



www.limarc.org

May 2018

Volume LIII No. 5

**Next meeting to be held:
Wednesday, May 11, 2018
8:00pm Levittown Hall**

Pre-Session Topic

TBD

MAIN MEETING

Summits on the Air (SOTA)

Save The Dates!!

Digital/SSB HF Stations Set Up - Levittown Hall - May 12th– 2:00pm

Lindbergh Event - Cradle of Aviation - May 20th

Outdoor Hamfest - Briarcliffe College - June 10th - pg. 15

Field Day 2018 - June 23-24



Greetings!

In most volunteer organizations there is usually a small percentage of the members that take care of most of the issues facing the organization. It is just the way that it is. There are times however, when a larger number of members is necessary to insure the overall success of the organization.

We are trying to make sure that our general meetings have an interesting pre-session and a good topic for the main agenda. We do this in part to make sure that you have a fun evening out, and also to help in sure that a quorum is present at every meeting. We cannot take a legal vote without a quorum.

We are working to improve our media image. Through the website, a Reflector, and other media to come such as Facebook and Twitter, we want to present a dynamic representation of who we are and what we do. Your membership in the Reflector, and your support with articles and information will help us to reach a broader base.

We will have another HF station day after the May 12th VE Session at Levittown Hall. It is a great opportunity to have hands on experience with HF radio as well as digital modes. If we build it, will you come? We hope so.

Finally, Field Day is almost upon us. We generally set up 5 stations requiring tents, towers, wires, generators, networking, assembly and disassembly. It is a really important event because it goes to the heart of why the government allows amateur radio to exist; preparing for emergency communications to assist in a national disaster. This is a large group effort and one of the times that we really need you to step forward. We all need to build it together and they will come!

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Richie, K2KNB

President

LIMARC Board Meeting Minutes

April 04, 2018

Officers present: President - Richie K2KNB, Vice President – Craig KD2CXX, Secretary – Ken WB2KWC, Treasurer – Jerry WB2ZEX, Past President – Joe W2BMP

Directors present: Neil W2NDG, George WB2IKT, Bob W2OSR

Guests present: Steve WB2KDG, Martin W1EMR, Bill KC2SYL, Rob KC2ILP, Jim W2KFV, Eric KE2EJ

The meeting was called to order at 7:33PM.

A motion was made to accept the minutes of the February board meeting; approved unanimously.

President: Richie K2KNB gave us some insight into the outage at W2VL. The strong winds that we have been having lately caused the antenna to flex and crack. We ran the repeater at low power for a while but it started arcing and interfered with other equipment at the site, so our landlord asked us to turn it off. Steve WB2ZSE programmed his repeater for 146.85 so that we could remain on the air with slightly reduced coverage. Steve WB2WAK had an antenna identical to the one we were using lent it to us so we could get back on the air from the usual site. The new antenna cost \$575, shipping was about \$200 and the riggers charged us \$300 to raise and connect the antenna. Our insurance covers wind damage so we should be receiving about \$900 from the insurance company. Thank you to Steve WB2ZSE, Steve WB2WAK, and Billy KC2ROB for helping get us back on the air quickly.

Bylaws: Richie asked the bylaws committee to amend the bylaws to increase the expenditures that the board could authorize without approval from the membership from the current limit of \$1000 to \$2500. This would allow the board to quickly react to emergency situations such as the loss of an antenna or a repeater.

ARISS: Richie K2KNB reported that the ARISS program where Freeport High School students got to speak to astronauts in the International Space Station went well. You can stream the entire event over the Internet at <http://livestream.com/fps/iss> . The last hour of the presentation is the most interesting. The next school from our area to talk to the space station will probably be Central Islip High School.

Board Meetings: the Levittown library has approved our board meeting dates of the first Wednesday of every month asked except for July, the July board meeting will be on July 11. There will be no board meeting in August.

Field Day: Bill KC2SYL presented his Field Day outline. We discussed the set up and take down aspects of Field Day and how we could involve others, perhaps scouts and students for public service credit. One of the challenges discussed was liability insurance to cover expenses should a helper get injured at our Field Day site.

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Hamfest: We had approximately 400 attendees at the February Hamfest; all of the vendor tables were sold. To get a more accurate count of the number of attendees we will open a fresh pack of wristbands at our next Hamfest (June 2018) and assign separate colors for vendors, buyers, and LIMARC volunteers.

Meeting Programs: Craig KD2CXX said that the pre-meeting presentation in April will be on the use of multimeters. The main meeting presentation for April will be on low-budget (\$50 or under) equipment for the ham shack. Craig will be demonstrating this equipment and some of it will be sold or raffled off. Craig reported that the Long Island Historical Society has postponed their presentation until after HRU.

Secretary: Ken WB2KWC said that we had two pieces of incoming correspondence; a thank you letter from Lew N2RQ and Alice WB2IJY thanking us for the donation in memory of their daughter Laura and a letter from Bobbi and the Strays animal rescue organization thanking us for our donation in memory of Laura Malchick.

