



DIVISION NEWSLETTER

INSIDE THIS ISSUE:

LETTER FROM THE CHAIR 2

HISTORY OF THE DIVISION 3

**JADE: A MODERN 35TH
ANNIVERSARY GIFT** 3

CALL FOR SESSIONS 4

OFFICER NOMINATIONS 5

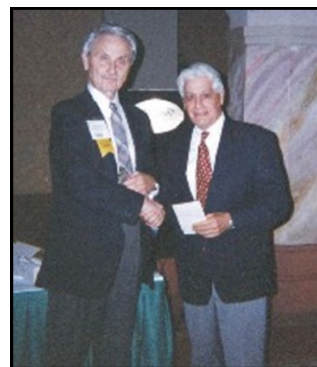
2015 ACS FELLOWS 5

**CALL FOR NOMINATIONS:
GEOCHEMISTRY MEDAL** 6

2015 GEOCHEMISTRY MEDAL 7

STUDENT TRAVEL AWARDS 7

NEW OFFICER BIOS 8



Dr. Frank Millero receiving the inaugural Geochemistry Medal.



Division members and the 2015 Geochemistry Medal winner, Dr. Donald Sparks.

GET INVOLVED!

- **Three officer positions up for nomination**
- **Need sessions organizers for Spring 2017 meeting**
- **Looking for a newsletter editor**

Dr. George Luther, the 2013 Geochemistry Medal winner.



MESSAGE FROM THE CHAIR

Dear Division Members:

It is my great pleasure and honor to serve the Division of Geochemistry (GEOC) as the 2016 Division Chair, and I am very happy to be a part of the GEOC community.

During our recent Spring ACS meeting in San Diego, the GEOC programs were well organized and well attended. Thank you to all the organizers and participants who made this meeting so successful! The Programs included 9 symposia and 206 abstracts. We had extremely high quality abstract submissions and excellent geochemistry community participation. To facilitate the discussion on surface complexation modeling, our Division also sponsored a special workshop entitled “Standard Methods, Materials, and Databases for Surface Complexation Measurements.” For the Spring meeting, the Division’s Executive Committee worked with the symposium organizers and GEOC members to select five GEOC Student Travel Awardees, and among these five students, Mr. Yujia Min was chosen to receive the GEOC Best Student Paper Award, based on his presentation. In addition, we supported additional student participants for the travel to San Diego to attend the GEOC programs.



During the reception at the Spring ACS meeting, we also celebrated the 35th anniversary of the Geochemistry Division. Thank you to all previous Division Chairs and Officers for their invaluable leadership and assistance and to all previous GEOC members for your active participation and research results shared with the GEOC community. I would love to celebrate our 40th, 50th, and 60th anniversaries together with you and share more delicious cake.

In 2015, we honored Dr. Donald Sparks with the 2015 Geochemistry Medal, and two elected new ACS Fellows: Dr. R. Lee Penn and Dr. George Luther. Congratulations to Dr. Sparks, Dr. Penn, and Dr. Luther! You are wonderful exemplars for younger geochemists and peers.

In 2015, we also elected a new Councilor, Dr. Jim Kubicki, and new Program Chair-Elect, Dr. Bill Burgos. Welcome aboard. In 2016, we plan to have elections for the new Program Chair-Elect, Treasurer, and Alternate Councilor. If you are interested in these positions or know other people who might be good candidates, please let us know.

For the upcoming the Fall ACS meeting in Philadelphia in August 2016, led by Dr. Anastasia Ilgen as Program Chair, the theme is “Chemistry of the People, by the People, for the People.” We hope to see you all in Philadelphia.

Finally, please do not forget to renew your 2016 membership in the Geochemistry Division. In the future, if you would like to share any news in the newsletter with the Geochemistry Division members, please send the information to Jacky Bracco (jbracco@anl.gov).

Thank you all for your support of the Division.
Young-Shin Jun, Ph.D.

HISTORY OF THE GEOCHEMISTRY DIVISION: 35 GREAT YEARS!

The ACS Geochemistry Division was established as a probationary division in 1978 to address concerns from members that geochemists needed to be represented in the ACS. Yeh Fu (Dave) Yen, Earl Baker, and Douglas Montgomery served as the Division's first officers. The first official programming activities for the Division were at the 1979 Fall ACS meeting in Washington DC and since then the Division has held programmatic activities at ACS National meetings, as well as sponsoring programs at other scientific conferences.

