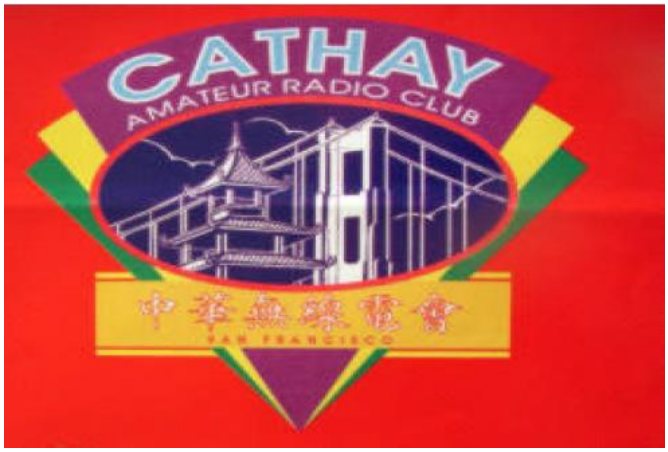

Cathay February 2024

www.cathayradio.org

President: George Chong, W6BUR **email:** *W6BUR@comcast.net*
Vice President North: Leonard Tom, *NX6E* **email:**nx6e@hotmail.com
Vice President South: Bill Fong, *W6BBA* - **email:**w6bba@arrl.net
Secretary/Membership: Rodney Yee, *KJ6DZI* - **email:**rodyee2000@yahoo.com
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 4448.8 Mhz Offset +5Mhz, 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;

Happy New Year! I hope you all had a very pleasant holidays with family members and friends.

Many thanks to Nick Cassarino for the use of repeater – WA6GEL 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.

Chinese New Year for 2024 is on Saturday February 10, 2024, the Year of the Wood Dragon

According to the Chinese calendar, folks born in the year of Dragon are in 1916, 1928, 1940, 1952, 1964, 1976, 1988, 2000, 2012, and 2024.

Folks born in the year of the Dragon are very talented and excellence their endeavors. They tend to be intelligent, successful. full of energy and drive. They are also honest, sensitive, brave, and they inspire confidence and trust. However they can be excitable, short-tempered, and stubborn

Dragon people are the most eccentric of any in the eastern zodiac. They neither borrow money nor make flowery speeches, but they tend to be soft-hearted which sometimes gives others an advantage over them.

They are compatible with people born in the year of the Rats, Snakes, Monkeys, and Roosters.

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Upcoming FARS/Cathay Radio Club Dinner

Please set aside Friday February 23, 2024 at 6:00 pm for the Annual FARS/CARC Winter dinner.

The dinner will be held at
Blue Pheasant Restaurant
22100 Stevens Creek Blvd.
Cupertino, CA 95014
Phone: 408-255-330

For more information and sign up for the dinner please go
https://www.fars.k6ya.org/banquet/banquet2024/#signup,

At the end of this newsletter is the flyer announcing the FARS/CARC dinner

There will be a several prizes that are well worth over $1,500 to be raffled at the dinner. The raffle grand prize will be a brand new Yaesu FT710 HF all mode 100-watt radio.

Choice	Menu Description	Price
Beef	Roast Prime Rib of Beef	$54
Fish	Broiled Salmon w/ dill sauce	$41
Chicken	Breast of Chicken Jerusalem	$41
Veg	Pasta Primavera	$41

All dinners include a desert.

- Ed Fong

Introduction Tech Article:

Odd Radio Circles (ORC) were first discovered in 2019 using the SKA Pathfinder telescope, operated by Australia's national science agency CSIRO, or Commonwealth Scientific and Industrial Research Organization.

Please read the Technical Article about ORC

CARC Final News Wrap Up

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) 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 2024 are:

- February 21, 2024
- March19, 2024
- April 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 is hosting three session with Stop the Bleed organization for interested NERT graduates.

This highly anticipated class conducted by www.stopthebleed.org is available to NERT graduates. You may join **one** of three scheduled sessions on March 15th or 16th.