Treasurer: Jerry WB2ZEX said that we had \$15,505.94 in the checking account, \$440.50 in PayPal, \$2100.50 in the memorial funds for a total of \$18,046.94. Income from the Hamfest was \$3426, expenses were \$526 for a net gain of \$2900 which was greater than the February 2017 Hamfest.

Membership: Jerry WB2ZEX reported that we have 347 members for 2018 (approximately 10 less than this time in 2017). Rosters have been sent to all members.

Technical: Eric KE2EJ told us that the W2VL antenna was replaced which solved the problem of arcing at the connector. The issues with Echolink and IRLP have been resolved. There is a problem with the RF link between sites so they are currently linked using IRLP.

Public Service: Jim W2KFV said that we are getting ready for spring events (the Long Island Marathon is the first weekend in May). There are new personnel at the Office of Emergency Management. There will be many programs on emergency communications at Dayton.

Field Day: Richie K2KNB said that we are getting ready for Field Day and that the committee will be starting meetings soon.

Bylaws: Richie K2KNB told us that Gary W2MIT is taking over as chairman of the Bylaws Committee.

School Club Roundup: Ken WB2KWC said that we had 74 entries in the February 2018 session of the School Club Roundup. The logs have been checked and results posted on the ARRL website.

Content for the LIMARC.org website: if you have any content you wish posted on the LIMARC.org website please submit it to Richie K2KNB or Jim KD2EDX. Please submit items in Microsoft Word format with text in 24 point .

Good and Welfare: Jerry W2SCW is recovering from surgery at Sloan Kettering.

The meeting was adjourned at 9:27 PM.

Respectfully submitted;

Ken Gunther WB2KWC LIMARC Secretary

LIMARC General Meeting Minutes

April 11, 2018

Bob W2OSR gave the pre-meeting program which was about multimeters. Apparently this is a topic of great interest because attendance was excellent.

President: The meeting started at 8:01 pm with Richie K2KNB leading us in the Pledge of Allegiance. Richie thanked Bob for his presentation and noted that it was Bob's birthday today. We will try to keep the meeting short because Craig KD2CXX has a lot to show us and tell us about in his presentation. Thank you to Steve WB2ZSE, Steve WB2WAK, Eric KE2EJ, and Billy KC2ROB for getting us back on the air in only five days after an antenna failure on the W2VL repeater. Our insurance covered antenna wind damage so there will be no cost to LIMARC to replace the antenna. Originally we thought the antenna was going to cost \$1300 which is greater than the amount that the board is allowed to spend without membership approval (\$1000). This would have delayed the purchase of the new antenna until we could get a quorum of members to vote on the expense. We have asked the bylaws committee to draft a bylaws change allowing the board to spend up to \$2500 without membership approval. This will need to be voted on by the membership. LIMARC has a number of Memorial funds honoring members who have passed away; we are looking into combining these funds since some of them have rarely been used (only a few essays have been submitted for the Helen Reed Memorial Scholarship). After the VE exam on May 12 we will be operating phone and digital stations. Our next special event station will be on May 20th at the Cradle of Aviation Museum commemorating the 91st anniversary of Charles Lindbergh's solo flight across the Atlantic. We wish Jerry W2SCW a speedy recovery from surgery at Sloan Kettering.

Vice President: Craig KD2CXX and his son have been discussing an operating event to take place on the New York City subways. Currently the New York City Transit Authority conducts their communications using repeaters and they do not have contingency plans in case of a repeater outage. Craig has proposed a VHF and UHF contest to be held in the subway. Craig has spoken to representatives of the Transit Authority and they were enthusiastic about this event. Once his plans have been completed Craig will notify the ARRL. There will be a structured point system in this operation with different point values being given for moving vehicle to moving vehicle communications, platform to train communications, etc. On March 27 we assisted Freeport High School in making a contact with the International Space Station. A video of this event is available on the Internet at <https://livestream.com/fps/iss>.

Secretary: Ken WB2KWC said that we had two pieces of incoming correspondence; a thank you card from Lew N2RQ and Alice WB2IJY for the contribution made by LIMARC in memory of their daughter Laura and a letter from the group Bobbi and the Strays which LIMARC contributed to in honor of Laura.

Treasurer: Jerry WB2ZEX said that we had \$14,582.92 in the checking account, \$440.55 in PayPal, \$2100.50 in the Memorial funds for a total of \$17,123.97.

Field Day: Bill KC2SYL is the project manager of Field Day. There is a form on the LIMARC website that you can use to indicate what you would like to help with during Field Day and what times you are available. Please be sure to fill out the form at <https://www.limarc.org/field-day>.

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Scouting: Bob W2OSR said that the Boy Scout Jamboree On The Air will be October 21, he will provide additional details once they are available.