On April 1st 1981, the ACS council granted the Division status as a permanent division of ACS and the Division was incorporated in 1986. In 2000, the Division also launched its fully electronic journal, Geochemical Transactions (<http://geochemicaltransactions.springeropen.com/>). In 2001, with the support of the ACS president Ed Wasserman, the Division established the Geochemistry Division Medal, an award presented every two years to researchers who have made significant contributions to the field of geochemistry. Frank Millero received the inaugural Medal.

The Division itself has also been recognized a number of times, twice in the 1980s and once in 1996 for Outstanding Small Division and in 2002 the Division received a ChemLuminary award for outstanding service to the members of the Division. Bill Landing, the 2002 Chair, is shown at right accepting the award on behalf of the Division. Finally, in recent years, the Division has also had a number of members become ACS Fellows, including David Dixon (2013), R. Lee Penn (2015), George Luther (2015).

Over the past 35 years, the Geochemistry Division has been served by a number of volunteers, including dedicated officers as well as hundreds of volunteer symposium organizers. Our Division is run entirely by volunteers and has no paid staff, so our sincere thanks go out to everyone who has contributed to the Division over the years. Our Division always welcomes new members so please consider encouraging friends and colleagues to join!



JADE: A MODERN 35TH ANNIVERSARY GIFT

By: An anonymous Division member

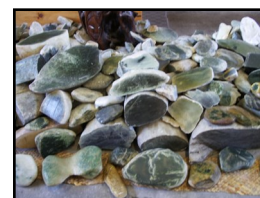
While the traditional gemstone gift for a 35th anniversary is coral, environmental threats to coral reefs have made jade the modern choice. Its mineralogical properties make it a symbol of strength, durability, and beauty.

Commonly green with a greasy luster, "jade" is a metamorphic mineral that can be either nephrite or jadeite. Nephrite is an amphibole, commonly found associated with serpentine, and hornblende gneiss and schist. British Columbia is the largest source of nephrite jade in the world. In bedrock the deposits occur at contacts between mafic rocks and metasedimentary or igneous felsic country rock. Nephrite is also discovered as boulders, cobbles and pebbles, because it is a highly durable mineral that commonly weathers out of bedrock. The green color is imparted by ferrous iron, but it can be found in a variety of colors ranging from a highly-prized white ("mutton-fat") which is iron-free, to an emerald green due to trace chromium, and yellow to brown due to ferric iron staining at grain boundaries.

In contrast, jadeite is a Na-clinopyroxene found associated with high P low-T metamorphic rock, and recent work suggests it forms during plate subduction and collision. The largest and most important commercial deposits are in Myanmar. As with nephrite, trace elements and impurities impart a variety of colors including green, yellow, reddish orange, white, gray, black brown and lavender.

Jade has been prized by humans for nearly 7000 years. Neolithic peoples valued jade for its toughness and used it for tools and weapons. By 3000 BCE jade was regarded as the "royal gem" in China, and esteemed more than gold in Central America. In ancient Egypt Jade was revered as a stone of inner peace, harmony and balance. To sum, in this year of our 35th anniversary, the editors wish your lives and loves to be infused with the spirit of jade.

Nephrite jade boulders harvested from glacial outwash in Hokitika, New Zealand. Public domain image <https://commons.wikimedia.org/wiki/File:RawGreenstone1.jpg>



Alluvial boulder of jadeite from northern Burma, cobble is 6.2 cm across the base. Public domain image https://commons.wikimedia.org/wiki/File:Jadeitite_from_Burma.jpg

CALL FOR SESSIONS

253rd American Chemical Society National Meeting and Exposition
San Francisco, California,
April 2-6, 2017

We always appreciate having volunteers organize symposiums! Please consider organizing a session at a future ACS meeting. To make your task easier, ACS and Geochemistry Division provide logistical and some financial support (up to \$500 for half day sessions and \$1000 for full day sessions).