A bleeding injury can happen anywhere. Life-threatening bleeding can happen in people injured in serious accidents or disasters. Instead of being a witness, you can become an immediate responder because you know how to STOP THE BLEED®.

You'll learn three quick techniques to help save a life before someone bleeds out:

- How to use your hands to apply pressure to a wound;
- How to pack a wound to control bleeding; and
- How to correctly apply a tourniquet. These three techniques will empower you to assist in an emergency and potentially save a life.

Registration:
Friday, March 15, 9:00 am - 1:00 pm

Saturday, March 16, 8:00 am - 1:00 pm (Optional: Join NERT Advisory Board office hours from 8:00 am - 9:00 am)

Saturday, March 16, 2:00-6:00 pm

For more information about Stop the Bleed, see the attached flyer. You can visit their website on www.stopthebleed.org.

+ Recertifications

2/06/24 to 2/08/24 5:30pm - 9:30pm
2310 Folsom San Francisco, CA 94110
Event type
Training
Community Event
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 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

WIKIPEDIA
The Free Encyclopedia

https://en.wikipedia.org/wiki/Odd_radio_circle

Odd Radio Circle (ORC)

In astronomy, an **odd radio circle** (**ORC**) is a very large (over 50 thousand times the diameter of our Milky Way ~ 3 Million Light-years) unexplained astronomical object that, at radio wavelengths, is highly circular and brighter along its edges. [3] As of 27 April 2021, there have been five such objects (and possibly six more) observed.[4][5][6][7][8][9][10] The observed ORCs are bright at radio wavelengths, but are not visible at visible, infrared or X-ray wavelengths. This is due to the physical process producing this radiation, which is thought to be synchrotron radiation.[4][5] Three of the ORCs contain optical galaxies in their centers, suggesting that the galaxies might have formed these objects.[5][10]

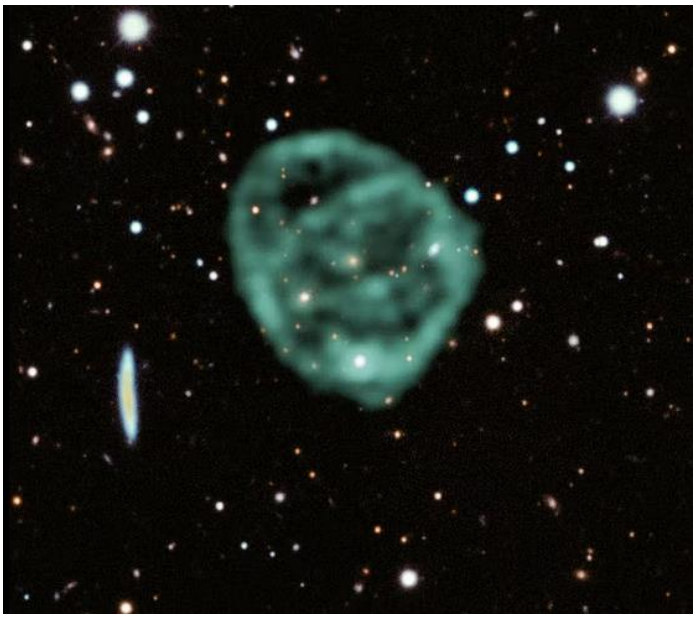


Image of Odd radio circle ORC J2103-6200 by the MeerKAT telescope superimposed on an optical image from the Dark Energy Survey.(2022)[1][2]

The ORCs were detected in late 2019 after astronomer Anna Kapinska studied a Pilot Survey of the Evolutionary Map of the Universe (EMU), based on the Australian Square Kilometre Array Pathfinder (ASKAP) radio telescope array.[11]

All of the ORCs are about 1 arcminute in diameter, and are some distance from the galactic plane, at high galactic latitudes. The possibility of a spherical shock wave, associated with fast radio bursts, gamma-ray bursts, or neutron star mergers, was considered, but, if related, would have to have taken place in the distant past due to the large angular size of the ORCs, according to the researchers.[7]

