



Volume XXVI, Issue 6

June 2019

Editor: Thomas Price; KC2PSC

May 9, 2019 Board Meeting

The board meeting started at 7:08 PM. In attendance was Neil KC2TAF, Matt N2RBP, Peter AA2VG, Roger W2GLE, Art KD2NJM, Rich W2TMA.

- Acting president's report from Neil KC2TAF: Reminded the board that we still have officer positions to fill including President, Secretary and one board member.
- Treasurer's report: Rich W2TMA noted that there were no new significant transactions.
- It was then discussed that the section of QSX that thanks

members for their work on the 210 repeater needed to be updated. An update was suggested and agreed upon but first it will be cleared with one of the people mentioned in the update before being published.

- Field Day: was discussed briefly by Peter AA2VG and is to be discussed further at the general meeting.
- Thomas KC2PSC discussed setting up a group email for the board through the larkfield.org website. He will research this to be sure it is feasible.

May 9, 2019 General Meeting

The general meeting started at 7:30 PM with the Pledge of Allegiance and member introductions.

- One non member was welcomed (Brien Sullivan).
- The acting president (VP) Neil KC2TAF asked the members present to consider filling the empty officer positions in the club.

- Treasurer: as noted in the board meeting no new transactions took place.
- Repeater committee: Jack K2JX and Pat WB2CMF have been maintaining and repairing the packet antenna system. Recently Jack installed a new polyphaser since the old one in place had

failed.

- Membership: Peter AA2VG noted that we have 52 paid and honored members.
- VE sessions reported by Rich W2TMA. The next VE session is June 8th.
- Good and Welfare: We all wish a speedy recover for Matt's N2RPB wife who recently had several surgeries.
- Night Timers: Howard KC2OJO
- RACES: The RACES group has been testing EchoLink on the 210 repeater.
- Field Day: Peter AA2VG will take on the FD chairman's position. He discussed that FD this year would be a daylight event on the front lawn of the Harborfields Public

Library on Broadway in Greenlawn. The date is June 22nd and 23rd. The initial plan is to set up two HF stations and a VHF station. Emphasis will be placed on education and demonstration to the public. Set up will be with portable antennas and power will be supplied by a small Honda generator that has been offered for club use by Bob AC2AZ. All radios, gear and antennas will be taken down Saturday at dusk. We will return Sunday morning again with a portable set up. Harborfields library is allowing us to use a large glass showcase the month of June to advertise FD and attract interest to our hobby.

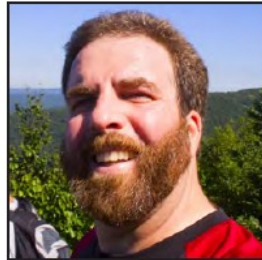
The meeting was adjourned at 9:30 PM

This article was originally published in the March 2018 GSBARC Compass

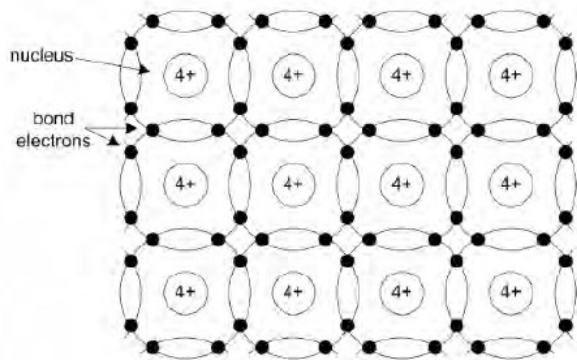
In the Classroom with AB2ZI

Current Flow Through P and N Type Semiconductors

By Kevin, AB2ZI

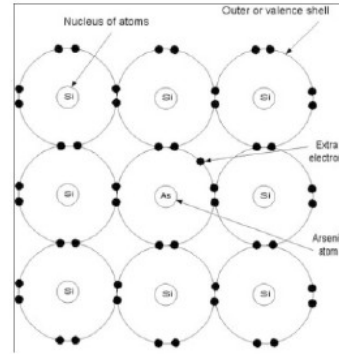


In solid state electronics we are introduced to semiconductors and the concept of *doping*. So what is this all about? First, let's take a look at a crystal made up of pure silicon atoms.

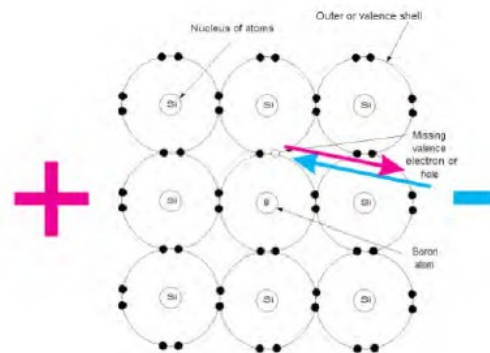


The outer shell of Silicon has 4 electrons in it. When silicon is in a crystalline state, the outer orbits share an electron with each other giving each atom 8 electrons in their respective outer orbits.