We would like to invite you to submit symposium proposals to the ACS Geochemistry Division on any topic of current interest to the geochemistry community. Relevant topics include, but are not limited to:

- Global geochemical cycles
- Mineral-water interface structure and reactivity
- Mineral nucleation and growth
- Reactivity of biogenic minerals
- Microbially-driven geochemical reactions
- Geochemistry of CO₂ geologic storage
- Reactivity of nano-particles and nano-pores
- Contaminants transport, uptake, and remediation at contaminated sites

If you are interested in organizing a session, please send the proposed session title and organizers names and contact information to Anastasia Ilgen (agilgen@sandia.gov), by **June 22, 2016**, also please feel free to contact Anastasia if you have any questions.

OFFICER NOMINATIONS

Have you ever considered “throwing your hat into the ring” to support the Geochemistry Division? Or, do you know someone who would make a great candidate? The Division is currently seeking nominations for officer positions in 2017:

Program-Chair Elect – this is a four year position, the candidate will serve as program chair elect the first year and shadow the program chair, the following year the candidate will serve as program chair and organize the symposium at the fall and spring national meetings, the third year the candidate will serve as Division Chair, and finally as Past Division Chair.

Treasurer – This officer handles the budget for the Division. The elected candidate will be provided guidance by our current Treasurer, Lisa Stillings, to make the transition easier on the elected candidate.

Alternate Councilor – This officer serves as alternate at ACS Council meetings in the event that the Councilor is unable to attend. This position is vital to the Division as the Councilor represents the Division positions during Council meetings and in the governing committees of the ACS.

Please contact Frannie Smith (Frances.Smith@pnnl.gov) for more details.

NEWSLETTER EDITOR POSITION

We are currently seeking a volunteer to edit our Division's newsletter! This is a great way to get involved with the Division, particularly for our graduate student and postdoctoral members who may be looking for networking opportunities. Our goal is to publish a newsletter twice a year before the Spring and Fall National Meetings. Please contact Frannie Smith (Frances.Smith@pnnl.gov) or Jacky Bracco (jbracco@anl.gov) for more details. A template is available to make your job easier!



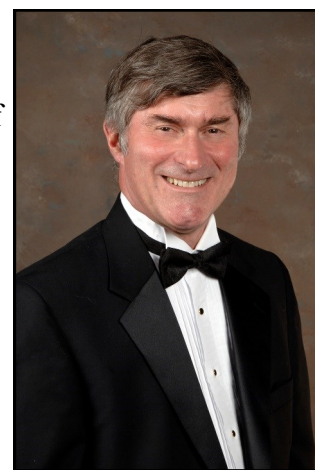
2015 ACS FELLOWS

Congratulations to our 2015 ACS Fellows: R. Lee Penn and George Luther! ACS Fellows are honored not only for their outstanding scientific research, but also their service to the ACS community.



Dr. R. Lee Penn is a professor at the University of Minnesota and studies the chemical reactivity of nanoparticles, the magnetic behavior of iron oxide nanoparticles, and the growth and aggregation of inorganic nanoparticles. She is also involved in designing and implementing curriculum to improve the understanding of the atomic structure of solid materials by middle schoolers. She served as membership chair for the Division of Geochemistry from 2006-2010, Program Chair Elect (2010), Program Chair (2011), Division Chair (2012), Past Division Chair (2013), and Councilor (2013-2016).

Dr. George Luther is the Maxwell P. and Mildred H. Harrington Professor of Marine Studies in the School of Marine Science and Policy at the University of Delaware. He researches metal-sulfide nanoparticle formation, redox and trace element cycling in marine waters and sediments, and helped pioneer the development of in situ cyclic voltammetry. He has been involved in ACS since 1969, serving as Program Chair (1996), Division Chair (1997) and Past Division Chair (1998) for the Geochemistry Division. He also served as Alternate Councilor (2000-2011) and Awards Chair (2004-2011) for the Division. He was also awarded the Geochemistry Division Medal in 2013. In addition to his involvement in the Geochemistry Division, he was also Chair of the North Jersey Section, the largest ACS local section, in 1983, and a Councilor for 3 years.



CALL FOR NOMINATIONS: ACS GEOCHEMISTRY DIVISION MEDAL

The Division of Geochemistry of the American Chemical Society is currently soliciting nominations for the 9th awarding of the Geochemistry Division Medal. The GEOC Medal is awarded biennially to an individual for outstanding accomplishment in any area of Geochemistry.

Previous GEOC Medal winners include: Frank J. Millero (2001), John M. Hayes (2003), Patrick G. Hatcher (2005), Robert C. Aller (2007), Fred T. Mackenzie (2009), John (Jack) A. Tossell (2011), George Luther (2013), and Don L. Sparks (2015).

