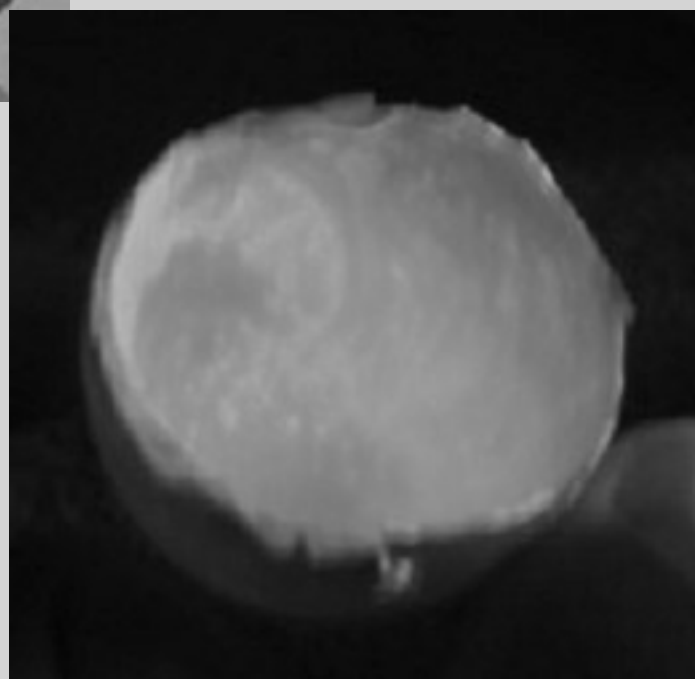
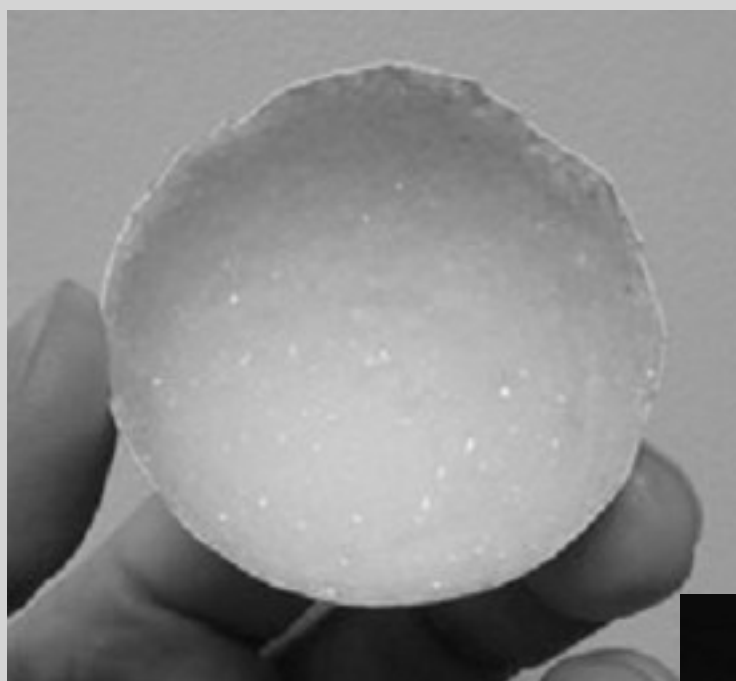




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# THE MINNESOTA CHEMIST

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VOLUME LX

May 2008

NO. 8

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Cover Photo: *Do-it-yourself geodes! Check out the instructions provided on page 6 to make your own! Fun for kids AND adults....Reprinted with permission from Dr. Kathleen A. Carrado, Chicago Local Section. An archive of all previously published ChemShorts is available online at <http://membership.acs.org/C/Chicago/home.html>.*

At the time that this issue of The Minnesota Chemist is going to press, we are still deciding the fate of this humble publication. If you have not yet done so, please submit your opinions online at [www.macs.org](http://www.macs.org). An email to our chair will also suffice (see page 3 for that address).

Which reminds me.....spring is bound to be around the corner here. There is still snow melting after these ridiculous late-season snows, yet the fast-pitch softball team is at the local rec center playing their first game of the season. Spring brings change, renewal, a time for something new...and a time to take a deep breath and clear the cobwebs. If you are the organizational type, perhaps you will turn your energies to your home and/or your office, where you will purge old papers, back up essential files, or pass on items to those who will find greater use for them. Perhaps you are more the spiritual cleaner, one who cleans in theory but not in reality. Opening the windows after a long winter will give you the long needed breath of fresh air that will clear mental cobwebs and reinvigorate! Perhaps you struggle with both of these. If this is you, dig deep and try to spring clean just one area in your life. Will it be updating your lab notebook, finally?? Will it be walking around the block and breathing deeply? Will it involve a shredder? Find your spring, real OR theoretical!!

—ntm

## Change of Address

The mailing list for the Minnesota Chemist comes directly from the National ACS. It is the same list used to mail C&E News. If you have a change of address, please contact:

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ACS, P.O. Box 3337, Columbus, OH 43210;  
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[service@acs.org](mailto:service@acs.org).

