

Jeffrey Gilman, NIST, to be Featured Speaker at April CSW Dinner Meeting

Dr. Jeffrey Gilman is the featured speaker for the April CSW Dinner Meeting. The dinner meeting will be held at the Far East Restaurant on April 18, 2013. For details about the meeting, see page 2. This month's speaker was organized by the CSW Environmental/Sustainability Committee.

Dr. Gilman received his B. A. in chemistry from Ithaca College, and his Ph.D. in organic chemistry from the University of California, Irvine from Professor Kenneth Shea. He developed polyoligosilsesquioxane, POSS, materials at the Air Force Research Lab from 1986 to 1992. After a year at Enthone-OMI developing waterborne photo-imageable solder mask he joined NIST in 1994 as a research polymer chemist. Dr. Gilman is the Team Leader for the Sustainable Composites Project at NIST. Dr. Gilman has pioneered new approaches to flame retarding polymers using nano-materials. His current work focuses on interface characterization methods for sustainable composites and study of the utilization of cellulose nanofibers in composites. He has over 60 peer-reviewed publications, several patents and has authored book chapters on polymer nanocomposites, high throughput materials science, flammability, polymer modification, and sustainable polymers. Dr. Gilman has successfully formed four NIST-Industry research consortia, and has had a number of externally-funded research programs during his 18 years at NIST. In 1999, he was awarded the Department of Commerce Bronze Medal, and in 2009 the Jacob Rabinow Award.



Speaker Abstract, "Cellulose Nanomaterials: Nanocomposite Imaging using FRET"

Cellulose is the most abundant organic polymer on Earth, found in plants (cotton, hemp, wood), marine animals (Tunicate), algae (Valonia), bacteria (*Acetobacter xylium*), and even amoeba (*Dictyostelium discoideum*). Critical features of the structural performance of cellulose in these diverse settings are the large aspect ratio and high strength properties of the cellulose nanocrystals (CNC) and cellulose nanofibers (CNF), which provides nano-scale reinforcement. Acid hydrolysis of the native cellulose is the predominant method used to prepare pure CNC and CNF. Depending on the source of the cellulose and the chemical treatment the resulting material can vary in crystalline type, surface chemistry, dimensions, and aspect ratio. This new class of materials is gaining increased importance due to their novel properties (high strength, low thermal

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Volunteers Needed for Chemists Celebrate Earth Day

Contributed by Kim Morehouse, CSW CCED Coordinator

Earth Day is April 22, and the Chemical Society of Washington (CSW) will once again participate in Chemists Celebrate Earth Day (CCED) activities. This year marks the 10th annual celebration of the ACS-sponsored Chemists Celebrate Earth Day, and the theme, "Our Earth: Handle with Care!" focuses on the general topics of water, air, plants/soil, and recycling. Chemistry is all around us and is vital to our planet's sustainability. Whether it's used in recyclable and biodegradable materials or through the reduction of waste, chemistry is involved in ensuring that we can be eco-friendly and kind to our environment. This year's theme explores these concepts and gives us the opportunity to highlight many achievements in the materials field where the transformative power of chemistry is displayed. The CCED

publication, "Celebrating Chemistry," for K-8 grade is available via the ACS website (www.acs.org/earthday).

CSW, in conjunction with the chemistry department from Montgomery College, Rockville Campus will participate in Rockville Science Day on Sunday, April 28, 2013. Rockville Science Day is open to the general public and CSW encourages you to attend. Rockville Science Day is intended to provide a friendly environment for students and their parents to participate in some hands-on demonstrations and to learn more about how science and engineering are important to our society. Additional information about Rockville Science Day can be found on their website, www.rockvillescienceday.org/rcsday.html.

The CSW Outreach Committee and the Environ-

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The Capital Chemist™



*A Publication of the
Chemical Society of Washington
Section of the American Chemical
Society*

Volume 63, Number 4 April 2013

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GENERAL: The Capital Chemist (ISSN 0411-0080) is published monthly from January to December (except June, July, and August) by the Chemical Society of Washington, 1155 16th Street, NW, Washington, DC 20036. Subscription price for an electronic subscription is included in all membership fees; mailed paper subscriptions are \$10.00 per year.

ISSN 0411-0080

POSTMASTER: Send address changes to The Capital Chemist, 1155 16th Street, NW, Washington, DC 20036.