School Club Roundup: Lew N2RQ reported that there were 78 entries for the February session of the School Club Roundup. This was down from February 2017 probably because of extremely poor band conditions. Ken KD2GXL placed in the top 10 despite the fact that he was only able to make less than 30 contacts.

Contesting: Mel KS2G said that there were no major contests in April however if you are looking for operating events there is a state QSO party almost every weekend.

Membership Benefits: Richie K2KNB reminded us of some of the benefits of belonging to LIMARC: we get a 20% discount at the Cradle of Aviation Museum (except for special events), we get a 10% discount on purchases at Cameraland, and free admission to the LIMARC June Hamfest.

Public Service: Ken KD2GXL told us that the next Nassau County ARES meeting will be tomorrow evening at 7:30 pm at the Red Cross building. The next event will be the Long Island Marathon.

The business portion of the meeting was adjourned at 8:31 pm followed by a presentation by Craig KD2CXX on low-budget (less than \$50) gadgets for the ham shack. This was a hands-on presentation and some of the items shown were given away as additional prizes in our 50/50 raffle.

Respectfully submitted;
Ken Gunther WB2KWC
LIMARC Secretary

General Meeting - April 11, 2016



Bob, W2OSR, led the April meeting pre-session with a tutorial on the use of a multi-meter.



Craig, KD2CXX, with some assistance from Neil, W2NDG, gave an interesting talk and display of a variety of under \$50 fun items.

The Theory of Relativity – Is the Earth Flat? It's All Relative!

The Theory of Relativity – maybe something useful in a College Physics course, or a trivia question, but what practical value does it offer?

How about all those cellphone-based maps, using Ground Positioning Satellites – with their super accurate clocks, you can determine your position anywhere in the United States, zipping above us, in orbit around this pale blue marble...

Does Relativity screw around with its positioning capability, or not?

And is it due to Einstein's Special Theory of Relativity or his General Theory of Relativity?

Or is it both, or neither, and what the heck does any of this have to do with something crazy like the Earth being "flat" ...

That's the first question to ponder – does Relativity effect the results of our GPS system? Does it speed up the GPS's clocks, or slow them down? IS Special Relativity the cause or General Relativity, or is it both or neither????

First, let's clear up some semantics. In Physics a "Theory" is a very specific thing. In normal life, you might have a "Theory" that famous people die in groups of three, or that people act crazier during a full moon, but these are just anecdotes, imaginings conceived of by our faulty memories.

In Science, "Theories" are a whole 'nuther animal, entirely!

In Science, a Theory is defined as: "a well-substantiated explanation of some aspect of the natural world, based on a body of facts that have repeatedly been confirmed through observation and experiment."

Scientific theories are not opinions or superficial observations. They are MUCH MORE!

And what about the Relativity part?

As long as anyone was thinking about classical mechanics, it was noticed that the way objects seemed to move about depended A LOT upon the observer's chosen reference frame.

Here's an old familiar situation in Physics questions. You have a ball launcher that launches a tennis ball at a velocity of 10 miles per hour. You climb onto the top of a train that is traveling in a straight line at 50 miles per hour and fires off your little tennis ball launcher. From YOUR Inertial Reference Frame (IRF) that ball is flying away at 10 miles per hour, but at the IRF on the "stationary" ground

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by the tracks, an observer with that frame of reference perceives that this ball is traveling through the air at a much faster velocity!?

What is an “Inertial Frame of Reference”? Why that is a place which is not accelerating relative to the observed actions. It can travel at any constant velocity, to or from the action, or remain perfectly still about the action being referenced, just as long as it isn’t accelerating.

So, what is the speed of that ball flying through the air with reference to the inertial ground?

It depends on who you ask.

If you ask Sir Isaac Newton, he would suggest that you apply a “Galilean Transform” to your problem to derive the ball’s relative velocity.

A “transform” is a mathematic concept which converts one set of values using one set of units in one frame of reference into another set of values in another frame of reference.

In Amateur Radio (you remember that, dontcha?) oscilloscopes show the frequency spectrum as amplitude versus time. A spectrum analyzer presents the same information in a very different way – amplitude versus frequency domain. How can you get from one curve to the other? A transform, a Fourier Transform (or it’s quicker baby brother, a Fast Fourier Transform – FFT).

Although named after the famous Scientist Galileo Galilei, a Galilean Transform was something that Sir Isaac Newton came up with, and it was fairly simple and obvious, and utterly wrong...

But close enough to the right answer, to not be noticed for a long time.

Isaac Newton would say that velocities are additive (but as vectors, not as scalars – don’t worry, if your velocities are all in the exact same direction, its simple addition, and subtraction). The tennis ball traveling 10 miles per hour (MPH) from the train, which is moving in the same direction 50 MPH from the observer by the train tracks should see that tennis ball going at 60 MPH! And it seems to do just that.

But appearances can be deceiving.

In Newton’s classical Physics world, Galilean Transforms were the way to go – velocities were relative to your frame of reference, time and space were immutably fixed quantities invariant to your frame of reference, right?

