

# THE SPLITROCK TIMES

The newsletter of the Splitrock Amateur Radio association.  
JULY 2023 edition.

Welcome to the twelfth edition of the Splitrock newsletter with its new name.

Editor: Fred Wawra W2ABE. [contact W2ABE@arrl.net]

**'The Splitrock Times'.**

## OFFICERS

President Bruce N2XP

Vice Pres. Bob K2RFH

Treasurer Bruce N2OQX

Secretary Tracey KD2ISX

Trustee Bruce N2XP

Member at Large/'assistant to the President', Fred W2ABE.

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**Important note: VE testing is on the second Monday of every month. Check with [Find an Amateur Radio License Exam in Your Area (arrl.org)] for any possible changes. Testing is at the Mount Arlington Civic Center- Registration is at 7pm. Walk-ins are allowed.**

Remember if you are a member of ARRL [and you should be] then subscribe to the weekly email update to keep aware of conditions and activities on the bands and League announcements.

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The Club Meets every second Tuesday at 7:30 at the Mount Arlington Civic Center [the log cabin building at the west end of Fern Place]. The Club's mailing address is: S.A.R.A. PO Box 528 Lake Hopatcong, NJ 07849. Contact info: [www.splitrockara.org](http://www.splitrockara.org) or [membership@splitrockara.org](mailto:membership@splitrockara.org)

The repeater is on 146.985, the offset is -600, and the PL is 131.8 Hz.

NOTICE: There will be NO zoom at the meetings for the time being due to WIFI issues

Submissions for the newsletter need to be in word format or an email.

Reminder: there is a \$35.00 fee paid directly to the FCC for new calls, vanity calls, and renewals. There is no FCC charge for upgrades.

No Member profile was submitted by any member this month.

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## THE PRESIDENT'S MESSAGE

To Splitrock Members,

This month we'll be having a presentation by Bob Buus W2OD Northern New Jersey Section Manager

I would like to thank everyone who helped to set up and operated to make our Field Day 2023 a big success. I hope that everyone had a great time and had fun.

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If anyone has any ideas for topics, videos and guest speakers, send me an email at [President@splitrockara.org](mailto:President@splitrockara.org).

73,

Bruce N2XP

SARA President

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## ECLECTIC TECHNOLOGY

By: Fred Wawra, W2ABE.

This time LIGHT and HOW it BEHAVES.

Mommy, Mommy, why is the sky blue? Well, Johnny, it is due to what is called scattering.

All the visible light (photons which are massless packets of energy) all hit the atmosphere at the same time, but the energy of the red to green part of the visible spectrum is rather low. The energy of the blue into the ultraviolet, which we cannot see is much more energetic as it is of a shorter wavelength thereby of a higher energy level so it has the most effect as it hits the gaseous matter

that composes the atmosphere thereby scattering the blue light which we can see! The other wavelengths of visible light also scatter their photons but being less energetic, their effect is overridden by the predominantly blue light that is scattered when the incoming photons hit the molecules in the atmosphere.

When you look into a mirror, what do you see?

The answer is a reflection but not your actual light image coming back to you. What happens is that when the photons bouncing off your face hit the mirror or shiny metal, they cause the free electrons in the surface of the metal to become active and as those electrons settle back to a lower state, they emit photons back out toward you! The incoming photons are of one phase and those emitted back are opposite so that the ones that are in the mirror or metal material are cancelled out. This all happens at the subatomic level! So, what you are seeing in the mirror is a re-creation of your photonic image. You ask why a dull piece of metal does not reflect your image? That's because it does but since the surface is not smooth, most all of the photons are scattered within itself

and absorbed as heat, albeit such a small amount so that it is imperceptible to us.

What makes glass and other materials transparent and other materials not?

The answer is the energy gap. It is the amount of energy needed to bring an electron from its quiescent (lower normal) state to a higher-or highest-level state. When a photon hits an electron and does not have enough energy to move that electron to a higher state, it is not absorbed and passes through the material. Glass, which is made of sand, mostly quartz, has electrons with a larger orbit which also makes it harder for the photons to hit the electrons. If a photon has enough energy to move the electron to a higher state, the energy involved in doing so causes the photon to be absorbed and it thereby cannot continue its journey. When you see a colored glass object, say a red lamp shade, the light (photons) that you see are allowed to pass through as they cannot excite the electrons at that red light frequency to move to a higher state. The frequencies of the colors that do not pass through the glass shade ARE able to excite electrons to a higher state, so those photons are absorbed

in the process. For objects not transparent or light transmissive, ALL of the photons are absorbed and give up their energy in the form of heat. That is why if you put a solid object that is not clear in the sun it heats up. The darker the object the more it heats up as less light is reflected so more of the photons are absorbed.

The reason you cannot tan when sunlight passes through regular window glass is because the visible sunlight spectrum of colors' photons do not have enough energy to excite the glass's electrons to a higher state and thereby are not absorbed but pass on through. The frequency of the photons at the ultraviolet wavelength has enough energy to raise the electrons to a higher state and are thus absorbed in the process.

From the dark ages up until now with quantum atomic theory being discovered and explained, we made and used everyday objects without knowing how they worked. Not that we needed to know in order to use them but having the answer to "why" gives a better understanding of the world around us.

Again, 'mommy why is the sky blue?'

Fred Wawra, W2ABE, 73.

Do not forget the swap n'shop/tech net on the repeater at 8pm on Sunday nights!

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GET ON THE AIR AND TAKE TIME TO TALK TO A FELLOW HAM!

SEE YOU AT THE NEXT MEETING. 73'

19 people attended field day.