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## ACS Minnesota Section Upcoming Events Calendar

May 20th, 2008

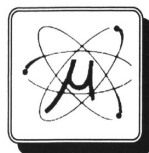
May monthly meeting:

Dr. Jerry Mohrig, Professor, Chemistry, Carleton College: Achieving More Effective Learning In Undergraduate Laboratories

### Senior Chemists Meeting

Come join our ACS Senior Chemists Group on Tuesday, May 19th at 12:30 p.m. in the Dining Room at Concordia College in St Paul Midway. Concordia College is on the southeast corner of I-94 and Hamline Avenue. Parking is usually available on Concordia Avenue, just north of the student cafeteria or in the adjacent north parking lot.

For information, call  
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Views expressed on this page are those of the author and not necessarily those of the Minnesota Section of the ACS.

## ACS Awards at the Minnesota State Science Fair



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ANALYSIS FOR THE CHEMICAL ELEMENTS

The Minnesota ACS Section made the following awards at the Minnesota State Science Fair, sponsored by the Minnesota Academy of Science. The event was held at the Crowne Plaza Hotel in St. Paul March 30-April 1. The judging team consisted of Brooke Carlson, Timothy Kessler, Robert Kinney, and Wayne Wolsey. The top awardees in the Junior High and Senior High category received a Visual Elements Periodic Chart produced by the Royal Society of Chemistry with accompanying CD-ROM. All awardees will receive a one year subscription to the ACS publication for high school students, ChemMatters.

### Junior High:

#### Top Award

Lexie King, Ordean Middle School, Duluth, Characterization of Titanium Dioxide: A nanoparticle Material

#### Honorable Mention:

Emily Jones, Franklin Middle School, Thief River Falls,, Extract Attack

Noah Yurek, Jackson Middle School, Champlin, CO<sub>2</sub>, Nice for Ice

### Senior High

#### Top Award

Michael Lust, Century High School, Rochester, Is a Catalase a Catalase: Comparison of Bovine and Potato Catalase Enzymes

#### Honorable Mention:

Erma Martin, Burnsville High School, Water Quality and Fertilizer Use: Is There a correlation?

Ami Yamamoto, Hopkins North Junior High, Investigating Supercooling

—Submitted by Janet Tarino

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## Glow-in-the-Dark Geode

ChemShorts for Kids — 2008

Copyright '2008 by the Chicago Section of the American Chemical Society

by Dr. Kathleen A. Carrado, Argonne National Labs

[kcarrado@anl.gov](mailto:kcarrado@anl.gov)

[ChemShorts Home](#)

The Elementary Education Committee of the ACS Chicago Section presents this column. They hope that it will reach young children and help increase their science literacy. Please share with children and local teachers.

Please note: All chemicals and experiments can entail an element of risk, and no experiments should be performed without proper adult supervision.

### Glow-in-the-Dark Geode

Kids, how can you make a geode glow in the dark? It's very easy in this experiment. The 'rock' is a natural mineral (in this case an eggshell). You can use one of several common household chemicals to grow the crystals. And the glow comes from paint that you can get from a craft store.

### To Prepare the "Rock":

1. There are two ways to crack eggs. Carefully crack the top of the egg by tapping it on a countertop to make a deep geode with a smaller opening. Alternatively, crack the equator of the egg or have an adult partner carefully cut it with a knife. This will make a geode you can open and put back together.
2. Discard the egg (or save for scrambled eggs).
3. Rinse out the inside of the eggshell with water. Peel away the interior membrane to leave only the shell.
4. Allow the egg to air dry or carefully blot it dry with a paper towel or napkin.
5. Use a paintbrush or swab to coat the inside of the eggshell with glow-in-the-dark paint (such as GlowAway washable glowing paint).
6. Set the painted egg aside while making the crystal-growing solution.

### To Make the Crystal Solution:

1. Have an adult partner pour hot water (such as from a coffeemaker) into a cup.
2. Stir borax or another crystal salt (alum, epsom salts, sugar, or table salt) into the water until it stops dissolving and you see some solid at the bottom of the cup.
3. Add food coloring, if desired. Food coloring does not get incorporated into all crystals (e.g., borax crystals will be clear), but it will stain the eggshell behind the crystals, giving the geode some color. Neon green coloring looks great.

### To Grow the Crystals:

1. Support the shell so that it won't tip over (for example, a nest can be made with a crumpled napkin set inside a cereal bowl).
2. Pour the crystal solution into the shell so that it is as full as possible. Don't pour the undissolved solid into the eggshell, just the saturated liquid.
3. Set the shell somewhere where it won't get knocked over. Allow crystals to grow for several hours (overnight is better) or as long as you like.
4. When you are satisfied with the crystal growth, pour out the solution and allow the geode to dry.
5. Phosphorescent paint is activated by exposing it to bright light; black light (ultraviolet) also produces a very bright glow. The duration of the glow depends on the paint (seconds to minutes).