Well, unfortunately, it is all “relative” ... (yeah, I’m just gonna keep using that line!)

After the turn of the 20th Century a fellow by the name of Albert Einstein, having written a Noble Prize-winning work, called the Photo-Electric Effect, decided to spend his free time addressing the mysteries of time and space.

Newton and many others after him always had a problem reconciling fixed values – this inevitably suggested that some frames of reference were “truer” than others, which just didn’t seem quite right.

Albert Einstein applied two premises for his Theory of Special Relativity:

That the laws of Physics were constant for ANY two Inertial Reference Frames (which seems like a perfectly understandable concept – no IRF was any “truer” than any other IRF)...

AND that the velocity of Light in a vacuum was a fixed constant, “c”! This is the one that still gives people a problem. You have seen with the ball and train *thought experiment* that velocities seem to depend upon the reference frame of the observer, how the heck can a velocity be constant no matter what reference frame is used? It just doesn’t seem to make sense.

Our minds are just MUCH better suited for Galilean transforms, although no one thinks of them like that, our brains just “evolved” to do the math in our heads, behind that curtain where we aren’t aware of everything going on up there!

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If you decide to set the speed of light in a vacuum as a shining invariant constant in the entirety of this Universe, you have a few problems with the other things you used to consider as fixed and unvarying – like time and space?

For just a little while, let's take a short detour to another gentleman – a very clever man named Henrik Lorentz. He has a bunch of things named after him, like the Lorentz-Lorenz formula, the Lorentz force, the Lorentzian distribution. But for now, let's focus on his Lorentz transformations.

Before the 20th century Professor Lorentz was hard at work trying to describe how light propagated through different reference frames relative to that Luminiferous Aether, that almost everyone in Physics was sure was out there, somewhere (it was the “Dark Energy” and “Dark Matter” of its day!).

The Luminiferous Aether was nonsense, but Professor Lorentz's transform equations were works of genius! Professor Lorentz used his transforms to explain one of his former student's experimental results in the so-called Zeeman Effect, and they both got a Nobel Prize for their work.

Another very smart gentleman, Joseph Larmor published ostensibly the same transformations in a slightly different form 7 years earlier in a paper describing orbiting electrons (this seems to be a bone of contention between Historian Physicists – who knew there were such people?), but the guy with the best press agent usually wins these fights with history, so we have Lorentz Transforms, and we have “who the heck was Larmor”? Professor Larmor had his own very interesting life story, as the Lucasian Professor of Mathematics at Cambridge, a post he shared across time with that Isaac Newton fellow, as well as Stephen Hawking! Surprisingly, Larmor thought that Einstein's Theory of Relativity was nonsense – he was not a fan of the concept of “curved space” and strongly held “that an absolute time was essential to astronomy.”

In Lorentz Transforms, time was not a fixed quantity, and neither was space! Albert Einstein, the guy that personified the phrase “thinking outside the box”, was a genius, but he was not that great at math. Fortunately, in people like Lorentz and Poincare, he had enough help to offer his theory fully described mathematically.

So far Einstein's Theory of Special Relativity (SR) seems to be all about varied time and space warping all over the place, but for the general population if you asked them for one succinct Physics equation, it is very likely that they will proudly offer you:

$$E = mc^2$$

Energy equals mass times the speed of light, squared! Gives ya goosebumps, doesn't it! Mass is energy and energy is mass – two sides of the same coin...

The problem is, that if you want to be REAL picky, Einstein's Theory of Special Relativity comes closer to saying:

$$E \neq mc^2$$

“Heresy” I can hear you say! When “popularists” popularize a complex scientific concept, they invariably simplify it to be wrong, or correct for a very small, very specific limited case. That is what they did with $E = mc^2$ – it is a perfect equation for an object *at rest!*

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But what if your object isn't at rest? What if it is traveling at 99.999999% the speed of light – do you think that the energy content of an object at rest is the same as if it was traveling really, really fast?

Well, obviously it isn't the same. You must consider the relativistic momentum of an object. The REAL equation is:

$$E^2 = m^2c^4 + p^2c^2$$

P is momentum $p = \text{mass} \times \text{velocity}$.

So, the next time some guy offers you “ $E = mc^2$ ” be kind.

Let's get back to that GPS question. How does Einstein's Theory of Special Relativity deal with a satellite circling you at a higher relative velocity? Well, time slows down from our frame of reference as its velocity speeds up faster and faster, and by the Theory of Special Relativity, the GPS' clock is running 7 microseconds slower every day!

But wait, didn't someone say that the GPS Satellite's clocks are running faster not slower than our Earth-based clocks!?!?!?

Which brings us to Einstein's Theory of *General* Relativity (GR)! His first theory was “special” because it described a narrower case of objects traveling at constant velocities and didn't concern itself with gravity at all.

It took Albert Einstein another ten years and some help from some brilliant mathematicians to explain all aspects of Relativity and the nonintuitive nature of gravity itself!