The award consists of a bronze medallion plus \$2000. The awardee will receive an allowance for travel to the award ceremony, as well as registration costs for the ACS meeting at which the award will be conferred. The Geochemistry Division Medal will be presented at the 253rd ACS National meeting to be held in San Francisco, California, April 2-6, 2017.

Letters of Nomination and supporting materials should be sent to Dr. Sebastien Kerisit (Sebastien.Kerisit@pnnl.gov), by July 15, 2016. Requirements for nominations can be found at the Divisional web site at: <http://geochemistrydivision.sites.acs.org/>

2015 GEOCHEMISTRY MEDAL

The eighth Geochemistry Division Medal was awarded to Dr. Donald L. Sparks for his far-reaching contributions to understanding aqueous and solid-phase speciation of metals and metalloids in the poorly ordered, dynamic materials that comprise the critical zone. Pictures from the ceremony can be found on the Division website (<http://geochemistrydivision.sites.acs.org/>).

In particular, Dr. Sparks pioneered the application of relaxation methods to determining rates of surface complexation reactions; developed and applied state-of-the-art spectroscopic methods to understanding structure and bonding of metals and metalloids at mineral-water interfaces in soils, sediments, and synthetic- and specimen-mineral analogues; elucidated a series of reactions that can occur following surface complexation that lead to incorporation of metal ions into clay minerals; and has made great strides to understanding aqueous and metal-ion speciation in the rhizosphere. In addition to these transformative contributions to the field of geochemistry, his monographs have contributed greatly to transforming the field of soil chemistry and, as an educator and mentor, he has inspired a new generation of soil and environmental geochemists. The Medal was awarded at a special symposium at the 249th National Meeting of the American Chemical Society in Denver, Colorado.

We gratefully acknowledge financial support from Elsevier, the Department of Soil and Plant Sciences, University of Delaware, the Delaware Environmental Institute, University of Delaware, and the Division of Geochemistry.



STUDENT TRAVEL AWARDS

The Division has started awarding student travel awards for outstanding students. Currently up to three awards are given for the Fall and up to five are given for the Spring ACS National meetings. The Geochemistry Division will pay for the awardees' registration and they will be given an extended time allocation for their presentations (30 minutes instead of 20 minutes for presentations). We look forward to having many more excellent student participants in the future meetings.

Congratulations to our Geochemistry Student Travel Award Winners for the 2016 Fall National Meeting in Philadelphia. The winners are Paul E. Ohno (Northwestern University), Tingting Liu (Ohio State University), and Florence T. Ling (Penn State University).

Congratulations to our Geochemistry Student Travel Award Winners for the 2016 Spring National Meeting in San Diego. The winners were Elaine D. Flynn (Washington University in St. Louis), Yujia Min (Washington University in St. Louis), Prachi Joshi (Pennsylvania State University), Doyoon Kim (Washington University in St. Louis), and Dinesh Adhikari (University of Nevada, Reno). Among the Geochemistry Student Travel Awardees, one Best Student Paper was chosen based on the Geochemistry Member Judges. Yujia Min was chosen to receive the Geochemistry Best Student Paper Award. Congratulations!

Congratulations to our Geochemistry Student Travel Award Winners for the 2015 Fall National Meeting in Boston. The winners were Jacquelyn Bracco (Wright State University, now at Argonne National Laboratory), Erika Callagon (University of Illinois at Chicago), and Rajesh Singh (University of Miami).

SPRING DIVISION SOCIAL

Thanks to everyone who came to the Division Social at the 2016 Spring ACS Meeting!



NEW OFFICER BIOGRAPHIES

A number of new officers have become involved in the division since our last newsletter! Our new officers include: Young-Shin Jun (Division Chair), Anastasia Ilgen (Program Chair), Bill Burgos (Program Chair Elect), Frannie Smith (Secretary), Jim Kubicki (Councilor), and Sang Soo Lee (Membership Chair).

YOUNG-SHIN JUN (DIVISION CHAIR)

Young-Shin Jun (Division Chair) is an Associate Professor and Director of Graduate Studies in the Department of Energy, Environmental and Chemical Engineering at Washington University in St. Louis.



