



# ACS Richland Section American Chemical Society

FALL 2013

## PRESENTING THE 2014 SLATE OF CANDIDATES

*It is election time again! We need to vote for the chair-elect, secretary, treasurer, and councilor for the 2014 term. Please support the section by returning the enclosed ballot by November 9, 2013.*

### CHAIR-ELECT *Abhi Karkamkar*



Abhi received his Ph.D. from Michigan State University in East Lansing MI. He moved to PNNL in 2005 and is currently a Scientist working in the Physical Sciences Division of Fundamental and Computational Sciences Directorate. His research interests are in the area of porous materials, hydrogen activation, hydrogen storage and catalysis. He has organized multiple symposia at various ACS national meetings in the area of nano-materials, catalysis and energy related applications.

Abhi is looking forward to working with his friends and colleagues promote the local section of the ACS.

### TREASURER *Satish Nune*



Dr. Satish K. Nune holds a Ph.D. in Synthetic Chemistry, which he earned from the University of Hyderabad in India in 2004. He possesses ten years of research experience in nanomaterial synthesis, porous materials, purification and self-assembly of nanomaterials. He has extensive experience in nanomaterial synthesis using green methods.

Dr. Nune, a senior scientist at Pacific Northwest National Lab (PNNL) is known as an innovator in the development of solid sorbent nanomaterials for carbon capture, energy storage, and for low temperature geothermal applications. He also holds adjunct teaching appointment in the Department of Chemistry, Washington State University-Tri Cities (WSU). Dr. Nune serves as a Principal Investigator (PI), co-PI, and key contributor on projects funded by the U. S. Department of Energy. Dr. Nune is one of the organizers for Division of Energy and Fuels Symposium on "Carbon-based Materials for Energy Storage and Conversion", at the 245th ACS National Meeting on April 2013 in New Orleans, LA. He has over 34 peer reviewed publications including a review and 4 patents. His research work is highly regarded with numerous citations (~550) with an H-index 14 from research groups worldwide. His work has been highlighted in several external presses, including Science Editorial Choice. Dr. Nune has served as treasurer for the past year. As a candidate for Richland Section treasurer 2014 for his main goal is to bring the ACS vision into an exciting reality.

### SECRETARY *Jann Frye*



Jann graduated from Muskingum College in New Concord, OH in 1975 with a BS in Chemistry. She then started work at Standard Oil of Ohio (later BP America) research lab in Warrensville Heights, OH as an analytical chemist. Jann received a MS in Chemistry from Case Western Reserve University in 1980 while working for Standard Oil. She continued to work there for 18 years until just before BP closed the lab.

Jann moved to Richland in 1993 and started work for Westinghouse at the 222-S laboratory on the Hanford site as an analytical chemist. She has remained at 222-S since then, working her way up to manager of the Organic Studies group for WRPS. Her areas of expertise are gas and liquid chromatography and mass spectrometry. Jann and her husband have four grown children along with 4 grandchildren. They love living in Washington State, and the Tri-Cities in particular. Jann looks forward to serving as secretary for the local section.

### COUNCILOR *Richard Hermens*



Dr. Hermens completed his M.S. at Oregon State U. and his Ph.D. at the University of Idaho. He is Professor Emeritus at Eastern Oregon University and Fellow, American Chemical Society, class 2012. Dr. Hermens is the current ACS Councilor of the Richland Section. Dr. Hermens has been councilor for the Richland Section for the past three years and for ten years prior to that. He attends all national and regional ACS meetings

and informs the Richland Section members of significant items discussed at the council business meeting. At the national level he is a member of the Senior Chemists Committee and the Nomenclature, Symbols and Terminology Committee. Dr. Hermens looks forward to continuing service to the Richland Section membership as councilor with your vote.

 **BALLOTS DUE  
NOVEMBER 9<sup>th</sup>**

# BALLOT

## 2014 RICHLAND SECTION ACS OFFICERS

PLEASE VOTE - YOUR PARTICIPATION IS APPRECIATED

Please return this ballot no later than November 9, 2013.

Be sure to sign the mailing envelope.

## BALLOT PROVIDED IN PRINTED COPY ONLY.

If you are a Richland Section member and did not receive a ballot in the mail, please contact Sandy Fiskum at 509-967-0908 or email at [sandenf@msn.com](mailto:sandenf@msn.com)



## ANNOUNCEMENT OF PROPOSED AMENDMENTS TO THE RICHLAND SECTION BYLAWS

Since the last revision of the Richland Section bylaws was approved (March 3, 1998), many changes have become necessary to bring them consistent with the current Charter, Constitution, and Bylaws of the American Chemical Society (SOCIETY).

