

# Chesapeake Chemist

*Maryland Section  
American Chemical  
Society*

## 2012 RECIPIENT OF THE BRAUDE AWARD



**Dr. Paul C. Trulove**

**“Natural Fiber Welding”**

**Award Dinner**

Wednesday, October 17<sup>th</sup>

6:30-9:30 pm

The Club at Greenbury Point, Annapolis, MD

**2012 Section Officers:**

*Chair 2012* – Holly Cymet, Stevenson University, [holly.cymet@gmail.com](mailto:holly.cymet@gmail.com)

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**Award Committee Chairs:**

*Student Awards* – George Farrant, Retired, [gfarrant@yahoo.com](mailto:gfarrant@yahoo.com)

*Remsen Award* – Dana Ferraris, Johns Hopkins University, [dferrar2@jhmi.edu](mailto:dferrar2@jhmi.edu)

*Braude Award* – Louise Hellwig, Morgan State University, [louise.hellwig@morgan.edu](mailto:louise.hellwig@morgan.edu)

*Maryland Chemist Award* – Angela Sherman, Notre Dame of Maryland University, [asherman@ndm.edu](mailto:asherman@ndm.edu)

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**Contact us at:**

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# 2012 BRAUDE AWARD DINNER

## “Natural Fiber Welding”

~ Paul C. Trulove, Ph.D. ~

United States Naval Academy

Wednesday, October 17, 6:30 – 9:30 pm

The Club at Greenbury Point

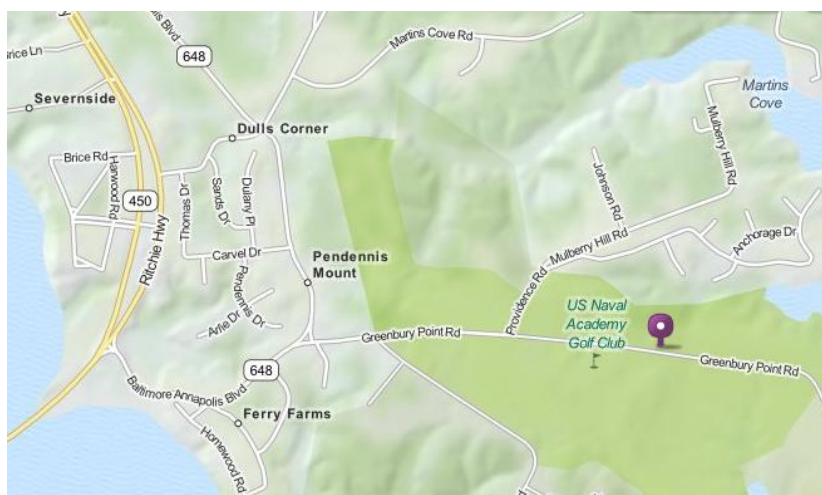
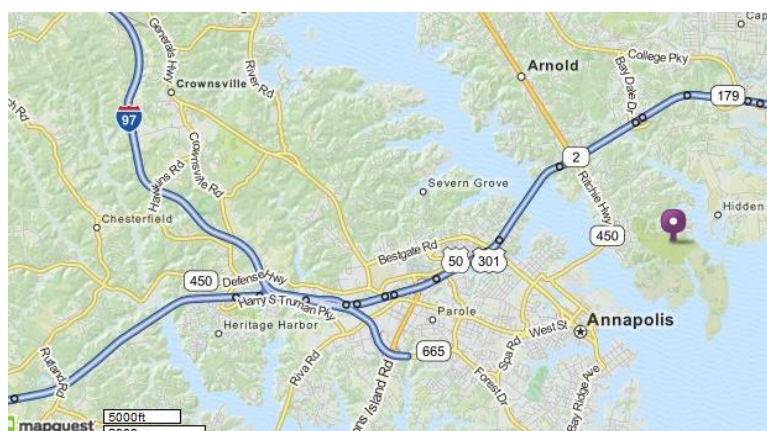
64 Greenbury Point Rd

Annapolis, MD 21402

6:30 – 7:15 pm	Registration / Networking / Light Refreshments
7:15 – 8:15 pm	Dinner
8:15-9:30 pm	Speaker talk and award presentation
Price	\$20 for members/nonmembers, \$10 for students
RSVP (by October 15 <sup>th</sup> )	<a href="mailto:contact-us@mdchem.org">contact-us@mdchem.org</a>

### Directions to The Club at Greenbury Point:

- From the Baltimore beltway (I-695), take Exit 4 onto I-97 S.
- Take the US-50 E / US-301 N exit on the left toward Annapolis / Bay Bridge.
- Take the MD-665 exit toward Aris T Allen Blvd / Riva Rd.
- Merge onto US-50 E / US-301 N via the exit on the left toward Annapolis / Bay Bridge.
- Take the MD-2 N / MD-450 S exit, EXIT 27, toward Naval Academy / Baltimore.
- Merge onto Ritchie Hwy / MD-450 S toward Naval Academy
- Turn left onto MD-648 / Baltimore Annapolis Blvd.
- Stay straight to go onto Greenbury Point Rd.
- 64 GREENBURY POINT RD is on the left.