1. What is your area of research/favorite topic you have researched?

My research interests cover important geochemistry topics such as dynamic water–mineral interactions; the dissolution, nucleation, and growth of minerals; the fate and transport of environmental nanoparticles; redox geochemistry; geologic CO₂ sequestration; and interfacial reactions in subsurface environments. My group utilizes in situ synchrotron-based X-ray techniques as well as state-of-the-art techniques such as atomic force microscopy, high resolution electron microscopy, and Raman spectroscopy to provide a clearer picture of geochemical reactions at mineral–water interfaces. I am very excited to learn that all environmental interfacial reactions are closely related to many disciplines and that the knowledge can be amazingly transformative! The main principles of water–rock interactions can be similar to liquid–solid reactions in materials science, chemical sciences, and biomedical sciences. So, these days, many interesting findings excite me. In particular, understanding the mechanisms and kinetics of the nucleation of solid phases at environmental interfaces is compelling. This early stage of reactions can control the materials' properties, and we can tune it to our advantage if we understand it well. This is a fascinating topic.

2. What made you get involved with ACS?

My first ACS participation was in 2002 during my doctoral program. I felt like that the ACS was my core community, and naturally I attended many ACS meetings, met with many colleagues, organized symposia, and otherwise served the Geochemistry Division.

3. Best piece of advice for younger division members (graduate students, postdocs, etc.)?

I often spend many hours and work too much. Sometimes, I feel like I have too many things to do at a time. We all have only 24 hours a day and 7 days a week, which makes me anxious to accomplish things without taking any rest. During my Ph.D. program, one of my mentors gave me the best piece of advice: "Keep up your pace." Just do what I plan to do, do not think about other things, and control my progress. Trust what I am doing and keep up the good work.

4. Favorite (geologically interesting) vacation/field work spot?

My hobby is travelling, and I have visited most of the U.S. National Parks. The National Parks are large-scale natural reactors and natural labs! For sheer beauty, I like Antelope Canyon in the Southwest, with its amazing weathered rocks and beautiful natural sculptures.

ANASTASIA ILGEN (PROGRAM CHAIR)

Anastasia Ilgen (Program Chair) is a senior member of staff member in the Geochemistry Department at Sandia National Laboratories.

1. What is your area of research/favorite topic you have researched?

Interfacial chemistry – especially chemical controls on the electron transfer. I studied speciation of arsenic and antimony, and what controls their oxidation in heterogeneous systems, with the ultimate hope of connecting this molecular scale information to the large scale elemental fate and transport trends observed in the environment.

2. What made you get involved with ACS?

My colleague Louise Criscenti, who was the GEOC Division Secretary at that time, offered me a volunteer position, and then encouraged me to run for the Program Chair-Elect. I have been going to the ACS meetings for several years at that point, and absolutely loved their depth and breadth. It is incredibly rewarding to be a part of the Geochemistry Division, become more connected with the geochemistry community, and organize future meetings.

3. Favorite (geologically interesting) vacation/field work spot?

Kamchatka Peninsula, Russia! That's where I grew up, and my first sampling and field expeditions were in the crater of an active Mutnovsky volcano, sampling hot springs and mud pools in the area, and also collecting bottom sediments and biological samples in the Pacific Ocean.

BILL BURGOS (PROGRAM CHAIR ELECT)

Bill Burgos (Program Chair Elect) is a Professor of Engineering in the Department of Civil and Environmental Engineering at Penn State.

1. What is your area of research/favorite topic you have researched?

My favorite research topics have involved the biogeochemistry of iron in contaminated environments. I have done a lot of DOE-supported work on the bioreduction of Fe(III) and U(VI). During these years I had the opportunity to work with outstanding chemists, mineralogists and physicists at the National Labs. Closer to home in the coal fields of Pennsylvania, I have done a lot of work on the biological oxidation of Fe(II) by acidophiles at low pH. In these projects I got to work with excellent geomicrobiologists. Through all of these projects I have come to enjoy multi-disciplinary work that involves aquatic chemistry, mineral characterizations, and microbial community analyses.



2. What made you get involved with ACS?

I have always enjoyed attending ACS national meetings, and the ACS journals are some of the best in our field. Over the years I have organized technical sessions for various meetings but recently felt that I should be providing more service to ACS. Lee Penn asked if I would be interested in serving the Geochemistry Division (even though I'm an environmental engineer ;-)) and I jumped at the opportunity.

