

# Pleasant Oaks Gem & Mineral Club of Dallas, TX

## Chips and Chatter

September 2021

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Affiliated: American Federation of Mineralogical Societies



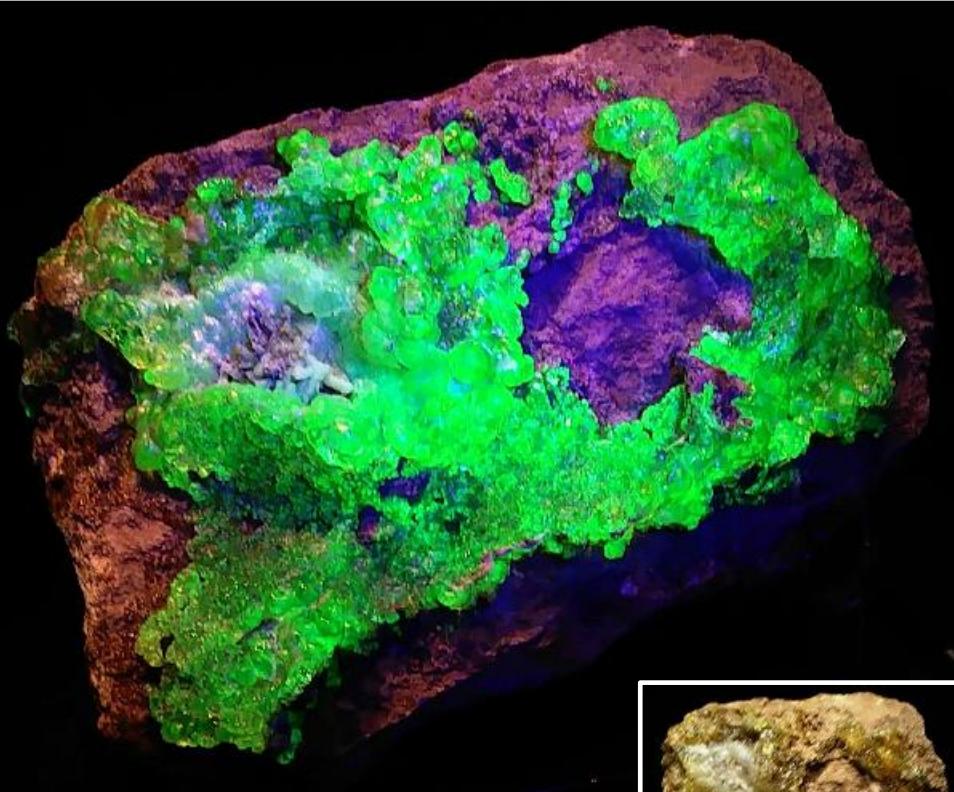
1<sup>st</sup> Place, 2019 SCFMS Mini-Bulletin  
1<sup>st</sup> Place, 2020 SCFMS Mini-Bulletin  
1<sup>st</sup> Place, 2017 AFMS Mini-Bulletin

## Rock and Mineral Fluorescence

Don Shurtz, Pleasant Oaks Gem and Mineral Club of Dallas

What is fluorescence, and why does it occur? According to Dictionary.com, fluorescence is “the emission of radiation, especially of visible light, by a substance during exposure to external radiation”. In simple terms that are useful to rockhounds, fluorescence is a rock glowing when exposed to an ultraviolet (UV) light source. Rocks are not the only things that fluoresce – certain plants, insects and spiders, chemical dyes, and many other things fluoresce. Some of the most common and colorful fluorescent objects (using a UV light source) are sneakers, sports shoes, and sandals. UV light comes in a variety of ‘flavors’. The full spectrum of the UV light wavelength range from 400 to 10 nanometers (nm). Typical UV light sources for viewing fluorescent rocks are in the long-wavelength band (400 to 300 nm) and the short-wavelength band (280 to 100 nm). UV light can be dangerous. Shine it on your skin and it can cause burns. Shine it in your eyes and it can damage your vision. The higher the frequency (shorter wavelength) of the UV light, the more energy it has. The danger to the skin and eyes with a short wavelength band light source is significantly higher than with a long-wavelength light source. The use of sunscreen can help protect the skin from burning if exposed to long and mid-wave UV light. There are also protective goggles that protect the eye from UV exposure, but these goggles are primarily intended for those doing welding.