## Abstract

Throughout history mankind has exploited the remarkable properties of natural polymers such as silk and cellulose. In modern times, these natural materials still possess properties that rival the most advanced synthetic polymers. Recent work has shown ionic liquids to be effective solvents for the dissolution of a wide variety of natural polymers, and new materials can be created from these natural feedstocks by processes that involve their full dissolution and subsequent reconstitution. However, many reports show that the dissolution and reconstitution processes eliminate the native polymer structure, often with deleterious consequences to the physical properties of the resulting materials. Recently we have demonstrated a methodology we call “natural fiber welding” which allows complex composite materials to be created while simultaneously retaining selected amounts of biopolymer in the native state. The key feature of natural fiber welding is its ability to open up and mobilize biopolymer structures to enable chemistry; this allows the manipulation and modification of natural materials and makes possible the imparting of new functionalities. Furthermore, dramatic enhancement and modification of physical and chemical properties can be realized without disruption to many of the desirable properties intrinsic to natural materials. By precisely regulating process variables such as the purity, type, amount, and placement of ionic liquid solvent as well as the time and temperature of treatment, we have demonstrated controlled reorganization of natural material hydrogen bonding networks. We are currently carrying out fundamental studies that are directed towards the characterization and development of the fiber welding process. These systematic studies are forming the foundation from which we will be developing advanced methods for processing and modification of materials using natural fiber welding.

## Speaker Biography



**Paul C. Trulove** is a professor of chemistry at the US Naval Academy. He received his BS in Chemistry from the University of Kansas in 1984. Upon graduation he entered the Air Force where he served for over 20 years achieving the rank of Lieutenant Colonel. While on active duty he completed his MS in Chemistry from the California State University at Northridge (1988), and his PhD from the State University of New York at Buffalo (1992). His PhD work was carried out under the direction of Robert A. Osteryoung. In the Air Force he had a diverse set of assignments including tours at the Air Force Rocket Propulsion

Laboratory, Edwards AFB, where he conducted research on rocket oxidizer corrosion; and the Frank J. Seiler Research Laboratory, US Air Force Academy, where he studied compact power applications of ionic liquids. His last five years on active duty were spent at the Air Force Office of Scientific Research where he was program manager for Surface and Interfacial Science. Under his program he managed all Air Force basic research funding in the areas of corrosion, compact power, electrochemical processes and reactions, advanced surface structures, and tribochemistry. Upon retirement from the Air Force in 2004 he joined the chemistry faculty at the US Naval Academy.

Ionic liquids have been the dominate focus of Prof. Trulove’s research throughout much of his career. His current research is directed at investigations of the fundamental properties of ionic liquids and the application of these solvents to the processing and modification of natural polymers. In addition, he has also worked extensively on the application of ionic liquids for high-energy density batteries and metal alloy deposition. He has published 120 technical articles (66 peer-reviewed) on these subjects, and he holds three patents on biopolymer processing in ionic liquids. He has contributed ten chapters to books and edited 24 technical proceedings. In addition to numerous military awards and decorations, he is a Fellow of the Electrochemical Society, and he is the recipient of the Air Force Materiel Command, Science and Technology Award and the U.S. Naval Academy Class of 1951 Civilian Faculty Research Award.

*A message from the American Chemical Society Office of Public Affairs:*

## **Sequestration**

As you may recall, last year's debt ceiling compromise included a legislative mandate called the Budget Control Act of 2011 or BCA. The BCA first created the "Super Committee," which Congress directed to develop a bill that would reduce federal spending by \$1.2 trillion over a 10 year period.

However, the Super Committee was unable achieve consensus and negotiations on spending reductions collapsed. As a result, the focus has shifted to the **automatic sequestration** process, a series of automatically triggered, across-the-board budget cuts.

Under the sequestration, \$1.2 trillion in spending reductions must take place over the next 10 years. If Congress is unable to pass a budget in the upcoming, post-election session, the automatic cuts start on January 2<sup>nd</sup>, 2013. This would result in **budget cuts up to 8.2% per year for federal science agencies** such as the National Science Foundation, National Institutes of Health, Environmental Protection Agency and the National Institute of Standards and Technology.

For more information on this important issue, please contact Katelynn Eckert at [k\\_eckert@acs.org](mailto:k_eckert@acs.org).

If you wish to express your concern regarding across the board funding for STEM Education and Research, you can find direct contact information for your federal House Representative at <http://www.house.gov/>.

## **2013 Maryland Section Officer Election now in progress**

The election for the 2013 Maryland Section Officers is now open! You should have received an email providing a direct link to the ACS-MD electronic election ballot with your registration code. If you have trouble with this link, you may go to <http://vote-now.com/go/ACS-MD/> and manually enter the registration code provided in your email. Candidate statements and biographies are available once you have successfully entered the site. Alternatively, they may be found in the September, 2012 issue of the Chesapeake Chemist. Paper ballots have been sent out to members without an email address. Anyone who would prefer to vote by paper ballot may contact James Saunders at [jsaunders@towson.edu](mailto:jsaunders@towson.edu).