Your Richland Section Bylaws Committee has followed the process prescribed by the SOCIETY and the Executive Committee of the Richland Section, and by unanimous vote at the August 14, 2013 board meeting, approved that the Proposed Amendments be brought forth to Section Membership for a vote to approve for adoption.

Therefore, in accordance with our current bylaws, the ballot you receive with this newsletter includes your opportunity to vote (Yes/No) to approve the proposed amendments.

Full details and support documents for examination are located at <http://acs.labworks.org/bylaws.html>. They include:

### Existing bylaws (approved March 3, 1998)

**A summary document that explains the rationale behind the proposed changes, including an update that will allow electronic voting for the Section!**

**Redlined bylaws that show each proposed change and comprise the proposed amendments, as already pre-reviewed by the ACS Committee on Constitution and Bylaws (C&B).**

**A draft bylaws document, with redlines "accepted" so you can see what the final bylaws contain without all the "messiness" of redlines.**

We hope this information makes it easier for you to compare existing/old bylaws to proposed/new bylaws. PLEASE vote! If you need additional explanation or assistance, please contact Janet L. Bryant, Bylaws Committee Chair, at [janet.bryant-acsf@hotmail.com](mailto:janet.bryant-acsf@hotmail.com), or by phone at 509-627-2687 and leave a message and return phone number so she may further assist you.

## SATURDAY SCIENCE & GIRLS IN SCIENCE

EOU received an ACS grant to support Saturday Science at the Umatilla tribe this fall. Details are still in planning stage. Girls in Science will be on October 19th and the theme will be Zombie Attack!!! Contact Anna Cavinato for more information [acavinat@eou.edu](mailto:acavinat@eou.edu).

### Yakima Valley Community College Chemistry Club (YVC4)

Yakima Valley Community College (YVCC) Drs. Tanya Knickerbocker and Sam Mazhari have started a student ACS chapter at YVCC. They joined us at the July Richland Section Board meeting. They are an active group and we look forward to future collaborations!

## EARTH DAY



### **ACS Richland Section Donates a Chemis-Tree for Earth Day**

The ACS Richland Section participated in the ACS Chemists Celebrate Earth Day (CCED). Our participation was led by 10<sup>th</sup>-year Coordinator Janet Bryant. The Mid-Columbia area expands national Earth Day into Earth Month; this year Earth Month was organized by the City of Richland. The ACS Richland Section was again acknowledged by Richland Mayor John Fox and Parks and Recreation Commission Chair Greg Jones as a loyal supporter of the annual event. This year's annual Chemis-Tree gift is a pine tree that was planted at the northeast corner of the John Dam Plaza, adjacent to the Richland Police Department. See [www.earthmonthmc.org](http://www.earthmonthmc.org) for the full details on the month-long celebration, and news from the local press.

*Marianne C. Ophardt, County Director, Benton County, Extension Agriculture and Natural Resources Program Unit of the WSU Extension Service, teaches 1<sup>st</sup> – 4<sup>th</sup> grade students and the attending public on the correct way to plant a tree at the annual Earth Day/Arbor Day celebration in Richland, WA John Dam Plaza April 26, 2013.*



## EXPANDING YOUR HORIZONS

### **ACS Richland Section Brings Nanotechnology to Expanding Your Horizons (EYH)**



The ACS Richland Section again participated in the annual Expanding Your Horizons (EYH) conference at WSU-Tri-Cities (Richland) on Saturday, March 23, 2013.

Section members Jessica Klein and Janet Bryant (PNNL) hosted the chemistry workshop around the subject of Nanotechnology and its impact on the world as we know it. Students made thin films (using nail polish); worked with diffraction patterns; and simulated transfer across cell membranes. They also examined some of the controversy surrounding the use of silver nanoparticles, how they have been marketed to the public, and briefly explored the Environmental Protection Agency's position to regulate their use. A total of 42 middle school (6<sup>th</sup> through 8<sup>th</sup> grades) girls participated in the Nanotechnology workshop.

The primary focus of EYH is to excite young women about a variety of technical occupations and encourage their continued studies of math, science, engineering and technology—and thus realize their full potentials.