One of the most important principles used in this theory is called “The Equivalence Principle.” The Earth is felt to exert a force upon us all that would accelerate an object dropped from a height with the acceleration of 9.8 meters per second per second. If you were in free space with no significant gravitational forces, with a rocket engine accelerating you at 9.8 meters per second per second, could you tell the difference between when you were just standing on the ground?

No, you wouldn't! Einstein's Equivalence Principle states that the two conditions are equivalent. If you were enclosed and could not see outside of your own little box, there would be no way to tell if you were in a rocket ship or on the ground!

Similarly, if you were placed in a box and dropped from a very high height until you “landed” it would be impossible to tell the difference between falling to your imminent death or being in the weightlessness of free space!

They are equivalent too (until the very last part of that unfortunate experiment)!

Set gravity and an accelerating force equal, play around with the math and you have the General Theory of Relativity!

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$$G_{\mu\nu} + R_{\mu\nu} = (8\pi G/c^4) T_{\mu\nu}$$

(Don't get frightened, I am not going to try to explain this equation here.)

(Now you know what took ten years and some help from his mathematician colleagues.)

It looks simple at first (yeah, sure, on what parallel Universe?), but this is the key to explaining gravitational lensing, black holes, and all manner of things undreamed of at the time people were trying to make sense of this theory, at first.

One new wrinkle that General Relativity offered was that in the presence of a gravitational field, Lorentzian Transforms were necessary to make sense of what was happening!

Take that old GPS problem once again! Special Relativity offered a correction between the time observed by an Earth based observer and a satellite rapidly orbiting above us. By Special Relativity the GPS clock was running 7 microseconds slower every day than ours here on the ground, BUT...

General Relativity suggests that the differing gravitational fields of the surface observer and the orbiting satellite must be taken into account as well. The stronger gravitational field on the Earth's surface would appear to slow down time relative to the satellite high above the surface of the Earth. By this aspect of General Relativity, the GPS clock is running 45 microseconds a day FASTER! Put the effects of General Relativity and Special Relativity together, and you get:

45 microseconds/day gain (due to GR) - 7 microseconds/day lost (due to SR) = 38 microseconds/day gained!

Problem solved, GPS working!

Thanks, Albert!

Now, even though Einstein found many aspects of Quantum Mechanics to be "Spooky" there is a heck of a lot of General Relativity (GR) that can be just as "spooky" as well!

Einstein had a still unconventional understanding of gravity. He did not see it as a force at all!

Heresy you say (again?)?

Mass-Energy warps Space-Time and Space-Time warps the relative path of the "straight lines" that Mass-Energy is moving through (from their relative frame of reference), or mass-energy "tells" spacetime where to warp and spacetime "tells" mass-energy where to go. What about the weight of that heavy air conditioner that almost killed your back? Well, that's not a "real force," it's a pseudo force, like the Coriolis Effect, or Centrifugal force.

Real forces are forces which arise due to actual interactions between objects, but pseudo forces are not the result of any interaction between objects. They arise from a change of the frame of reference.

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You only think there is a ridiculous force pushing that air conditioner back to the ground, where it really wants to be. What's really happening is that the "timeline" or the "geodesic" or the warped space-time created by the mass of your air conditioner and the Earth seem to offer your air conditioner a straight inertial line smack into the floor below! No real force here! Step along, nothing to see here...

At least that is what Einstein said, and many Physicists firmly believe this, although they tend not to argue the finer points with the public!

What about all those satellites circling the Earth, what about US circling the Sun – aren't we “falling into the Sun” due to the force of gravity?

Not according to Albert. The Earth and the Sun have just warped spacetime, and the Earth is following its own geodesic timeline like any inertial object does, at least from its frame of reference – all this gravitational force and orbital mechanics are just the way it looks to us observers from a different frame of reference!

Spooky, eh?

It's all relative.

Remember how time and space can appear to dilate and contract, depending upon relative velocities? Well, if you are in your rocket ship, directly pointed at the Earth from far away and increase your relative velocity, as you go faster and faster, it will appear to you that the Earth is getting squashed from its usual oblate shape, into something flatter and flatter! If you were a photon of light, rather than that rocket ship rider, your velocity would appear to contract the Earth into an object flatter than a pancake.

That's right! Photons are members in good standing of the Flat Earth Society <grin>!

Albert Einstein wasn't a big fan of a Heliocentric Solar System – in his way of thinking no single reference frame was special – you can place the center anywhere that you want, just as long as you can figure out the transform to explain it!

Yup – It's all just relative!

So, buck up all you Geocentric Flat Earthers out there – Albert Einstein is on your side, relatively speaking...

Here's another puzzler: Can anything *go* faster than the speed of light? Anything *real* or anything *theoretical*?

[illegible]

And another, if **you** see two events occurring at the same exact time, will all observers with all possible inertial reference frames see the two events occurring simultaneously?