Also, according to the astronomers, "Circular features are well-known in radio astronomical images, and usually represent a spherical object such as a supernova remnant, a planetary nebula, a circumstellar shell, or a face-on disc such as a protoplanetary disc or a star-forming galaxy, ... They may also arise from imaging artefact around bright sources caused by calibration errors or inadequate deconvolution. This class of circular feature in radio images does not seem to correspond to any of these known types of object or artefact, but rather appears to be a new class of astronomical object."[7]

References [edit]

1. ^ a b Norris, Ray P; Collier, J D; Crocker, Roland M; Heywood, Ian; Macgregor, Peter; Rudnick, L; Shabala, Stas; Andernach, Heinz; da Cunha, Elisabete; English, Jayanne; Filipović, Miroslav (24 March 2022). "MeerKAT uncovers the physics of an Odd Radio Circle". *Monthly Notices of the Royal Astronomical Society*. **513**: 1300–1316. arXiv:2203.10669. doi:10.1093/mnras/stac701. ISSN 0035-8711.
2. ^ a b Norris, Ray (21 March 2022). " 'Odd radio circles' that baffled astronomers are likely explosions from distant galaxies". *The Conversation*. Retrieved 30 March 2022.
3. ^ Norris, Ray (1 December 2020). " 'WTF?': newly discovered ghostly circles in the sky can't be explained by current theories, and astronomers are excited". *The Conversation Australia*. Retrieved 14 December 2020.
4. ^ a b Norris, Ray P.; et al. (2021). "Unexpected Circular Radio Objects at High Galactic Latitude". *Publications of the Astronomical Society of Australia*. **38**. arXiv:2006.14805v1. Bibcode:2021PASA...38....3N. doi:10.1017/pasa.2020.52. S2CID 220128279.
5. ^ a b c Johnson-Groh, Mara (8 July 2020). "4 mysterious objects spotted in deep space are unlike anything ever seen". *Live Science*. Retrieved 9 July 2020.
6. ^ Murugesu, Jason Arunn (3 July 2020). "Circles in space made of radio waves are like nothing we've ever seen". *New Scientist*. Retrieved 9 July 2020.
7. ^ a b c Starr, Michelle (9 July 2020). "Astronomers Detect Unexpected Class of Mysterious Circular Objects in Space". *ScienceAlert*. Retrieved 9 July 2020.
8. ^ Osborne, Hannah (9 July 2020). " 'Odd' Circles of Radio Waves Coming from Unknown Cosmic Source Discovered". *Newsweek*. Retrieved 10 July 2020.
9. ^ Ferreira, Becky (10 July 2020). "Scientists Discover Unexplained Glowing Circles of Energy in Space - Scientists believe they have likely discovered a new and unexplained class of space object: the Odd Radio Circle, or ORC". *Vice*. Retrieved 11 July 2020.
10. ^ a b Nowakowski, Tomasz (4 May 2021). "Astronomers discover a new extragalactic circular radio source". *Phys.org*. Retrieved 4 May 2021.
11. ^ Rod, Isabelle (7 December 2020). "Astronomy: 'Odd radio circles' in the sky a 'genuine mystery' ". *BBC World News*. Retrieved 8 December 2020.

External Links

- Images of ORCs (CTA Observatory / Western Sydney University; 04/20/2020)
- Video (9:16): ORCs on YouTube (Anton Petrov; 07/15/2020)
- Video (2:24): ORCs on YouTube (Mr. Researcher; 07/10/2020)
- Video (8:37): ORCs on YouTube (World Today; 07/09/2020)