The general definition of fluorescence indicates it is caused by external radiation. This external radiation can range from visible light to x-rays. One of the principles of fluorescence is the emitted light is always at a lower frequency than the external radiation. If you are using a visible light source for your radiation source, then the fluorescence may be at a frequency below the limits of your vision. It is also



possible that other ambient light may be masking the fluorescence. X-ray radiation as a source to cause fluorescence is not generally available to the rockhound. X-ray radiations are dangerous (more so than UV radiation) and expensive. Leave any x-ray radiation for fluorescence to the hospitals and science laboratories.

We know how to cause fluorescence, but what is going on that will cause a rock illuminated with a UV source to seemingly glow with neon-like colors? It should be an easy answer, but it involves quantum physics, and any answer that involves quantum physics is never easy. For this discussion, we will assume we are using a UV light for the radiation source. When the UV source illuminates the rock, some of the energy may be absorbed by atoms in the rock. The addition of the energy from the UV light has to go somewhere, so it excites some of the electrons to a higher energy state. If you think of the atom as a planetary type object rather than a cloud type object, you are knocking the electrons to a higher ring (orbit). In its excited energy state, electron vibration will cause the electron to lose a little energy. At some point, it will reach an energy level that will allow the electron to fall back to its ground state by giving off a photon. This is where quantum mechanics comes in. A photon can only have a specific amount of (quanta) energy. This means that it will have a very specific frequency. Should that frequency be in the visible light band, then we will see it at a specific, pure color. The knocking of the electrons to a higher energy state can be thought of as a series of random events explained by classical physics. However, the falling back of the electron to its ground state results in all the photons having the same energy, thus the same frequency, thus the same pure color. Because this is a very pure and bright color (single frequency), we perceive it as a neon color, frequently called a fluorescent color. So with a bit of classical and quantum physics, we can see how the rock, or spots on the rock, will glow at a pure color.

On the previous page are two pictures of an opal specimen, variety Hyalite opal, also known as Opal-AN or Electric Opal™ from Zacatecas, Mexico. In the smaller picture, the specimen is being illuminated by bright LED lights. In the larger picture, the specimen is being illuminated with the LED lights and a UV flashlight. As can be seen (assuming you are not looking at a black and white printed version of the Chips and Chatter), the opal is fluorescing a bright green. This specimen comes from a uranium-rich environment. The fluorescence is attributed to trace amounts of uranium oxide in the opal structure. Electric Opal™ fluoresces so strongly that it can be seen in daylight. The UV in natural sunlight acts as the radiation source and the fluorescent color is not washed out by the sunlight.

If you have got this far in the article, you will note, except for the paragraph above, that I have not mentioned which rocks and minerals fluoresce. The good news is that on the next page there is a word-find puzzle that identifies rocks and minerals that do fluoresce.

## References:

- Fluorescence, Dictionary.com, <https://www.dictionary.com/browse/fluorescence>
- Fluorescence, Wikipedia, <https://en.wikipedia.org/wiki/Fluorescence>
- Megaw, Peter & Fritsch, Emmanuel & Spano, Tyler & Gray, Michael. (2018). Geology and Mineralogy of Electric Opal TM: Green Daylight-Luminescing Hyalite Opal from Zacatecas, Mexico. *Rocks & Minerals*. 93. 404-413. 10.1080/00357529.2018.1477007.

Pictures: Pictures by Don Shurtz of specimen displayed at the Perot Museum of Nature and Science

## VISIT AN AREA CLUB

[Arlington Gem & Mineral Club](#), meets the 1st Tuesday of each month at 7:30 pm, 1408 Gibbins, Arlington, TX

[Cowtown Gem, Mineral, & Glass Club](#), meets the 2<sup>nd</sup> Tuesday at 7:00 pm, CERA 3300 Bryant Irvin Rd. Fort Worth

[Dallas Bead Society](#), meets 1<sup>st</sup> Saturday of each month at 10:00 am at The Point at CC Young, 4847 W. Lawther Dr., Dallas, TX

[Dallas Gem & Mineral Society](#) meets the 3<sup>rd</sup> Tuesday of each month at 7 pm, American Legion, 10205 Plano Rd, Dallas (next to their shop)

[Dallas Paleontological Society](#), meets 2<sup>nd</sup> Wed. of each month at 7:00 pm, Brookhaven College, Building H, 3939 Valley View Lane, 75244

[Fort Worth Gem & Mineral Club](#), meets 4<sup>th</sup> Tuesday of each month at 7:30 pm, 3545 Bryan Avenue, Ft. Worth