Note: Take appropriate safety cautions when handling the crystal solutions.

### Reference:

Dr. Anne Marie Helmenstine at

<http://chemistry.about.com/b/2007/12/09/glow-in-the-dark-geode.htm>

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776th Meeting of the American Chemical Society Minnesota Section  
Tuesday, May 20th, 2008  
Carleton College, Northfield, MN

Achieving More Effective Learning In  
Undergraduate Laboratories

Dr. Jerry Mohrig  
Carleton College, Northfield, MN



**Abstract:** Many organic chemistry laboratory teachers realize that traditional cookbook verification labs do not produce much effective student learning. Most experiments give the results to be expected and never provide students with opportunities to critically evaluate their experimental data. Yet extracting knowledge from experimental results is at the heart of science. The challenge is to teach this skill within the practical constraints of the teaching lab. This talk will examine how we can invigorate our laboratories by using guided-inquiry experiments, where students have the opportunity to answer real questions by interpreting their experimental results, and in so doing participate in the process of science.

**Biography:** Jerry Mohrig is Stark Professor in the Natural Sciences Emeritus at Carleton College, where he taught from 1967 to 2003. He holds a B.S. from the University of Michigan, and a Ph.D. from the University of Colorado. Actively involved in science education reform for many years, Jerry was a founding member of the Council on Undergraduate Research (CUR) and served as its president from 1983-1987. From 1997 until 2000 he was Chair of the Committee on Professional Training of the American Chemical Society. Jerry has served on advisory boards at the ACS, NSF, HHMI, MIT, NRC, and the Dreyfus Foundation. Over the years he collaborated on chemical research with over 140 Carleton students, focusing first on alkanediazonium ions and then on the stereochemical nature of addition-elimination and proton-transfer reactions. He has published over 25 articles on chemical education and on research done with undergraduate colleagues. Jerry's first lab textbook was published in 1968; the latest version, *Techniques in Organic Chemistry*, was published in 2006. He continues to work on improving the undergraduate organic chemistry lab by introducing guided-inquiry experiments and projects. Jerry has been honored with the CUR Fellow Award (2004), the Briscoe Lectureship at Indiana University (1996), the James Flack Norris Award (1989) and the CMA Catalyst Award (1978), all for excellence in the teaching of chemistry.

**Meeting Schedule:**

Social: 6:15 pm - 6:30 pm

Dinner: 6:30 pm - 7:30 pm in Severance Great Hall (located in Severance Hall).

Presentation: 7:45 pm - 8:45 pm in Olin Hall of Science room 141.

**Dinner/cost:** Dinner will consist of a pasta buffet, with a choice of various sauces including a vegetarian option. Cost of dinner is \$15, payable at the door (cash or check made payable to Carleton College). Reservations: Send to Richard Walsh at [mnacs.chair@gmail.com](mailto:mnacs.chair@gmail.com) or by a detailed message at 651-795-6615 by COB Monday, May 12th.

**Directions to Carleton and Parking:**

**Directions from I-35 via Highway 19 to Northfield and Carleton Campus:** Take I-35W to Highway 19 East (Exit 69, Northfield exit).

Drive east on Highway 19 for 7 miles to Northfield. At the first stop light (where Highway 19 meets Highway 3), turn left and drive north for 3 blocks to 2nd Street. Turn right and drive east on 2nd Street, continuing up the hill. Turn left at College Street, which takes you directly into the campus. **Directions from US-Route 52 via Highway 19 to Northfield and Carleton Campus:** Take US-52 to Highway 19 West (in Cannon Falls). Drive west on Highway 19 to Northfield (ca. 15 miles). In Northfield at the intersection with 2nd Street (also called Carleton Avenue)

turn left and drive east on 2nd Street, continuing up the hill. Turn left at College Street, which takes you directly into the campus.

Limited parking is available in lots (as indicated on the campus map) on College St., near our dinner location in Severance Hall, or in lots off of First Street closer to the presentation location in Olin Hall. Parking is also allowed on residential streets near campus.

light, making sure to stay to the right - left lane gets back onto 280!) to Territorial Rd and turn left onto Territorial Rd. Proceed on Territorial to Westgate Dr. and turn right. UEL is the second building on the right (east) side of Westgate. Park in the south parking lot and enter at the south door.

From the East: I94 to Hwy 280/University Ave exit. Stay to the right and exit onto Crowell Ave. Proceed north on Crowell Ave (the frontage road), across Franklin (1st light), across University (2nd light, making sure to stay to the right - left lane gets back onto 280!) to Territorial Rd and turn left onto Territorial Rd. Proceed on Territorial to Westgate Dr. and turn right. UEL is the second building on the right (east) side of Westgate. Park in the south parking lot and enter at the south door.

776th Meeting of the American Chemical Society, Minnesota Section  
Tuesday, May 20th, 2008  
Carleton College, Northfield, MN

Reservations due May 12, 2008  
See page 7 for details

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