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Well, like I've written before time is relative and so two things that appear simultaneously to you don't look that way to observers from a different frame of reference. Someone traveling *very* fast in one direction might see the first thing happen much earlier than the second, yet a fellow traveling *very* fast in the other direction might see the second thing happen way before the first. It's all relative!

Now let's whip around back to Amateur radio.

An object with a net electrical charge relatively at rest produces an electric field excitation. An object with a net electrical charge relatively traveling at a nonzero velocity produces a magnetic field excitation. An object with a net electrical charge with a relatively constantly changing velocity produces an electromagnetic field excitation.

I hope that this description is acceptable to my audience.

In light of my presentation of the concepts of SR and GR, one might ask what happens if you change your frame of reference?

Well, everything changes!

Much like the force of gravity is based on our own personal frame of reference, the difference between electric fields, magnetic fields, and electromagnetic fields is also just a product of where you plant your frame of reference!

There are different ways to conceive of this and other ways to describe it, or else you can just say that it is all just rubbish and drop the subject.

Are magnetic field excitations just a "relativistic emergent force" or is magnetism and charge simply two sides of the exact same coin – is that quarter in your pocket "mostly heads," or "slightly tails," or both and more?

Six of one, half a dozen of the others.

You decide!

Here's another thought experiment, using three completely fictitious characters...

(Names, characters, businesses, places, events, locales, and incidents are either the products of the author's imagination or used in a fictitious manner. Any resemblance to actual persons, living or dead, or actual events is purely coincidental. That's my story, and I am sticking to it!)

Joe is standing in a nonconductive, windowless enclosure with a rocket engine and all the mechanics stowed below a well-insulated, soundproofed floor, which is accelerating him and his enclosure at a constant acceleration of 9.8 m/sec^2 .

Joe is soaring out of our Solar System at a constant acceleration of 9.8 m/sec^2 , and he is carrying an electrostatically charged sphere (who doesn't travel without a charged sphere?), with a surrounding Electrostatic field. As we all know charged particles behave differently, whether they are "at rest," moving at a constant velocity, or accelerating:

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All charged particles at rest produce an electric field excitation. All charged particles traveling at a Constant (linear or angular) velocity produce a magnetic field excitation. All charged particles traveling at an always changing velocity (accelerating), produce an electromagnetic field excitation!

Now, Joe and this electro-statically charged sphere are accelerating, but is that charged sphere radiating any electromagnetic waves, or not???

Paul is traveling in another rocket ship which is traveling at a faster relative velocity, but also accelerating at 9.8 m/sec^2 . As Paul passes Joe's rocket, he measures the area for any field excitations. Dick, at his observation point at Artemis Moon Base, watches both rockets fly past and points his own measuring devices - what field excitations do these scientists see when they compare notes?

According to Einstein's Equivalence Rule, as explained in his General Theory of Relativity, the effect of gravitation is locally equivalent to the acceleration of an observer. So, Joe should not be able to tell whether he is inside his rocket ship or inside his windowless radio shack at home. There is no piece of Equipment that he can take into his enclosure that would give him the faintest clue of whether he was on a rocket or home! Right?

What about Paul, from his relative greater velocity, or Dick from his perspective watching Joe accelerate past his measuring equipment?

Can Joe use the behavior of his electrostatically charged sphere to violate Einstein's Equivalence Rule?

SO, let's plant Joe definitively back in his radio shack, surrounded by the Earth's gravitational field, that should be equivalent to a net acceleration for him of 9.8 m/sec^2 . Is his ever present electrostatically charged sphere radiating any electromagnetic waves in this environment???????? Any environments, anywhere, "anywhen"?

A paradox?

Just to give you an idea of how obtuse this subject is, very smart Physicists have been known to write 300+ page review books on the subject, without settling upon a definitive answer!

Welcome to the world of Physics

73,

Roy AC2GS

(This article is based on a presentation that was made on a LIMARC TechNet. If you are interested in science (and why would you still be reading this if you aren't), stop by the LIMARC TechNet every Sunday night at 8 PM, and bring questions, or answers, or email your questions to mail-bag@LIMARCTech.net!)

Long Island Mobile Amateur Radio Club

**Long Island Outdoor Hamfest
Sunday, June 10, 2018
Briarcliffe College
1055 Stewart Ave., Bethpage, NY 11714**

Doors Open at 9AM to Buyers

Vendors Set Up at 7:30AM

Amateur Radio Dealers & Equipment ~ Tune-Up Clinic (Get you Rig Checked!)

Television, Computer, CB Equipment, ARRL Information

Long Island Mobile Amateur Radio Club Information

DXCC and WAS Card Checking

General Admission \$6

Entry at 9:00 AM

ADMISSION FREE TO CURRENT LIMARC MEMBERS !!!!!

Free Parking! Food & Refreshments! Door Prizes!

**SELLERS > All Spaces are \$10.00 each or 3 for \$25.00.
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Bring your own table, chair, or umbrella!**

Vendors Must Comply With NY State Sales Tax Laws as applicable.