[Oak Cliff Gem & Min Soc.](#), meets the 4<sup>th</sup> Tuesday of each month at 7:30 pm, Unitarian Universalist Church, 3839 W. Keist Blvd, Dallas,

[Pleasant Oaks Gem & Mineral Club](#), meets the 1<sup>st</sup> Thur. of each month at 7:30 pm, Garland Women's Activities Bldg., 713 Austin, Garland

[Wild West Bead Society](#), meets 3<sup>rd</sup> Tuesday of each month at 6:30, Wild Beads, 2833 Galleria Dr., Arlington, TX

## Word Find - Fluorescent Minerals and Rocks

From an Addendum to the August Mid Georgia Gem Clips

With thanks to the Editor, Tina Perkins

There are over 500 fluorescent minerals. Find the minerals below that may fluoresce under ultraviolet light.

A E F E L O F J W Q E T I L O D I P E L B K B T V L T O Q T  
J P E T I T A P A I L Z H O C T E T I T T U B R A T S Q C T  
M Y P I C H E Q W B P G N Z X I A J L W B L E F P L G K L S  
Z R D N E H T H N M I M E T I T E F A A G U E T Z M W S E P  
D I N O G K I M I N E H I L L I T E G B P T B U Q Z L P T D  
F T D S A M L O T B L E T I R E S I M H I B L N B U F D I T  
V E R A H E O I J G S C H E E L I T E P A J A X H E O V N J  
Q T Q N A T T Z A E L C C Q E T I D O R D N O R H C J K O O  
B I E L Z I C H A L C E D O N Y C G N I G S I E M P R F S Q  
N R T A K M E K G Z T R A U Q S O V B U V M T T R U L G H K  
T E I Z E M P M K D J U S V E L T R M S E I A E E U Y N T D  
U H L U T U E A S K E S E C H T T P O U N Q H R O D T V I Y  
J T L R I G T D R B T S T P G M A P V A D N K R M A Q O M V  
K I E I C O I A J E I I I X U A X G S R I N I R K A P F S X  
O W R T L B R M L X H T N Z W R L O A T J T U G X S T U C I  
T Q G E A M E I Q E P E O C I I R H E Z E C U R I X A I E Y  
T I A S C U L T Q N R Y G K P A G R V K F F X D O X Z C T G  
L V H O F L A E M U O H A G G L A G Z P T K E P S C K U I E  
W K E T P P H A O U M P R R B I L U R E T I M E L L I W T X  
R T U G T U P I T E I I A G M T B L E T I N O T S A L L O W  
I V S L W L S W P V M M O G Y E I R U R A N I N I T E D N L  
C E T I R A B K P S E E X V A A T K N T E G T J I Q B Y O Y  
Z A P O T P Z Y T K H C N C V T E M L W U N J F B Y L A X S  
A Q D D D O D E T I L A D O S Y S T E T I C N I Z O R D Y H

### Word List

ADAMITE  
AGRELLITE  
ARAGONITE  
CERUSSITE  
CORUNDUM  
HEMIMORPHITE  
LEPIDOLITE  
MARMATITE  
MISERITE  
PECTOLITE  
PREHNITE  
SCHEELITE  
SPHALERITE  
TUGTUPITE  
WITHERITE

AFGHANITE  
ALBITE  
BARITE  
CHALCEDONY  
DIOPSIDE  
HYDROZINCITE  
MARGAROSANITE  
MIMETITE  
NASONITE  
PHLOGOPITE  
PYRITE  
SMITHSONITE  
TARBUTTITE  
URANINITE  
WOLLASTONITE

AGATE  
APATITE  
CALCITE  
CHRONDRODITE  
FLUORITE  
LAZURITE  
MARIALITE  
MINEHILLITE  
OPAL  
PLUMBOGUMMITE  
QUARTZ  
SODALITE  
TOPAZ  
WILLEMITE  
XONOTITE

## Bench Tips from Brad Smith

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## FANCY RIVET HEADS

For a nice-looking rivet head, use brass escutcheon pins. You'll have perfectly rounded heads that are all the same size and shape. The pins are a little hard to find, so try the best hardware stores first. Be sure to get solid brass pins, not brass plated steel. If unsure, test them with a magnet.

The pins are readily available online. Lee Valley Tools has them in 16 or 18 gauge and lengths from 1/4 inch to 1 inch. Go to <http://www.LeeValley.com> and do an item search on "escutcheon pin".