3. Best piece of advice for younger division members (graduate students, postdocs, etc.)?

Try to attend at least one ACS national meeting every year. Make your presence there known. Volunteer to organize technical sessions and then extend invitations to your favorite scientists and other young members (professional service looks good on your CV and invited talks look good on their CV). Contact editors and volunteer to review articles in journals you hope to publish in.

FRANNIE SMITH (SECRETARY)



Frannie Smith (Secretary) is a geochemist in the Nuclear Chemistry and Engineering Group at Pacific Northwest National Laboratory.

1. What is your area of research/favorite topic you have researched?

I'm an environmental mineralogist who uses atomic-scale modeling methods to explore how minerals adsorb or incorporate radionuclides. One of my favorite studies that has evolved over the years is investigating how technetium-99 (a fission product) is associated with iron oxides and oxyhydroxides. The results have direct application to the high-level nuclear waste tanks at the Hanford Site (Washington, USA) and anywhere else that used fuel is store or reprocessed.

2. What made you get involved with ACS?

Confession: I signed up to be a member in graduate school to get reduced rates on attending the national meetings. However, my true involvement began in 2011 when I was invited to give a presentation to middle and high-school students about finding your career path as part of an ACS International Year of Chemistry symposium. Through the local Richland Section of the ACS, I realized how many opportunities there were to support local outreach and education efforts, and promote professional development and networking opportunities for my colleagues. I served as Chair of the Richland Local Section in 2013 and when asked to run for Secretary of the GEOC Division, I thought it would be a great opportunity to meet new colleagues and collaborate nation-wide.

3. Best piece of advice for younger division members (graduate students, postdocs, etc.)?

Don't be afraid to get involved! Whether you are curious about organizing / supporting a session at a National or Regional ACS meeting, or if you have some ideas related to outreach and education that you'd like to try out, resources abound. Every member has a Local Section (or Technical Division) where opportunities exist to give a presentation, get involved with local-chemistry endeavors, and network. Visit the ACS website to learn who your Local Section is: <http://webapps.acs.org/llookup/> and here to find your Section's website: <http://www.acs.org/content/acs/en/membership-and-networks/l/websites.html> And, most importantly, talk to your advisors / mentors and let them know what you are interested in so they can help you plug into opportunities. Don't be afraid to contact GEOC leadership if you'd like to get involved in the Division, too. We'd love to have you join the team!

4. Favorite (geologically interesting) vacation/field work spot?

Iceland. As an undergraduate geology major at the University of Illinois Urbana-Champaign, I had an opportunity to study abroad one summer. Imagine six weeks of hiking on glaciers, touching the North American and Eurasian tectonic plates simultaneously, swimming in hot springs, watching geysers erupt, waterfalls galore, midnight-sun, puffins, and really cool hot-spot geochemistry. I think every geologist should have a birth-right trip to this amazing geologic locality!

JIM KUBICKI (COUNCILOR)

Jim Kubicki (Councilor) is a Professor and Department Chair of the Department of Geological Sciences at the University of Texas at El Paso.

1. What is your area of research/favorite topic you have researched?

Reaction mechanisms are exciting to me. Learning how one compound transforms into another and seeing chemistry in action is fascinating.

2. What made you get involved with ACS?

The interactions with other scientists working on similar problems, and the opportunities for seeing a wide variety of other scientific research areas (e.g., colloids, computational chemistry, physical chemistry, etc.) all at one meeting.

3. Best piece of advice for younger division members (graduate students, postdocs, etc.)?

Don't be afraid to ask questions after talks and be proactive about meeting with speakers to discuss research.

4. Favorite (geologically interesting) vacation/field work spot?

My computer!



SANG SOO LEE (MEMBERSHIP CHAIR)

Sang Soo Lee (Membership Chair) is a Geochemist in the Interfacial Processes Group at Argonne National Laboratory.

1. What is your area of research/favorite topic you have researched?

My research focuses on understanding how ions interact with mineral surfaces. For this goal, I have measured the atomic structures of mineral-water interfaces using X-ray surface scattering techniques.