### **Voting is open until October 31<sup>st</sup>**

NOTE: Only Maryland Section members may vote in this election. If you are a section member and have not received your email ballot, please contact James Saunders at the email address listed above.

### *Note from the Maryland Section Chair:*

Each year we receive comments during the election process inquiring as to why there is only one candidate for many officer positions. This is an issue that the Executive Board struggles with every year. The ACS Maryland Section is a volunteer organization and we rely on our members to graciously donate their time to support the work we do. As you may know, it is often difficult for people to take on additional commitments in their already busy lives.

Our section is a very active one which organizes many events and outreach efforts. Volunteering with us is rewarding both personally and professionally. We encourage you to participate by donating even just a few hours of your time to any one of our activities, or to come to our board meetings to learn more about us. And if you are inspired to become more engaged, or know someone else who would be, do not hesitate to nominate yourself or them for any of our elected positions!

# Upcoming Events and Announcements

## CALL FOR JUDGES:

### 15<sup>th</sup> Annual Undergraduate Research Symposium in the Chemical and Biological Sciences

University of Maryland, Baltimore County  
1000 Hilltop Circle  
Baltimore, MD 21250

**Saturday October 20, 2012**

Each year the University of Maryland Baltimore County, with the support of NIGMS/NIH, sponsors a research symposium that draws undergraduate students from up and down the East Coast. The Symposium aims to foster communication and collaboration across the interface of the chemical and biological sciences. Undergraduate students engaged in research in chemistry, biology and biochemistry have the opportunity to share their work with more than 400 attendees, developing their professional and communication skills while broadening their perspective on the interface between these disciplines.

**Faculty mentors and qualified attendees are encouraged to support this exceptional undergraduate experience by volunteering to serve as poster judges.** For information on volunteering, you may contact the event organizers at [Symposium@umbc.edu](mailto:Symposium@umbc.edu) or (410) 455-2520. For more information on the symposium, visit <http://www.umbcsymposium.org>.

## CALL FOR NOMINATION: 2013 Remsen Award

The Maryland Section of the American Chemical Society is seeking nominations for the 2013 Remsen Award. The award was inaugurated in 1946 in honor of Ira Remsen who was the first Chairman of the Chemistry Department at Johns Hopkins University and the second President of the University. The Remsen Memorial Lecturers are chemists of outstanding achievement in keeping with Ira Remsen's long and devoted career as an exponent of the highest standards in teaching and research in chemistry. The Award includes a plaque and an honorarium. The nomination forms can be found on the ACS website ([www.acs.org](http://www.acs.org)) under Funding & Awards. Please send the nomination form and a brief CV for the nominee *electronically* to Dana Ferraris at [dferrar2@jhmi.edu](mailto:dferrar2@jhmi.edu) by **no later than November 30, 2012**.

## 2012 MARYLAND SECTION EVENT SCHEDULE

Event	Date	Location
Braude Award Dinner	October 17	The Club at Greenbury Point
National Chemistry Week	October 21-27	Everywhere!
Women Chemists Committee Dinner	November 14	TBA
Maryland Chemist of the Year Dinner	December	TBA

If you have any ideas or suggestions about new events please feel free to contact us at [contact-us@mdchem.org](mailto:contact-us@mdchem.org)

## REMINDER: Receiving the Chesapeake Chemist

Hopefully, if you are reading the Chesapeake Chemist this month, you are receiving it via e-mail from us. We went to electronic-only mailings to our MD ACS membership in October 2006.

## Changing your e-mail address? Moving out of the MD ACS area?

E-mail changes can be updated either by:

- E-mailing us at [contact-us@mdchem.org](mailto:contact-us@mdchem.org) – give us your member #, full name, and e-mail changes and we can ensure that your records are updated with National ACS.
- **Contacting the National ACS membership division: 800-333-9511 (US only)** or [service@acs.org](mailto:service@acs.org)

To ensure that you receive the Chesapeake Chemist, please add the MD ACS e-mail ([contact-us@mdchem.org](mailto:contact-us@mdchem.org)) to your accepted e-mail address list IF you have a spam filter.

If you are a member who currently doesn't receive the Maryland ACS Chesapeake Chemist but download it from our website, it is possible that National ACS does not have your e-mail address on file. If you want to receive the Chesapeake Chemist via e-mail, please e-mail us at [contact-us@mdchem.org](mailto:contact-us@mdchem.org) – give us your member #, full name, and e-mail address and we can ensure that your records are updated with National ACS.

The current edition and previous editions of the Chesapeake Chemist can ALWAYS be obtained via our website: <http://mdchem.org> – please see the Newsletter Archive link on the right-hand side of the website.



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