The sale of guns, ammunition or pornographic material is prohibited.

SELLERS MUST PACK UP THEIR OWN GARBAGE AT CLOSING

Talk-In on W2VL Repeater 146.850 (136.5 PL)

For more information, see www.LIMARC.org

or contact our Hamfest Chair at 516-694-4937, or email us at Hamfest@limarc.org

Richie K2KNB

Directions

From Long Island Expressway: Take LIE to exit 44S (Seaford-Oyster Bay Expressway-Rte 135) South to exit 9 (Broadway, Bethpage). Make a right turn onto Broadway and bear right onto Cherry Avenue. Go past Bethpage High School and at the light make a right turn onto Stewart Avenue. Go past the flashing light and look for Briarcliffe College on your left - watch for the Hamfest entrance.

From Northern State Parkway: Take the Parkway to exit 36A South (Seaford-Oyster Bay Expressway-Rte 135) and follow directions above.

From Southern State Parkway: Take the Parkway to exit 28AN (Seaford-Oyster Bay Expressway-Rte 135) North to exit 9 (Plainview Road). Make an immediate left at the bottom of the ramp (under the Expressway) onto Broadway and follow the LIE directions above to the college.

*** <http://www.limarc.org> &/or <http://www.limarc.org/fest.htm> ***

LIMARC P.O. Box 392 Levittown, NY 11756-0392

FREE MONEY FOR LIMARC EVERY TIME YOU SHOP !!!!!

Gary Buchwald – W2MIT

Actually, your year-round shopping on Amazon.com will help LIMARC as long as you go to Smile.Amazon.com and designate the Long Island Mobile Amateur Radio Club Inc. as your charity of choice.

What is AmazonSmile?

AmazonSmile is a simple and automatic way for you to support LIMARC every time you shop, at no cost to you. When you shop at smile.amazon.com, you'll find the exact same low prices, vast selection and convenient shopping experience as Amazon.com, with the added bonus that Amazon will donate a portion of the purchase price to LIMARC!

How do I shop at AmazonSmile?

To shop at AmazonSmile, simply go to smile.amazon.com from the web browser on your computer or mobile device. You may also want to add a bookmark to smile.amazon.com to make it even easier to return and start your shopping at AmazonSmile.

In fact, here's a direct link which will take you to smile.amazon.com and will automatically designate LIMARC as your supported charity:

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Which products on AmazonSmile are eligible for charitable donations?

Tens of millions of products on AmazonSmile are eligible for donations. You will see eligible products marked "Eligible for AmazonSmile donation" on their product detail pages. Recurring Subscribe-and-Save purchases and subscription renewals are not currently eligible.

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The AmazonSmile Foundation will donate 0.5% of the purchase price from your eligible AmazonSmile purchases. The purchase price is the amount paid for the item minus any rebates and excluding shipping

(Continued from page 19)

& handling, gift-wrapping fees, taxes, or service charges. From time to time, we may offer special, limited time promotions that increase the donation amount on one or more products or services or provide for additional donations to charitable organizations. Special terms and restrictions may apply. Please see the relevant promotion for complete details.

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Donations are made by the AmazonSmile Foundation and are not tax deductible by you.

How can I learn more about AmazonSmile?

Please see complete AmazonSmile program details.

GOOD AND WELFARE

Jerry W2SCW is recovering from surgery at Sloan Kettering.

LIMARC Membership Report – May 2018



Please welcome the following new/returning members:

James Donaldson KB2FYH Richard Blackman KC2QFZ
Baker Hamilton KD2PFO Yale Brevda W2YAL

Please make the following changes in the 2018 Roster:

Martin Grillo, W1EMR upgraded to General, congratulations
Joseph Tagliaferro WA2USJ, change email to taglia1@earthlink.net

REMINDER

LIMARC is a 501(c)(3) not-for-profit corporation. As such, all monetary donations are tax deductible, and donations of equipment are deductible either to the amount that the club might sell the item for, or the fair market value. As we move forward in trying to provide assistance to schools wishing to set up amateur radio programs, please consider us for your donations.

REMINDER

If You Hear Something, Tell Someone

Those of you who use the repeaters on a regular basis are all too aware of the fact that there are certain individuals who have nothing better to do with their time than to interfere with people on the repeater. An organized effort is underway to locate and identify these individuals. **YOU CAN HELP.** If you hear malicious interference on any of the LIMARC repeaters, please hit the reverse (HM/RV) button on your radio and see if you are able to hear them on the input. Please email your findings to rfl@LIMARC.ORG. Indicate whether you heard them on the input or not. Please include the time of day, the repeater, your location and type of antenna (if you have a beam, include the heading).

Thank you for your cooperation.

DOOR PRIZE DONATORS

Below is a list of individuals, organizations and companies that contributed to the 50th Anniversary celebration.