In order to make silicon useful for electronics, a process called doping is used wherein some other atoms are added to the silicon. These atoms will have either an extra electron in their outer orbits—arsenic, As, and antimony, Sb, each have 5—or they may have 1 less electron in the case of both gallium, Ga, and indium, In, which each have 3. These elements are added in kind of like putting salt or pepper on your food.

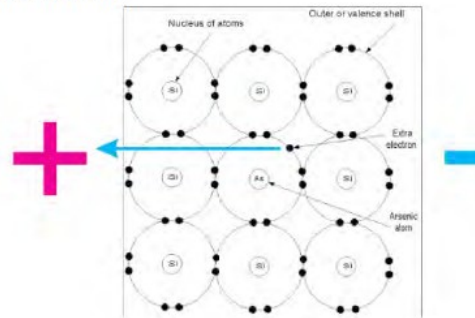


Here we see a crystal of silicon with arsenic atoms added. The extra electron in the outer shell of the arsenic atom is not used in the bond with neighboring silicon atoms and so is an extra, or *free*, electron. Because this crystal has an extra electron it is called the N-type material (*N* for negative) and if a voltage is applied that free electron is repelled by the negative charge and attracted to, and moves toward, the positive charge.

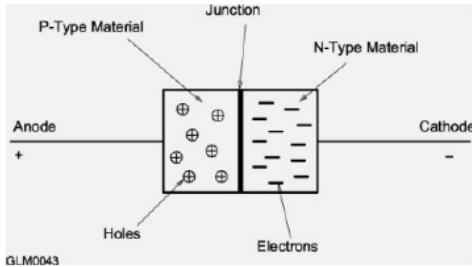


If instead we dope the silicon with gallium or boron, we then get a hole in the bond where the missing electron is. This is a P-type material.

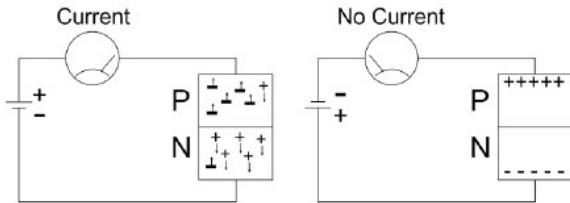
When a voltage is placed across this P-type material, the positive charge attracts electrons and as free electrons move toward the positive charge they move into the hole which leaves a hole in the atom that electron moved from. As electrons move into the holes the holes move in the opposite direction.



When these P- and N-type materials are joined together they form a junction between them. With no voltage applied the free electrons in the N material drift across the junction to fill the holes in the atoms nearby. This creates a *depletion region*, or a kind of no man's (no electrons) land at that interface between the materials. This PN junction is called a diode and it will only allow current to flow in one direction.



Because of the barrier region, the applied voltage must exceed 0.6V to 0.7V (0.2 to 0.3V for germanium diodes) in order to get current flow. When the voltage is attached negative to the N and positive to the P material, the negative voltage repels free electrons in the N material which are simultaneously being pulled toward the attractive positive charge on the P material—current flows and all is good.



If instead the opposite voltage polarity is applied, negative to P and positive to N, then the positive side pulls all the free electrons to itself while the negative repels them. The result is that most of the diode becomes one giant depletion region and current cannot flow. The diode is said to be *reverse biased*.



Which Way Does Current Really Flow? cont'd from page 4...

Although it's a departure from my "no nonsense" style, I am thinking of including a sidebar, similar to the paragraph above from the 2005 Handbook explaining the two ways of looking at current flow. What do you think?

When he's not trying to figure out which way current flows, Dan blogs about amateur radio at KB6NU.Com, teaches ham radio classes and operates CW on the HF bands. Look for him on 30m, 40m, and 80m. You can email him at cwgeek@kb6nu.com.



The ARRL International Grid Chase is underway! Join in on our newest year-long operating event!

You may not know this, but your station is in a Maidenhead grid square. The entire world is divided into thousands of these 1° latitude × 2° longitude squares, each one with a unique designation. They're all part of a geographic location system adopted in the 1980s at a meeting of the VHF Working Group in Maidenhead, England.

Unless you are a VHF enthusiast, this nugget of information may not mean much. But at 0000 UTC on January 1, 2018, the global Amateur Radio community came alive with the exchange of grid squares.

For more information on grid squares see <http://www.arrl.org/grid-squares>

Get in the Chase

The objective of the ARRL International Grid Chase is simple: Work stations in as many grid squares as possible and upload your log data to ARRL's Logbook of The World (LoTW). If you are not currently registered with Logbook of The World, this is a good reason to get started. Go to <https://lotw.arrl.org/lotw-help/getting-started/>. Registration and uploading are free. When registering and setting up your Station Location, be sure your TQSL Station Location includes your Grid Square!