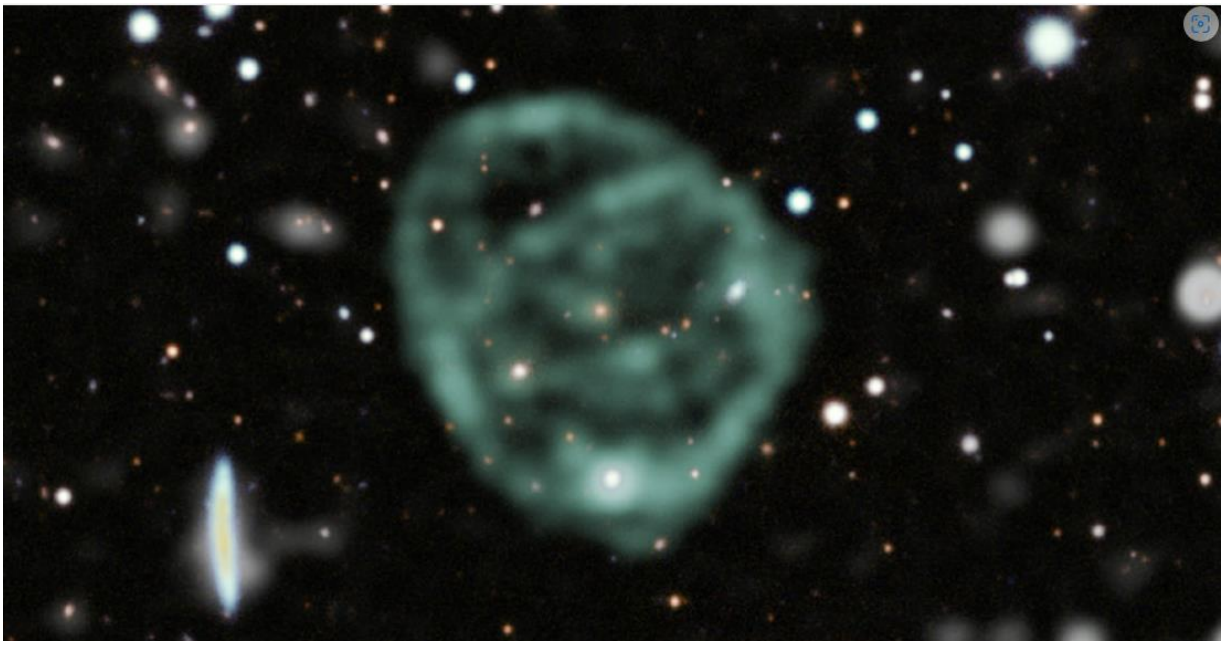
Additional Article About ORC

UC San Diego
UC SAN DIEGO **TODAY**

Space Oddity: Uncovering the Origin of the Universe's Rare Radio Circles (ucsd.edu)

Space Oddity: Uncovering the Origin of the Universe's Rare Radio Circles

Outflowing galactic winds from exploding stars may explain the enormous rings



Odd radio circles, like ORC 1 pictured above, are large enough to contain galaxies in their centers and reach hundreds of thousands of light years across. (cr: Jayanne English / University of Manitoba)

By: Michelle Franklin - m1franklin@ucsd.edu Date: January 8,2024

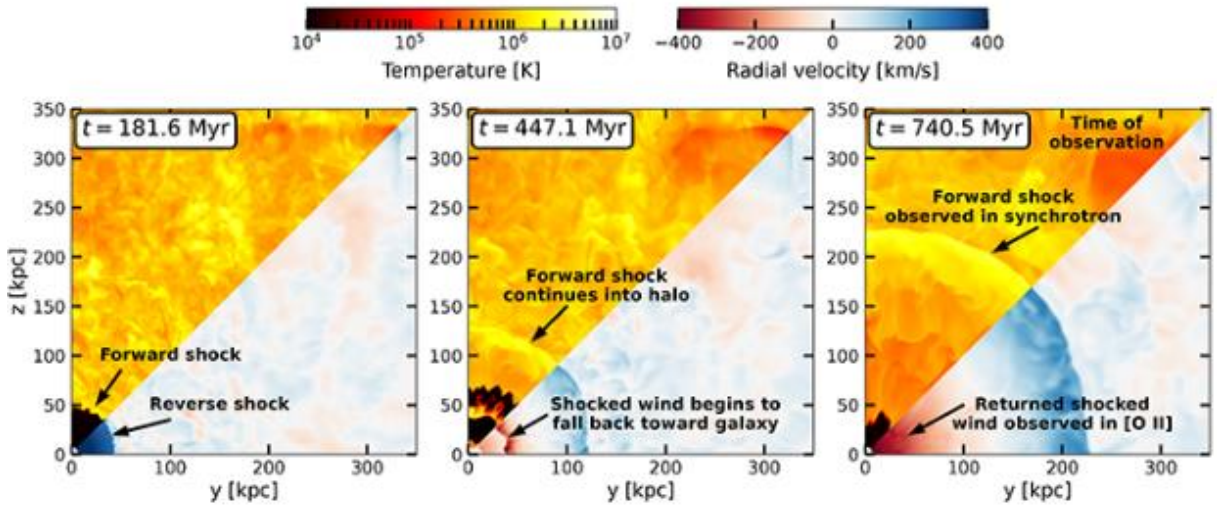
It's not every day astronomers say, "What is that?" After all, most observed astronomical phenomena are known: stars, planets, black holes and galaxies. But in 2019 the newly completed ASKAP (Australian Square Kilometer Array Pathfinder)