Jessica also presented the EYH keynote address encouraging over 100 attending middle school girls from throughout the Mid-Columbia region to pursue what many still consider to be “non-traditional” careers incorporating mathematics or science, or both. (Jessica attended EYH as a student in her formative years.)

For more information about EYH, visit <http://www.expandingyourhorizons.org>.

## NATIONAL AWARD NOMINATIONS

### **Nominate a Noteworthy Chemist for an ACS National Award**

Nominations for the National Awards administered by the American Chemical Society are now being accepted. Visit the ACS National Awards Program online at 2015 ACS National Awards for a detailed description of the National Awards currently open to receive nominations for the 2015 presentation year.

Two new awards have recently been added to the National Awards Program, the Harry Gray Award for Creative Work in Inorganic Chemistry by a Young Investigator and the Kathryn C. Hach Award for Entrepreneurial Success. For a complete list of all ACS National Awards, and the purpose and selection criteria for each, please visit [www.acs.org/nationalawards](http://www.acs.org/nationalawards).

Any individual Member may submit one nomination or one support letter for each award, unless that individual is a member of the selection committee for the same award (or a current member of the ACS Board of Directors). Nominations are being accepted until November 1, 2013 at [www.nominate.acs.org](http://www.nominate.acs.org).

# A TOAST TO OUR AWARD-WINNING MEMBERS

Join us at the Honors and Awards ceremony as we honor our 50- and 60-year members, and celebrate other notable award recipients during 2013. The event will be held at WSU-TC atrium on November 15 at 5:30 pm. Light food and drinks will be provided. We've included brief biographies of our 50 and 60-year members so you can get to know them a bit before you see them in November at the celebration. Watch your email and the section website for more event information.



**MR. JACK RYAN**  
60 Year Member

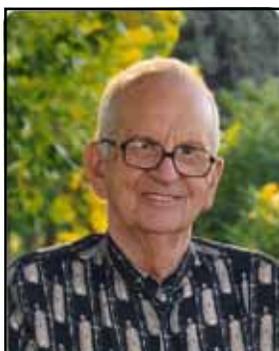
Jack Ryan grew up in Dallas, Oregon (20 miles south of Salem). Even as a 3-year-old he was interested in the natural environment / phenomena—manifested by exploring different farms with his mother. Later she ordered science books from the state library for Jack. By age 12, Jack tried to list all 92 elements and shortly thereafter ordered the CRC Handbook. In 1953 Jack earned his bachelor's degree in chemistry from Oregon State College (now Oregon State University), and then his master's degree from the same school.

Jack spent his career at the Hanford Site primarily in the 325 building starting work with General Electric (GE) and staying on through the contractor changes until he retired in 1993. Jack spent most of his career on heavy element chemistry. One of Jack's proud achievements was to discover the oxidation of bromine-complexed  $Ce^{3+}$  to  $Ce^{4+}$  first evidenced from a subtle color change in a stored lab solution from colorless to pink. Further investigation of this phenomenon spawned four or more technical papers.

One of his more challenging tasks entailed the purification of ~200 g of Np for a rush weapons production program. Can you imagine working with ~25 L of solution loaded with 200 g of Np in a 40-L carboy in an open faced fume hood—on a Sunday afternoon at the 222S facility? This was a batch ion exchange process to remove Th from the Np product. Jack experienced many other fascinating challenges in his career.

Jack is a wealth of fascinating stories about radiochemistry at the Hanford Site. He said a lot of people didn't realize what they were working with when conducting the separations. A plethora of fission and activation products were produced in the reactors—and some of the radiochemical separations resulted in the isolation of new or rare radioactive species.

Jack is pictured by his backyard garden that now keeps him busy.



**MR. JOHN SWANSON**  
60 Year Member

John Swanson was raised in Parkland, WA (a suburb of Tacoma). He graduated from Clover Park High School (Lakewood WA) in 1947 and from Portland's Reed College (BA in chemistry) in 1951. John started college intending to become an MD, but liked freshman chemistry much better than freshman biology – so decided to pursue a career in chemistry instead.

John began work at Hanford for GE in the fall of 1951, in the "Tech Grad" program. His first rotation was in the Chemistry Research Section of the Separations Technology Department in Building 3706. At the end of that rotation, he was invited to stay in that section, and accepted the invitation. It could be argued that John stayed in the same "group" throughout his Hanford career – albeit with many different managers, organizational titles, and with two employers.