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THE CHEMICAL SOCIETY OF WASHINGTON PRESENTS: *1118th Dinner Meeting*

Thursday, April 18, 2013

Far East Restaurant
5055 Nicholson Lane
Rockville, MD

Agenda

6:00 p.m.: Social Hour

7:00 p.m.: Dinner

8:00 p.m.: Speaker, Dr. Jeffrey Gilman, NIST

COST \$26.00 Members & guests
\$13.00 Students

Menu includes: Eggrolls, dumplings, Far East shrimp, cashew chicken, beef with asparagus, Szechuan string beans, vegetable delight, steamed and fried rice, and tofu with pineapple.

Reservations: Make reservations by **Monday, April 15, 2013, 12:00 noon**, to the CSW office: csw@acs.org or 202-659-2650. Please designate the names in your party. The public is invited to attend. You may attend the talk only, but reservations are appreciated. **Those who make a reservation, but are unable to attend, should send a check for the cost of their meal to the CSW office.**

Directions: From I- 270, take Montrose Road exit east; turn right onto 355, then left on Nicholson Lane. From I-495 outer loop, take Exit 34, north on 355, then right onto Nicholson Lane. From I-495 inner loop, take Exit 36, north on Old Georgetown Rd., then right directly onto Nicholson Lane.

METRO: White Flint station on the red line.



Retired Chemists Group Luncheon April 30, 2013

Alfio's La Tratoria Restaurant
4515 Willard Avenue
Chevy Chase, MD

Agenda

11:30 a.m.: Social (no host bar)

12:15 p.m.: Lunch

1:15 p.m.: Speaker, Dr. Matthew Clarke, Photographic Materials Scientist, National Gallery of Art

Menu choice: (1) Spaghetti and Meatballs, (2) Eggplant Parmigiana, or (3) Chicken Francese. Your entrée selection will be served with house salad, bread, beverage, and spumoni ice cream.

Cost: \$18.00 per person

RCG News

The RCG Board appointed Dr. Regina J. Cody to the office of RCG President-Elect at its meeting on January 26, 2013. Dr. Cody will become RCG President for 2014. RCG officers for 2013 are:

- President: Dr. Joseph Antonucci
- President-Elect: Dr. Regina J. Cody
- Immediate Past-President: Dr. John M. Malin
- Secretary: Dr. Justin Collat
- Treasurer: Dr. Jerome McDonald

The Retired Chemists Group

offers a social program of lunches and
outings available to all.

csw.sites.acs.org/rcg.htm

Reservations: Please send your menu selection(s), along with a check made out to "Retired Chemists Group" for \$18 per meal, to Dr. Jerome McDonald (Tel: 301-570-48650), 19636 Olney Mill Road, Brookeville, MD 20833. Checks and reservations must be received by Friday, April 26, 2013. Alfio's La Tratoria has free valet parking and the Friendship Heights Metro Station is within walking distance (4 blocks).

Speaker Biography

Matthew Clarke received his B.S. in chemistry from the University of Wisconsin-Green Bay. He earned his M.S. and Ph.D. in chemistry from the University of Michigan, where his research focused on polymer interfaces. He subsequently investigated optical imaging methods and analysis at the National Institute of Standards and Technology. Dr. Clarke is now a photographic materials scientist in the Scientific Research Department at the National Gallery of Art, where he works in support of the conservation program. His primary research focuses on platinum and palladium photography, including characterization of the materials and methods employed by artists and the chemical stability of the prints.

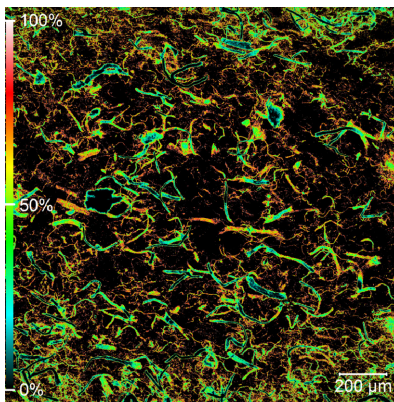
Abstract: "Investigation of Platinum and Palladium Photographs"