For more [visit the ARRL here.](#)

**Final Field Day Preparation
June Club Meeting
June 13, 2019
7:30 PM
Huntington Senior Citizen Center**

At the meeting an overview of the field day setup will be discussed. Attendance is highly recommended for those who plan to attend field day this year.

Groups IO

Please join the Clubs Yahoo group. Not a member already send an e-mail to the following address:

larkfieldarc+subscribe@groups.io

Join our facebook group

<http://www.facebook.com/Larkfieldarc>

ARES/RACES NET

Sunday 0900 New York State RACES 3993.5 LSB
Monday 1900 Huntington - 147.210
Monday 1930 Smithtown - 145.430
Monday 1930 Southampton - 147.195
Monday 2000 Nassau County ARES RACES - 443.525
Monday 2000 Easthampton - 145.270
Monday 2015 Babylon - 146.685
Monday 2030 Brookhaven - 145.210
Monday 2100 Suffolk County RACES - 145.330

Huntington ARES/RACES

<http://www.huntingtonnyaresraces.org>

The Larkfield Amateur Radio Club

Affiliated with American Radio Relay League

Officers (one year terms)

President

Vice President Neil Harris KC2TAF (2019)

Secretary:

Treasurer: Rich Florio W2TMA (2019)

General Directors (two year terms)

Donald Clarke AB2BN (2019-2020)

Art Van Nostrand KD2NJM(2019-2020)

Matt Lazarus N2RBP(2019-2020)

Peter Deluca AA2VG(2019)

Roger Rapp W2GLE (2019)

WA2PNU Station Trustee Jonathan Schwartz KC2PBE

WR2ABA Station Trustee Jonathan Schwartz KC2PBE

W2LRC Station Trustee Jonathan Schwartz KC2PBE

Members of the Larkfield Amateur Radio Club are invited to use the

W2RGM Dix Hills Repeater System:

2 meters

147.075 MHz out/147.675 MHz in

4z/136.5 Hz PL

The Larkfield Amateur Radio Club wishes to thank Bruno KC2ESI, Jack K2JX, Joe N2QPD, Bob AC2AZ, Thomas KC2PSC, and Pat WB2CMF for their dedication and efforts in maintaining the Club’s repeaters and our packet and APRS stations. Their collective efforts and donations of equipment along with the overview of Bob AC2AZ and Peter AA2VG have kept us “on the air”. Still to go, another 440 MHz repeater and adding IRLP or Echolink to one of our repeaters. We need volunteers for this new work.

General Meetings 7:30 PM

June 13, 2019 July 11, 2019

August 8, 2019

Board Meetings 7:00 PM

June 13, 2019 July 11, 2019

August 8, 2019

GOOD AND WELFARE

Attention members: Our Good and Welfare Chairperson is Helene Lazarus (XYL of Arnie N2PLS (SK)). Please inform her (499-2837) of news about club members so she may make submissions to this publication.

70 centimeters
448.500 MHz out/ 443.500 in
2a/114.8 Hz PL

THE LARKFIELD AMATEUR RADIO CLUB OPERATES:

WR2ABA HUNTINGTON REPEATER

2 meters

147.210 MHz out/147.810 MHz in

4z/136.5 Hz PL

W2LRC HAUPPAUGE REPEATER

2 meters

145.430 MHz out/144.830 MHz in

4z/136.5 Hz PL

W2LRC HUNTINGTON APRS

2 meters

144.390 MHz In/Out

USA EASTNET FLEXNET NETWORK

2 meters

WA2PNU (0-15) Nodes 145.070 MHz

WA2PNU (-4) Node 145.070 MHz (BBS)

<p align="center"><u>2019 DUES SCHEDULE</u> Regular Membership: \$35.00 Members Age 65 or older: \$25.00 Members Age 17 or less: \$25.00 Disabled Members: \$25.00 Living Outside Club's Operating Sphere: \$15.00</p> <p><u>Add \$10.00 if you want QSX via U.S. Mail</u></p>	<p align="center">Pay by PayPal at larkfield.org</p> <p align="center">Make your check payable to: LARC</p> <p align="center">And Mail to: Larkfield Amateur Radio Club Inc. PO Box 1450 Huntington, NY 11743</p>
<p align="center">VE SESSION SATURDAY June 8th HUNTINGTON TOWN HALL 100 MAIN ST., ROOM 114 WALK-Ins WELCOME</p> <p>Team Liaison is Rich W2TMA. Fee is \$15. All elements will be offered and exams start at 9:00AM. You must have 2 forms of ID, one of which includes a photo. If upgrading, bring an original and a copy of your license and an original of any CSCEs.</p>	<p>The next Executive Board and General meetings will be on Thursday, June 13th at 7PM and 7:30PM, respectively.</p> <p>You can submit articles or photos for publication by e-mail at: larkfieldqsx@gmail.com</p>

Larkfield Amateur Radio Club, Inc.
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Huntington, NY 11743