After a couple of years in building 3706, and a several-month stint at 222-S (central Hanford plateau), John moved into the 325 building (just north of Richland), and stayed there until he retired in 1995. Along with the other members of GE's Hanford Laboratories, John became an employee of Battelle's Pacific Northwest Laboratory in 1965.

John feels that perhaps his most noteworthy activity was the invention (in the late 1950's) of the "Zirflex Process", which was used in the Hanford REDOX and PUREX plants to dissolve the Zircaloy cladding from N Reactor fuel elements. In 2000, John proudly received the Glenn T. Seaborg Actinide Separations Award (from the Actinide Separations Conference), and in 2002 he was awarded "Chemist of the Year 2002" from the Richland Section of the ACS.

**DR. JAMES PETERS**  
50 Year Member

With apologies, no information was provided from Dr. Peters.

# A TOAST TO OUR AWARD-WINNING MEMBERS



**DR. JAMES NOYCE**  
50 Year Member

James Noyce was raised in Fayetteville, Arkansas, right across the street from the main campus of the University of Arkansas (U of A). James' father was a Professor of Organic Chemistry at the U of A, and James really enjoyed visiting his lab. Late in grade school, James was given a medium sized Gilbert Chemistry Set, and had much fun with it. He became very interested during junior high school in all things nuclear during the two summers the family lived in Oak Ridge, Tennessee, where his father was a guest worker at the Oak Ridge National Laboratory (X-10). This set James on an eventual course to a career in radiochemistry.

James received his B.S. in chemistry at University of Tulsa, his M.S. in inorganic chemistry at Carnegie-Mellon University. His principal professor was Truman P. Kohman, who James understood coined the word "radionuclide". Then James received his Ph.D. in radiochemistry at the University of Arkansas, studying radioactive fallout from atmospheric nuclear testing. His major professor was Paul K. Kuroda who wrote seminal papers about natural nuclear reactors, Pu-244 in the universe, and noble gas isotopes in meteorites.

James worked at a variety of jobs in the Federal and Illinois State governments, commercial laboratories, as a consultant, and a little bit of teaching at the two-year college level.

One of the more hair-raising and maybe the most interesting jobs James had involved four years as an officer in the U.S. Air Force, three at the Air Force Weapons Laboratory in Albuquerque and the other at the Air Force Rocket Propulsion Laboratory at Edwards Air Force Base. James was in the Biophysics Branch at the weapons lab, and he and several of his peers went to the Nevada Test Site to participate in a radioactively hot blowdown test of the air-breathing, nuclear powered engine intended for the low-flying Pluto Guided Missile, which was to carry nuclear weapons. It never got off the ground. James was responsible, among other things, for going downwind after the test and collecting samples for radiochemical analyses in two mobile labs he and the Air Force had built.

Post-retirement, James' largest endeavor has been to go part time to the local community college and earn an A.A. degree in music, graduating last year (2012). His areas of concentration were choral singing and music composition. In the past approximately four years James has composed about 25 pieces, most of them short, with emphasis on sacred vocal music. (Jim is pictured with a mustache grown specifically for his role in the November 2012 production of "Titanic" by the Mid-Columbia Musical Theater.)



**DR. JAMES WHITE**  
50 Year Member

James White was raised in a small steel town about 20 miles north of Pittsburgh called Natrona Heights. James originally wanted to be a farmer but eventually discovered that all the good land was owned by others and not for sale at reasonable prices (1955-1960). He was always fascinated by fireworks, made his own for a while, and that led him to the field of chemistry.

James attended public school in western PA, then undergraduate studies at a small Ohio school that at the time had a good chemistry department for its size – Mount Union College (Alliance, OH). During this time James attended summer class and lab work at Syracuse University and Illinois Institute of Technology (Chicago). He completed two years of graduate work at Ohio State University and finally received his Ph.D. in inorganic chemistry and catalysis at Akron University. There were also various work experiences sprinkled in during the educational period and the early Ph.D. studies were in evening while working at Goodrich. James has more than 45 years of diverse industrial catalyst R&D, technical service and manufacturing experience. He recently retired from Pacific Northwest National Laboratory where he served for 8 ½ years in the field of biomass and renewables conversion catalysis. James serves as an adjunct faculty in Chemical Engineering at Washington State University in Richland.