The appearance and chemical and physical stability of a photograph depend on the materials and processes used in its creation, as well as its history of storage, display, and conservation treatment. Proper preservation requires a thorough understanding of each of these variables, as well as the underlying chemical reactions and interactions responsible for change. Scientific analysis can aid in identifying a photograph's components and determining possible mechanisms of image formation and degradation. This presentation will detail the production of historic platinum and palladium photographs (popular circa 1890-1920's and 1917-1930s, respectively) and our investigations into the factors that affect their appearance and longevity. The characterization and reverse engineering of a historic commercial chemical modification of the photographic paper surface will also be discussed. Specifically, the Platinotype Company manufactured papers with the label "Japine", which was the most popular of these papers among artists of the time. Research suggests these papers were produced by treating the photographic paper with sulfuric acid to partially parchementize its surface, giving rise to its unique texture.

Speaker Abstract, Continued From Page 1

expansion, rich surface chemistry, and optical transparency). Primary drivers for their use include their renewability and proven low toxicity. Consequently, several pilot plants and a number of commercial scale CNC manufacturing facilities have recently gone online worldwide utilizing wood as raw material. The applications envisioned range from transportation to biomedical.

The use of CNC/CNF to enhance the properties of polymers originated with Marchessault's research in 1959. Recently, this approach has become the focus of international research efforts. The development of measurement methods which can characterize the structure and morphology of cellulose nanocomposites over many length scales are needed to enable successful manufacturing and product development of cellulose nanomaterials. Our application of laser scanning confocal microscope (LSCM) imaging combined with Forster resonance energy transfer (FRET) has enabled multi-scale characterization of the dispersion of nanofibrillated cellulose fibers in a polymer matrix. The LSCM-FRET method has supplied detailed nano-scale interface information, which has been used to inform more detailed structure property force-indentation studies of CNF nanocomposites. The results of these efforts will be presented, along with our recent efforts to characterize the different surface chemistry and morphologies of the CNC/CNF from various sources.

**ACS Webinars™****CLICK * WATCH * LEARN * DISCUSS****Learn more and register at www.acswebinars.org**

April 4: From Lab Hoods to Front Line: Chemists at U.S. Customs and Border Protection

Speaker: Chris Mocella

April 8-9: National Meeting Hybrid Events—Participate Onsite or Online With Exciting Topics and Award-winning Speakers

April 18: From Academia to Entrepreneurship (Session 3 of 9)

Speakers: Mike Chi and Magda Marquet

April 25: Protect Your IP: A Guide to the Newly-Implemented Patent Laws

Speaker: Michael Brodowski

April 30: Local Sections' Nominations and Elections

Speaker: W.M. (Jack) Breazeale

**Calendar of Events****April Dinner Meeting**

Far East Restaurant

Rockville, MD

April 18, 2013

Earth Day Cleanup

Bladensburg Waterfront Park

April 20, 2013

Chemathon 2013

University of Maryland

April 27, 2013

Rockville Science Day

Montgomery College, Rockville

April 28, 2013

Retired Chemists Luncheon

Alfio's Restaurant

Bethesda, MD

April 30, 2013

Anacostia Environmental

Youth Summit

May 31, 2013

Schubert Award Nominations

Due

June 1, 2013

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Project SEED Student Applications Due May 10

Contributed by Dr. Ajay Mallia, CSW-SEED coordinator

For the past 44 years, Project SEED has helped thousands of disadvantaged high school students who historically lack exposure to scientific careers by giving them an opportunity to conduct research at academic, industrial or governmental institutions. Under Project SEED, high school students participate in a scientific research project in chemistry under the direct supervision of a mentor scientist for a period of 8 - 10 weeks during the summer months. In this program, SEED fellows learn new research skills, gain self-confidence and expand their education and career outlooks to place their foot firmly in the tough and expanding job markets. If selected, these students are offered two exciting research opportunities:

Summer I

For first-time participants, students conduct research in chemistry (or a related field) supervised by a scientist mentor. Students receive a fellowship award of \$2,500.

Summer II

Summer II students get a second opportunity to continue working on their Summer I project or beginning a new one. Students receive a \$3,000 fellowship award and may be eligible for a travel grant to present research at an ACS or other scientific meeting.

Application Process

High School science teachers are needed as sponsors to identify excellent chemistry students to participate in Project SEED and assist in the application process. These students must be enrolled in high school, must have taken one year of high school chemistry, and be able to prove economic disadvantage.