For best results, select a drill that gives you a hole with a close fit to the rivet. Trim the rivet to leave a little less

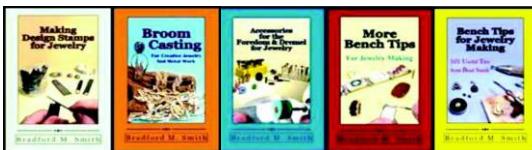
than one diameter sticking out the back side. Place the head on a scrap of hard plastic on the anvil so as to not flatten the head. I prefer a ball peen hammer (with a small 3/8 inch ball) for setting the rivet.

## EASIER PRONG SETTING

When setting stones in a prong mount, the tool is less likely to slip off the prong if you grind a shallow groove into its face or rough up the face a bit with sandpaper. Some folks prefer a prong pusher for doing this, and others like a set of pliers with a slight groove on one jaw.

The easiest way to create a slot on the pusher is with a file, and the quickest way to create a slot on one jaw of your pliers is with a separating disc. Then do a rough polish on the slot with a medium grit, knife-edge silicone wheel.

**Work Smarter & Be More Productive  
With Brad's "How-To" Jewelry Books**



## Editor's Corner – Generosity





At our August meeting, we were the recipients of generosity – TWICE! In both cases the donors were anonymous. When we unlocked the door, we found several small boxes of rocks and minerals. Included were small amethyst and citrine plates, mineral specimens, rough rocks, and finished stones. These are suitable for the evening raffle, an auction, or, should we ever hold another show, a silent auction. We have no idea who the donor was, but we would love to thank them. Then as the meeting was wrapping up, a club member made a very generous donation to the club. The donor said that he/she wanted to help us find and maintain a meeting place and that the donation was a contribution to that end. I will honor the wish for the donor to remain anonymous but would like to thank her/him for the gift.

## **Show and Activities – Upcoming Show and Activity Dates**

**Please note that many shows are being canceled in response to health concerns associated with COVID-19**  
**Check with the show contact to verify the show status**

- Sep 11-12, Siloam Springs AR, NW Arkansas G&MS, Siloam Springs Community Building, delanec3@earthlink.net
  - Sep 25-26, Lubbock, TX, Lubbock G&MS, Lubbock Memorial Civic Center, [www.lubbockgemandmineral.org](http://www.lubbockgemandmineral.org) and is hosting the SCFMS CONVENTION, Registration for convention Editor/Webmaster Breakfast and/or Awards Banquet (includes 2-day show entry at: [https://www.lubbockgemandmineral.org/content.aspx?page\\_id=4002&club\\_id=360346&item\\_id=1455874](https://www.lubbockgemandmineral.org/content.aspx?page_id=4002&club_id=360346&item_id=1455874)
  - Oct 2 – 3, Jacksonville, AR, Central Arkansas G&MS, Jacksonville Community Center, [www.ncgms.org](http://www.ncgms.org)
  - Oct 8 – 10, Westwego, LA, G&MS of Louisiana, Arario Center, [show@gmsofla.org](mailto:show@gmsofla.org), <https://www.gmsofla.org>
  - Oct 9 – 10, Temple, TX, Tri-City GMS, Frank Mayborn Civic and Convention Center, [lrolston@got.rr.com](mailto:lrolston@got.rr.com)
  - Oct 22-24, Austin, TX, Austin G&MS, Palmer EventsCenter, [showchairman@austingemandmineral.org](mailto:showchairman@austingemandmineral.org), [www.agms-tx.org](http://www.agms-tx.org)
  - Oct 30-31, Oklahoma City, OK, Oklahoma M&GS, Hendricks County Fairground (NEW LOCATION), omgs-minerals.org

Ref:

- July-August 2021 SCFMS Newsletter
  - Rock & Gem Show Dates, <https://www.rockngem.com>ShowDatesFiles>ShowDatesDisplayAll.php?ShowState=ALL>

## PRESIDENT'S MESSAGE

Ling Shurtz, POGMC President

September is the SCFMS Show in Lubbock, TX. SCFMS prefers that the club presidents be the club delegate, so I will be going. Don will also be going to cover his SCFMS obligations (SCFMS Website Contest Chair, Webmaster, and Scholarship Fund Chair). Don't forget the IGEM Show October 8 – 10 with setup on October 6.

## CLUB OFFICERS FOR 2021

President: Ling Shurtz  
1st VP, Programs: Carolyn Grady  
2<sup>nd</sup> VP, Field Trips: Open  
Secretary: Cheryl Ogletree  
Treasurer and Editor Don Shurtz  
E-mail: don.shurtz@gmail.com,  
L.SHURTZ@gmail.com

## MEETING MINUTES

August 5, 2021

POGMC President Ling Shurtz called the meeting **to order** at 7:42 pm.