telescope picked up something no one had ever seen before: radio wave circles so large they contained entire galaxies in their centers.

As the astrophysics community tried to determine what these circles were, they also wanted to know *why* the circles were. Now a team led by University of California San Diego Professor of Astronomy and Astrophysics Alison Coil believes they may have found the answer: the circles are shells formed by outflowing galactic winds, possibly from massive exploding stars known as supernovae. Their work is published in *Nature*.

Coil and her collaborators have been studying massive “starburst” galaxies that can drive these ultra-fast outflowing winds. Starburst galaxies have an exceptionally high rate of star formation. When stars die and explode, they expel gas from the star and its surroundings back into interstellar space. If enough stars explode near each other at the same time, the force of these explosions can push the gas out of the galaxy itself into outflowing winds, which can travel at up to 2,000 kilometers/second.

“These galaxies are really interesting,” said Coil, who is also chair of the Department of Astronomy and Astrophysics. “They occur when two big galaxies collide. The merger pushes all the gas into a very small region, which causes an intense burst of star formation. Massive stars burn out quickly and when they die, they expel their gas as outflowing winds.”



A simulation of starburst-driven winds at three different time periods, starting at 181 million years. The top half of each image shows gas temperature, while the lower half shows the radial velocity.

(cr: Cassandra Lochhaas / Space Telescope Science Institute)

Massive, rare and of unknown origin

Technological developments allowed ASKAP to scan large portions of the sky at very faint limits which made odd radio circles (ORCs) detectable for the first time in 2019. The ORCs were enormous — hundreds of kiloparsecs across, where a kiloparsec is equal to 3,260 light years (for reference, the Milky Way galaxy is about 30 kiloparsecs across).

Multiple theories were proposed to explain the origin of ORCs, including planetary nebulae and black hole mergers, but radio data alone could not discriminate between the theories. Coil and her collaborators were intrigued and thought it was possible the radio rings were a development from the later stages of the starburst galaxies they had been studying. They began looking into ORC 4 — the first ORC discovered that is observable from the Northern Hemisphere.

Up until then, ORCs had only been observed through their radio emissions, without any optical data. Coil's team used an integral field spectrograph at the W.M. Keck Observatory on Maunakea, Hawaii, to look at ORC 4, which revealed a tremendous amount of highly luminous, heated, compressed gas — far more than is seen in the average galaxy.

With more questions than answers, the team got down to detective work. Using optical and infrared imaging data, they determined the stars inside ORC 4 galaxy were around 6 billion years old. "There was a burst of star formation in this galaxy, but it ended roughly a billion years ago," stated Coil.

Cassandra Lochhaas, a postdoctoral fellow at the Harvard & Smithsonian Center for Astrophysics specializing in the theoretical side of galactic winds and a co-author on the paper, ran a suite of numerical computer simulations to replicate the size and properties of the large-scale radio ring, including the large amount of shocked, cool gas in the central galaxy.