Please consider making future purchases from them as a thank you for their generosity and loyalty to our club!



www.kjielelectronics.com



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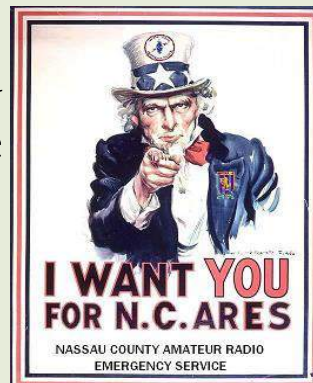
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All Nassau A.R.E.S. Members

Nassau County A.R.E.S. meets on the second and fourth Thursdays of the month. All are welcome to attend! ARES meetings are held at the Nassau Co. Red Cross, 195 Willis Ave in Mineola.



| | | | |
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Show Your Membership Card

Ask for Jeff



VE Testing Schedule for 2018



LIMARC VE Test Sessions are held on the second Saturday of every odd numbered month at the Levittown Hall, Levittown Parkway, Hicksville, NY. Please remember to bring **two** pieces of identification (one with a photo), your **original** license and a copy of it, any **original** Certificates of Successful Completion of Examination (CSCE's) and copies of them. *Also remember to bring the proper fee in check made out to ARRL VEC or exact change (NOTE: the 2018 fee remains at \$15.00).* The LIMARC VE Team will supply the FCC Form 605. For further information, contact Al W2QZ at (516) 623-6449 or Jim W2KFV at (516) 997-6023.

2018 SESSION DATES AND TIMES AS POSTED

May 12 1:00pm July 14 9:00am

Sept. 8 9:00am Oct. 28 Hamfest 10:00am Nov. 10 1:00pm

2018 Meeting Schedule

All general meetings are held at: Levittown Hall 201 Levittown Parkway, Hicksville, NY. Meetings start at 8:00PM.

All Board meetings are held at the Levittown Library 1 Bluegrass Ln, Levittown, NY. Meetings start at 7:30PM.

LIMARC AT A GLANCE-2018

| Month | Bd. Meeting | General Mtg | VE Session | Hamfest | Other |
|--------|-------------|-------------|------------|---------|----------------------|
| Jan | 3rd | 10th | 13th | | SATURDAY 6 - HRU |
| Feb | 7th | 14th | 25th | 25th | |
| March | 7th | 14th | 10th | | |
| April | 4th | 11th | | | |
| May | 2nd | 9th | 12th | | Lindbergh event - 20 |
| June | 6th | 6th | | 10th | FD - 23 -24 |
| July | 11th | | 14th | | Apollo event - 20 |
| August | NONE | | | | |
| Sept | 5th | 12th | 8th | | |
| Oct | 3rd | 10th | 28th | 28th | |
| Nov | 7th | 14th | 10th | | |
| Dec | 5th | 12th | | | |

LIMARC Repeater Nets (W2VL 146.850, unless otherwise noted)

Monday: Info Net, 8:30 PM

Net Control Operators

Week 1-Lew N2RQ; week 2-Richie K2KNB; week 3-Ceil W2CTG; week 4-Harry KC2FYJ; week 5-Rick K2RB

Following the Info Net

Stay tuned for the Swap – n – Shop Net, 8:45 PM (approximately)

Bill **WB2CUK**, Net Control

3rd and 4th Wednesday, Computer Net with Ken **WB2KWC**

Sunday: Tech Net, 8:00 PM – Dick **K2RIW**, Net Control

1st and 3rd Tuesday, Astronomy Net, 8:30 with Craig **KD2CXK**

Any month with 5 Wednesdays, Nostalgia Net, 8:30 with Richie **K2KNB**

LIMARC Repeaters: W2VL 146.850 – IRLP node 9126;

W2KPQ 147.375 - IRLP node 9126;

W2KPQ 224.820; **W2KPQ** 449.125- IRLP node 4969; **W2VL** 1288.000

WA2LQO 146.745; **Digital Mobile Radio W2KPQ** 449.375 (No PL)

All analog PL tones are 136.5

Ceil Gomez, W2CTG Editor of *The LOG*,

W2CTG@LIMARC.org

LIMARC PO Box 392 Levittown, New York 11756-0392

Published monthly except July & August

| <u>LIMARC Officers</u> | | | | <u>Directors</u> | | |
|-------------------------------|---------------|--------|----------------|-------------------------|--------|----------------|
| President | Richie Cetron | K2KNB | (516) 694-4937 | Bob Batchelor | W2OSR | (516) 671-4083 |
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| | | | | Lew Malchick | N2RQ | |

Email for officers and Board members can be sent to their call sign @limarc.org. In addition, all can be reached at LIMARC@LIMARC.org

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From The Editor

Please send all items for entry into the LOG to W2CTG@LIMARC.org. I will be glad to accommodate all appropriate requests. If you miss a deadline (the deadline is the 15th of the month) I would be glad to place your item in the LOG next month, space permitting.

Thanks, and 73, Ceil W2CTG - Editor, The LOG