2. What made you get involved with ACS?

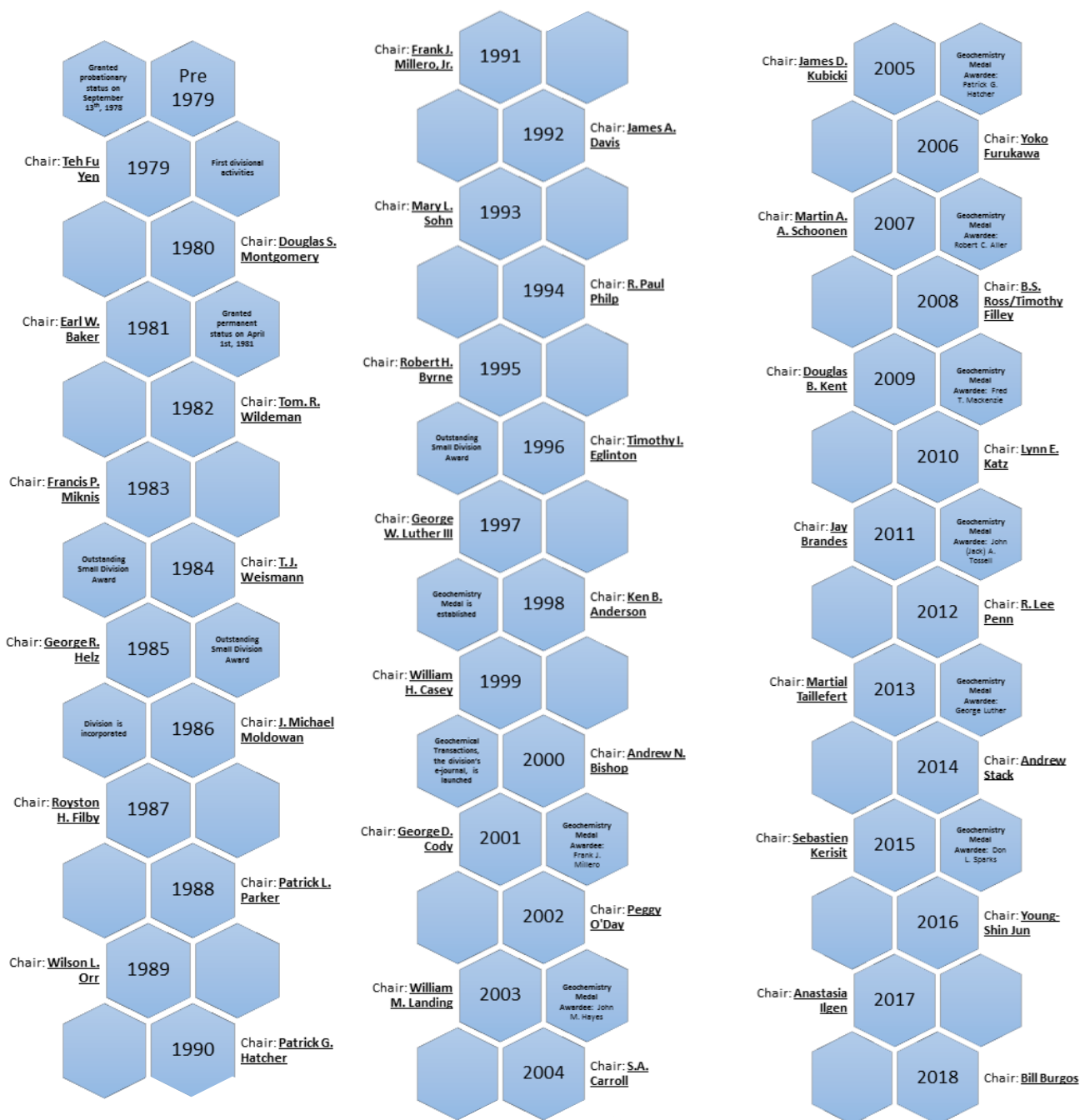
Like many people, my first experience with ACS was through an opportunity for making a contributed talk in a national meeting. My involvement in the Geochemistry Division began when I had a chance to organize a technical session with colleagues, who have also been working for the division now.

3. Favorite (geologically interesting) vacation/field work spot?

The Yosemite National Park was the most impressive place that I have ever visited, where I enjoyed a variety of magnificent scenes.

DIVISION TIMELINE

Together we can make the next 35 years as great as the last 35!



Visit us online at: <http://geochemistrydivision.sites.acs.org/>