Her simulations showed outflowing galactic winds blowing for 200 million years before they shut off. When the wind stopped, a forward-moving shock continued to propel high-temperature gas out of the galaxy and created a radio ring, while a reverse shock sent cooler gas falling back onto the galaxy. The simulation played out over 750 million years — within the ballpark of the estimated one-billion-year stellar age of ORC 4.

"To make this work you need a high-mass outflow rate, meaning it's ejecting a lot of material very quickly. And the surrounding gas just outside the galaxy has to be low density, otherwise the shock stalls. These are the two key factors," stated Coil. "It turns out the galaxies we've been studying have these high-mass outflow rates. They're rare, but they do exist. I really do think this points to ORCs originating from some kind of outflowing galactic winds."

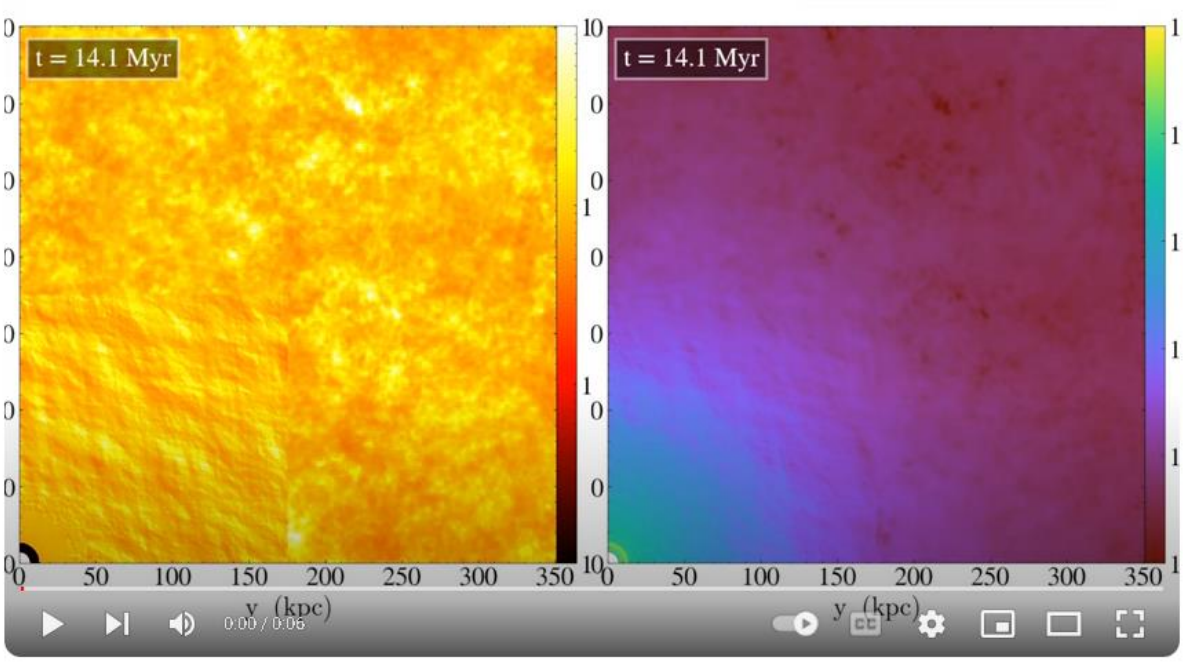
Not only can outflowing winds help astronomers understand ORCs, but ORCs can help astronomers understand outflowing winds as well. "ORCs provide a way for us to 'see'

the winds through radio data and spectroscopy," said Coil. "This can help us determine how common these extreme outflowing galactic winds are and what the wind life cycle is. They can also help us learn more about galactic evolution: do all massive galaxies go through an ORC phase? Do spiral galaxies turn elliptical when they are no longer forming stars? I think there is a lot we can learn about ORCs and learn from ORCs."

Computer Simulation of Outflowing Galactic Wind

UC San Diego School Of Physical Sciences

Jan 8, 2024 URL: Computer Simulation of Outflowing Galactic Wind - YouTube



Computer simulation of an outflowing galactic wind launched with an initial velocity of 450 kilometers per second and a mass outflow rate of 200 solar masses per year, which blows gas out of the galaxy for 200 million years into the surrounding circumgalactic medium. The left panel shows the gas temperature and the right panel show the gas density. This simulation provides a possible explanation for the origin of odd radio circles.