James' most interesting job assignment was his independent consulting business. He had great clients with an array of very interesting problems ranging from new chemistry on renewables to fixing problems with old line petro-chemical processes. Mostly the clients seemed to appreciate, and usually took, his advice. It was great to see trucks and tank cars of product leaving the plants. Otherwise, James did a lot of customer technical service when he was at Engelhard (now BASF) which involved visiting catalyst users all over the world and helping to solve a wide array of catalyst and chemical product production-related problems. James met a lot of very smart folks that he is very fortunate to call friends.

The startup of a new commercial and previously untested process and catalyst is always an excitement. Even with significant successful lab and pilot data as background a full scale start up is always a challenge with some surprises. At Air Products, James' group developed a totally new catalyst that went from initial lab discovery to successful commercial practice in 7 months, a whirlwind pace compared to most. The day the plant guys "threw the switch" they were all holding their breaths for the first 3-4 hours until the initial product analytical came back. Last he heard, the process was still operational with the same catalyst composition as used in the startup in 1982. James' first experience with a new start was even more exciting. As a real novice and "kid" as the old guys called him in 1967, James was told to "supervise" the plant trial of a new polymerization catalyst at a Goodrich plant in Texas. The plan was to make 500,000 lbs of synthetic natural rubber (poly-cis isoprene) with his new catalyst and his boss warned James that the plant trial MUST be a success or he would be paying for the half million pounds of rubber out of his own pocket. Rather a big incentive for sure. The trial went very well because there was lots of excellent pilot plant prep work done by a team of great people at the lab but James did not sleep much the first several days of the trial.

# STEMcon 2013



Local high school students engaged in fun, hands-on activities, and increased their awareness of the possibilities in Science, Technology, Engineering and Math (STEM) careers at the annual STEMconnect (STEMcon) event. A key part of this experience is student interaction with professionals who share their career experiences, personal journeys, and educational training. This year's event, held March 28 at Columbia Basin College in Pasco, WA, included Richland Section members Anna Cavinato and Janet Bryant teaching the chemistry track on nanotechnology to ~40 students, mostly from Delta High School, a STEM-integrated curriculum school in Richland, WA. Students participated in hands-on activities regarding

nanoparticles, which have the potential to revolutionize the medical and consumer products industries. They used a similar curriculum as in EYH, but expanded for High School Students. They made thin films (using nail polish); worked with diffraction patterns; simulated transfer across cell membranes, and an encapsulation experiment using sodium alginate to create silver nanoprisms of different colors. They also examined some of the controversy surrounding the use of silver nanoparticles, how they have been marketed to the public, and briefly explored the Environmental Protection Agency's position to regulate their use. Check out: <http://stemcon.labworks.org/Homepage.aspx>

## MIXING SOCIETIES AT JACK-SONS



Quick—What is element 94? This and other fun questions were given in a fun 3-round series of quizzes at the annual AIChE/ACS mixer held this year, June 6, at Jack-sons, Richland WA. The mixer provided a fun and relaxing evening following a busy workday. No cooking required, participants just sat back and relaxed on the porch reserved exclusively for our joint gathering. The food was great, the company fun, and the questions entertaining.

Question: This fictional material was even fictional in the episode; it allowed Captain Kirk to get the Enterprise out of a mess with a daring bluff—what is the material? No worries; answering was a small group effort—and if you were lucky, you had a Trekkie in your midst to help answer those Star Trek questions.

Chemist note for next year: sit with a chemical engineer—some of the questions were very specific to engineering.

*At left, participants enjoying the ACS/AIChE Mixer*

# CONGRATULATIONS TO RICHLAND SECTION MEMBERS

## *Newly Inducted Fellows*

Richland Section members Drs. Sam Bryan, Anna Cavinato, and Dave Koppenaar have been elected to ACS Fellows in 2013. Congratulations! Sam, Anna, and Dave were among 96 Fellows inducted this year by the ACS at the Fall National meeting. More to come in the winter newsletter.

## **Anna Cavinato Named Richland Section Outreach Volunteer of the Year**

Anna Cavinato, Professor of Chemistry at Eastern Oregon University, was named ACS Richland Section Outreach Volunteer of the Year. This award, established this year by the national Committee on Community Activities (CCA), honors Local Section heroes who work tirelessly to bring chemistry to the public in a safe and understandable way.

## **Janet Bryant Named Richland Section "Chemist of the Year"**

Janet Bryant, Scientist/Engineer IV at Pacific Northwest National Laboratory, was named ACS Richland Section Chemist of the Year. Janet is only the 14th recipient of this honor since the award's inception in 1980. An award symposium will be organized and presented in her honor in Spring 2014.