Applications for the Project SEED Summer I or II program, as well as Student Financial Statements are due by May 10, 2013. For more information, contact the CSW Project SEED coordinator, Dr. Ajay Mallia, at vajaymallia@gmail.com.



Project SEED Needs Your Support!

Project SEED cannot operate without the help from individuals and companies that support the Scientists-in-training. Are you interested in supporting Project SEED? Last year we unfortunately turned away many applicants because of lack of funding. CSW has established the Noel Turner Memorial Fund to help support Project SEED. Your donation will be used for student stipends (\$2500 for the SEED-1 and \$3000 for the SEED-2 program). Your contribution is fully tax deductible. Contact the Project SEED coordinator, Ajay Mallia (vajaymallia@gmail.com), or CSW (csw@acs.org, phone, 202-659-2650) for more information.



Earth Day Cleanup and Celebration on the Anacostia River

The CSW's Environmental/Sustainability Committee is organizing a group of CSW members to participate in the Anacostia Watershed Society's Earth Day Cleanup and Celebration on the Anacostia River. It's a great way to celebrate Earth Day with fellow CSW members. Be prepared to get dirty and have fun!



Date: Saturday, April 20

Time: 9:00am – 12:00pm river cleanup

12:00pm – 2:00pm post-cleanup celebration event

Location: Bladensburg Waterfront Park

4601 Annapolis Road, Bladensburg, MD 20710

Registration: To register, or if you have questions, contact Jennifer Young Tahir by email at jtahir@hesiglobal.org or csw@acs.org. We are registering as a group, so please contact Jennifer if you are interested in participating.

Note: the location and time of the cleanup may change slightly if we are needed at a different site along the Anacostia River.

For additional details about the cleanup and celebration, please visit <http://www.anacostiaws.org/earthday2013>.

CCED, Cont. from Page 1

mental/Sustainability Committee are co-sponsoring this event. We will partner with the Chemistry Department at Montgomery College. Volunteers from CSW will be providing hands-on activities for children who attend the event as part of CSW's participation in CCED. Volunteers will also hand out copies of the Celebrating Chemistry publication for CCED, and various CCED-themed products. If you would like to volunteer for this event, please contact Kim Morehouse, the CSW CCED Coordinator, at Kim.Morehouse@fda.hhs.gov. Additional activities, as they are planned, will be posted on the CSW website.

Report from a Chemistry Ambassador

Contributed by John M. Malin, CSW Past President (2007)

On Friday, March 22, I was invited to speak on "Careers in Chemistry" to students at Rockville High School as part of their Career Day. My host, science teacher Mark Agnew, met me in his classroom where we set up a PowerPoint presentation detailing educational requirements, various jobs at bachelors', masters', and Ph.D. levels, and the corresponding starting salaries. Several days before the presentation, Mr. Agnew circulated an abbreviated copy of my curriculum vitae to all his chemistry students, asking that they each provide two questions about a career in chemistry. Using those questions and the PowerPoint information provided by the ACS, I spoke to four separate classes of Juniors and Seniors who are considering college majors in chemistry. It was a delightful encounter. I was impressed by the maturity and knowledge of the students and by their excellent questions.

As an ACS Chemistry Ambassador, I felt I was doing my job to help explain the advantages of a career in our field. You too might enjoy becoming a Chemistry Ambassador. It costs you nothing and definitely helps the ACS's mission. To get more information and resources, and to register, just go to www.acs.org/chemistryambassadors.

Chemathon 2013 at the University of Maryland

Contributed by Kim Morehouse

The Twenty-ninth Annual Chemathon will take place **Saturday, April 27, 2013**. The Chemathon is an annual chemistry competition for high school chemistry students in Maryland, Northern Virginia, and the District of Columbia. The Chemathon competition is organized by a committee of area high school chemistry teachers and chemists, and is hosted by the Department of Chemistry and Biochemistry at the University of Maryland at College Park. The Chemathon is open to all area high schools who would like to participate. There is no entry or registration fee. Please see the Chemathon website for information on how to register your school (<http://www2.chem.umd.edu/chemathon/>).