(cr: Cassandra Lochhaas / Space Telescope Science Institute)

FARS/CARC Winter Field Day

By Ed Fong - *WB6IQN*

Left to right: Participant, and Ed Fong - *WB6IQN* setting up for Ham Radio contacts

On Saturday February 27, 2024 the FARS/CARC Winter Field up at Cupertino Reservoir was lots of fun. Using a uSDX+ QRP radio working 20 meter and 40 meter frequency bands, I was able to talk to Canada, Florida, Virginia, Idaho, Nevada, Arizona, Oregon, Wyoming, Florida, Illinois, and Texas to just to name a few contacts. For over 2 ½ hours, I was able to actively make several successful distant Ham Radio contacts.

Also, Jeff Shimbo AK6TG, and Chris also stopped by to participate. Chris setup his QRP station and worked both 10 meter and 15 meter frequency bands.

The Cupertino Reservoir is only a 15-minute drive from my house. It is an ideal location for portable QRP operation. The elevation is 530 ft and over water with no obstructions. So, it is an ideal location for me.

I just used a QRPkits dual band resonant dipole for 20 meter and 40 meter. The total setup cost was only $25

The radio in use was my favorite uSDX+ portable radio with a built in light weight 4 Amp hr Lion battery.

- Cost $155.00
- Weight of equipment - uSDX+ with microphone -1 pound 3 oz.
- 40/20 meter trapped dipole – 6.5 oz.

	
QRPkits dual band resonant dipole antenna	uSDX+ portable radio and microphone with a built-in light weight 4 Amp hr Lion battery.

Lots of fun for under $200 in equipment and under two pounds in weight.

Come join me next year.

From Jeff Shimbo AK6TG

The HT used is the Quansheng UV-K5. The UV-K6 has better speakers but costs significantly more. There is even one that looks like a Baofeng UV-5R. They all share the same FCC ID.

The most popular firmware, per a Quansheng Facebook group, are egzumer and IJV.

Spectrum analyzer.
https://github.com/egzumer/uv-k5-firmware-custom/wiki/Spectrum-analyzer

- Edison Fong
  edison_fong@hotmail.com

FARS/ CARC Winter Banquet Dinner

FARS Winter Banquet February 23rd, 2024

Coastal Station KPH – its history, restoration and modern operations.

Richard Dillman, W6AWO

February 23rd, 2024 - 6:00PM

The Blue Pheasant
22100 Stevens Creek Blvd
Cupertino, CA 95014
408-255-3300

Schedule

6:00 PM	Arrivals and Mixing.
7:00 PM	Dinner is served.
7:30 PM	Introductions, program.
9:00 PM	Raffle and wrap up.

Meal Choices

Beef	Roast Prime Rib of Beef, au jus	$54
Fish	Broiled Salmon w/ dill sauce	$41
Chicken	Breast of Chicken Jersusalem	$41
Veg	Pasta Primavera	$41

Some of the prizes for the raffle: Yaesu FT-710, Nano VNA H4, Tiny SA, USDX+, and Radioddity QB25. A complete list prizes is on the banquet page (k6ya.org/bq).

Use this form to sign-up by mail, or go on-line at k6ya.org/bqs to sign-up. After February 15th, use the on-line sign-up instead of this form. If we receive your sign-up after February 19th, it will be handled as a late sign-up. More information at: k6ya.org/bq. Mail this completed form with your **check, payable to FARS**, to:

FARS
PO Box 112551
Campbell, CA 95011-2551

FARS WINTER BANQUET SIGN UP FORM (February 23, 2024)

	Name & Call Sign	Meal Choice	Amount
You	_____	_____	_____
Email	_____		
Guest	_____	_____	_____
Guest	_____	_____	_____
Other (eg. Dues)	_____		_____
		Total	_____