a trace amount of He-3 and the ion energy is boosted even more — to the range of activated fusion products.

Wright was inspired to pursue this research after attending a lecture in 2015 on this scenario by Yevgen Kazakov, a researcher at the [Laboratory for Plasma Physics](#) in Brussels, Belgium, and the lead author of the *Nature Physics* article. Wright suggested that MIT test these ideas using Alcator C-Mod, with Kazakov and his colleague Jef Ongena collaborating from Brussels.

At MIT, PSFC research scientist Stephen Wukitch helped develop the scenario and run the experiment, while Professor Miklos Porkolab contributed his expertise on RF heating. Research scientist Yijun Lin was able to measure the complex wave structure in the plasma with the PSFC's unique phase contrast imaging (PCI) diagnostic, which was developed over the last two decades by Porkolab and his graduate students.

Research scientist Ted Golfinopoulos supported the experiment by tracking the effect of MeV-range ions on measurements of plasma fluctuations.

The successful results on C-Mod provided proof of principle, enough to get scientists at the UK's [Joint European Torus \(JET\)](#), Europe's largest fusion device, interested in reproducing the results. Like JET, C-Mod operated at magnetic field strength and plasma pressure comparable to what would be needed in a future fusion-capable device. The two tokamaks also had complementary diagnostic capabilities, making it possible for C-Mod to measure the waves involved in the complex wave-particle interaction, while JET was able to directly measure the MeV-range particles.

John Wright praises the collaboration.

"The JET folks had really good energetic particle diagnostics, so they could directly measure these high energy ions and verify that they were indeed there," he says. "The fact that we had a basic theory realized on two different devices on two continents came together to produce a strong paper."

Porkolab suggests that the new approach could be helpful for MIT's collaboration with the [Wendelstein 7-X stellarator](#) at the Max Planck Institute for Plasma Physics in Greifswald, Germany, where research is ongoing on one of the fundamental physics questions: How well fusion-relevant energetic ions are confined. The *Nature Physics* article also notes that the experiments could provide insight into the abundant flux of He-3 ions observed in solar flares.

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