Additionally, CSW will once again be a sponsor for the Chemathon and volunteers are needed to judge the poster contest as well as to assist with the various competitions. If you would like more information, or to volunteer for this event, please contact Kim Morehouse (Kim.Morehouse@fda.hhs.gov).



Call for Nominations: 2013 Leo Schubert Award

Contributed by Mike Doyle, Awards Committee Chair

The Leo Schubert Memorial Award recognizes an outstanding teacher of high school chemistry in the Washington, D.C. area. The award was established in 1979 to honor Dr. Leo Schubert, a chemistry professor at American University who devoted much of his career to developing programs for high school teachers and students. The award consists of a \$500 honorarium and a certificate, which will be presented at the December CSW dinner meeting.

Nominations for the award must be comprehensive and include supporting letters as well as details about the nominee's accomplishments in areas such as innovation in teaching, writing curricula, outside teaching, papers published, involvement in science fairs and postgraduate study. A nomination form can be obtained via an e-mail request to csw@acs.org.

Eligibility: the nominee must teach chemistry at a secondary school in the geographic region of the Chemical Society of Washington, Washington, D.C., which includes neighboring counties in Maryland and Virginia. Please contact the Chair of the Awards Committee, Michael P. Doyle, mdoyle3@umd.edu, if you have any questions. Completed nominations must be submitted by Monday, June 1, 2013.



Left: Hillebrand Award Winner Akos Vertes (right) accepting his award from CSW President Doug Raber (left). Photo credit: Ajay Mallia

CSW Younger Chemists Committee (YCC) News and Events

YCC Webinar was a Big Success!

Contributed by Dr. Ajay Mallia and Dr. Deana Jabor, CSW-YCC coordinators

CSW-YCC tuned into the ACS webinar “A Date with Science: Dinner and Dessert Chemistry” at Marymount University. About 70 attendees enjoyed the chemistry, as well as the desserts. The CSW- YCC committee would like to recognize and thank all CSW-board members, ACS-YCC members, ACS-Career staff and Marymount Science Club members who actively participated in making this event a big success.



Above & Right: Attendees enjoying the webinar at Marymount University. *Photo credit: Ajay Mallia*



Above: Dr. Deana Jabor (Right) presenting ACS beaker mug to raffle winner. *Photo credit: Ajay Mallia*

“Do you know? Beer Chemistry” Networking Happy Hour on March 26, 2013



Finding your path

CSW-YCC will be organizing a career-related workshop.

Date and Time: May 4, 2013, 10am-noon

Venue: Othmer Room, ACS headquarters, Washington, DC

“Career” means different things to chemists, especially younger chemists these days, whether at the graduate or postdoctoral level. In order to explore the diverse opportunities available in today’s market, CSW-YCC will be organizing a workshop on career development and job prospects in the industrial and academic settings. Attend this workshop to hear expert advice on career development. Additional details will be provided on the CSW website (<http://csw.sites.acs.org/>), or contact YCC-coordinator Dr. Ajay Mallia (vajaymallia@gmail.com) for more information. Please register by noon on Monday, April 29 by sending an email to csw@acs.org. Limited seats are available, so please reserve soon!



Marymount University &
CSW-YCC
Present
**CHEMISTRY
IN FORENSIC SCIENCES**
by
Dr. Jason Schaff, FBI

Dr. Schaff received a chemistry B.S. in 1991 from Yale University, and an analytical chemistry Ph.D. in 1997 from the University of Minnesota. He spent a two-year post-doctoral fellowship at the Indiana University Medical School, doing research on analysis of anabolic steroids. Since 1999, Dr. Schaff has worked as a forensic chemist at the FBI Laboratory. There he performs analyses in support of a variety of toxicology investigations, including poisonings, product tampering, drug-facilitated sexual assaults, and coroner’s inquests from U.S. territories and possessions. He also works on the implementation of new analytical methods and technologies to support these investigations.



Wednesday, April 17, 2013, 4pm

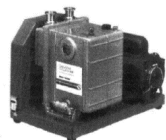
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For more information contact CSW at csw@acs.org

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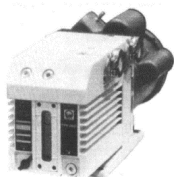
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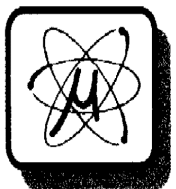
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