### We recited the Pledge of Allegiance to the Flag

**Quorum:** We have a quorum.

**Sunshine Report:** Nothing to report

**Visitors** We had four visitors, Kathy Cott, Billie Heath, and sisters Ana and Juliana Flores.

**Minutes:** There were no minutes for the July BBQ potluck dinner. We reviewed the minutes of the June meetings as printed in the July 2021 Chips and Chatter. Carolyn made a motion to accept the minutes. Hatt seconded the motion. The motion passed.

**Treasurer's Report:** Don read the Treasurer's Report for July-August. Carolyn made a motion to accept the minutes. Lea seconded the motion. The motion passed.

### Old Business:

- The July IGEM show was a success.
- David Dobson Rock Sale the weekend of August 13 – 15. The sale will be open 9 AM to 5 PM each day. The location is 1409 Oak Hill Ln, Murphy, TX 75094

### New Business:

- The Dallas IGEM show is scheduled for October 8 - 10. Set up will be Wednesday, October 6

### Area shows and events

- Aug 14-15, Gonzales, LA, Baton Rouge G&MS; Larmar Dixon Expo Center – Trademart Bldg., [www.brgemandmineral.org](http://www.brgemandmineral.org)
- Aug 21-22, Bossier City, LA, ARKLATEX G&MS, Bossier Civic Center, [dglasner2001@yahoo.com](mailto:dglasner2001@yahoo.com)
- Sep 25-26, Lubbock, TX, Lubbock G&MS, Lubbock Memorial Civic Center, [www.lubbockgemandmineral.org](http://www.lubbockgemandmineral.org) -hosting the SCFMS CONVENTION
- Kathy Cott and Billie Heath applied for membership. Don made a motion to accept them as members. Hatt seconded the motion. The vote was unanimous to accept them as new members.

### Break:

**Presentation:** We had hands-on projects for the meeting, beginning cabochon making and mineral identification.

Ling adjourned the meeting at 9:00 pm.

## PRESENTATION REVIEW

Don Shurtz, Pleasant Oaks Gem and Mineral Club of Dallas

The cabochon cutting went a little slower than hoped. With only one flat-lap machine, there just was not enough grinding time for everyone. However, everyone did complete their shaping and rough doming. We hope to have two or three machines at the next meeting so that we can finish the projects. Mineral identification attracted a large crowd – looking through the minerals donated by Bob and Jerrye Parker.

## SEPTEMBER MEETING

**SEPTEMBER 2 starting at 7:30 PM**

We will be finishing the hands-on activities leftover from August. If you were making a cabochon, bring it with you to the meeting. More minerals will be available for identification.

## VISITORS ARE ALWAYS WELCOME

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## PLEASANT OAKS GEM and MINERAL CLUB of Dallas

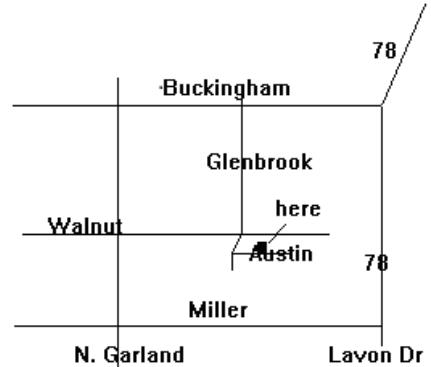


### Meetings

First Thursday of each month, 7:30 PM  
Garland Women's Activities Building  
713 Austin St., Garland, TX  
(Northeast corner of Austin & Glenbrook)

### Membership

Single Adult: \$16.50,  
Junior: \$5.00, Family: \$27.50  
(Plus badge fee for new members)



**PURPOSE:** The Pleasant Oaks Gem and Mineral Club of Dallas is organized for charitable and educational purposes to promote interest in the various earth sciences, particularly those hobbies dealing with the art of cutting and polishing gemstones, the science of gems, minerals and metal crafts, as well as their related fields. Pleasant Oaks Gem and Mineral Club of Dallas is a Section 501(c)(3) not-for-profit organization

### CHIPS AND CHATTER

Pleasant Oaks Gem & Mineral Club  
PO Box 831934  
Richardson, TX 75083-1934

To

### VISITORS ARE ALWAYS WELCOME

Our next meeting will be Thursday, August 5 starting at 7:30 PM  
Hands-On Projects: Intro to cabbing, Intro to Mineral Identification

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