## WINE & CHEESE AT MILBRANDT WINERY



*Attendees enjoying wine and cheese pairings in the rustic Milbrandt winery tasting room.*



What requires glycolysis, lipolysis, and proteolysis? Cheese! Amazingly, cheese recipes have not changed much since the Middle Ages.

Hostess, Rachel Mercer and cheese and wine expert at Milbrandt winery, entertained about 30 ACS Richland Section members and guests with a pairing of 4 exquisite cheeses and wines on August 9. She started the tour with a brief history of cheese making, an overview of the cheese making process, and finally the general categories of cheese.

The wine and cheese pairing tour started with the creamy, tangy, and salty Mt. Vikos Feta cheese complimenting the slightly sweet Riesling. Next the sweet nutty Beemster Vlaskaas was paired with Traditions Chardonnay. The red Vineyard Select Mosaic was paired with the earthy and nutty Mt. Townsend Red Alder Toma. Finally, the Rogue Creamery Smokey Blue cheese was paired with the Estates Cabernet Sauvignon.

Did you know that sheep are the most milked animals, but cows produce the most milk?

The evening was a fun conclusion to a busy workweek. A special thanks to Professor Karen Grant for organizing this event for our Section.



## PROJECT SEED

**Jessica Nava**, an incoming senior at Irrigon High School, was the recipient of a Project SEED award sponsored by the Richland Section. Over the summer Jessica worked with Anna Cavinato at Eastern Oregon University on the development of a bacterial sensor based on DNA aptamers. A more in depth story can be found at <http://www.eou.edu/news-press/bkd-biosensor/>.

## UPCOMING EVENTS

### OCTOBER 9 - NOVEMBER 6 - DECEMBER 11

BOARD MEETINGS AT 6PM, WSU-TRI-CITIES CIC ROOM 223

### OCTOBER 19 - GIRLS IN SCIENCE—ZOMBIE ATTACK

La Grande, OR; contact Anna Cavinato at [acavinat@eou.edu](mailto:acavinat@eou.edu)

### OCTOBER 24 - SCIENCE CAFE—TOUR OF WESTERN SINTERING

5:30 pm; contact Jo Marie Johnson at [Jo\\_M\\_Johnson@rl.gov](mailto:Jo_M_Johnson@rl.gov)

### NOVEMBER 15 - HONORS AND AWARDS CEREMONY

WSU-TC Atrium, 5:30 pm; contact Frannie Smith at [Frances.Smith@pnnl.gov](mailto:Frances.Smith@pnnl.gov)



**Mark  
Your  
Calendars**

## WESTERN SINTERING TOUR

Western Sintering, Richland WA, will be hosting an exclusive tour for the Richland Section ACS at 5:30 on October 24. Contact Jo Marie ([Jo\\_M\\_Johnson@rl.gov](mailto:Jo_M_Johnson@rl.gov)) to register. Look for email information flier soon.

## DID YOU KNOW?

### *Did you miss out on the New Orleans ACS National Meeting? Missed a talk?*

ACS has announced the availability, via [ACS Presentations on Demand](#), of more than 400 oral and 200 poster presentations that were recorded at the 245th ACS National Meeting in New Orleans. Featuring the theme of Chemistry of Energy & Food, these presentations feature current research and developments in the areas of human health, the complexity of food and bioenergy systems, sustainability, and the relationship between food and fuel. Additionally, over 1,000 presentations and posters from the 2012 Philadelphia and San Diego national meetings are also available. Check it out!

## IN SEARCH OF NEWSLETTER EDITOR

Here is your chance to be on the ground floor of all activities in the ACS Richland Section! Sandy Fiskum is retiring her position as the newsletter editor. The newsletter editor learns about all activities as they form and develop. As the newsletter editor, you get to help formulate the stories that go with the activities. Don't worry, all the pretty presentation is left to a professional editor. Your job will be to cajole stories from your peers.

Please consider donating your time toward this opportunity. No worries, Sandy will coach you until you are confident. Contact Sandy at 509-967-0908 / [sandenf@msn.com](mailto:sandenf@msn.com) or Frannie Smith at 509-375-5645 / [frances.smith@pnnl.gov](mailto:frances.smith@pnnl.gov).



<http://acs.labworks.org>

Richland Section  
American Chemical Society  
c/o Editor: Sandra Fiskum  
Battelle, PNNL, P7-25  
PO Box 999  
Richland, WA 99352-0999