THE OCTAGON

Volume 90, No. 2, February 2007 Lehigh Valley Section of the American Chemical Society

In This Issue:

Meeting Announcement:
793rd LVACS Meeting:
Cedar Crest College

Date:Tuesday February 27, 2007
Reception:6:00-6:30PM Alcove A, Tompkins College Center
Dinner: 6:30-7:30PM 1867 Room, Tompkins College Center
Meeting: 7:30PM, 1867 Room
Talk: At the conclusion of the meeting
Menu: Beef Burgundy or a vegetarian option is available upon request
Cost: Cost: $ 15.00 , spouses, students and retirees $8.00
Contact: Lesley Jones at 610-606-4666 ext 3457 or Lesley@cedarcrest.edu by noon on Wednesday Feb 21, 2007 Please give your name, affiliation and phone number.
Directions: Directions: consult the map and directions at http://www.cedarcrest.edu/Redesign/Home%20Page/atagla nce_frameset.asp

Speaker: Thomas A. Brettell, Ph.D., D-ABC
Dr. Brettell is Assistant Professor in the Chemical and Physical Sciences Department at Cedar Crest College. Tom received his BA degree (1973) in Chemistry from Drew University, Madison, NJ; a MS degree (1975) in Chemistry from Lehigh University in Bethlehem, PA; and a Ph.D. degree (1987) in Analytical Chemistry from Villanova University, Villanova, PA. Dr. Brettell joined Cedar Crest College in the fall of 2006. He previously served as Director of the New Jersey State Police Office of Forensic Sciences, where he oversaw the operation of the State's four regional forensic laboratories, the Equine testing laboratory in the Meadowlands, and the DNA Laboratory in the Forensic Science Technology Complex at Hamilton, NJ. Dr. Brettell joined the New Jersey State Police Forensic Science Bureau in 1976 as a Forensic Chemist where he worked in the Drug and Toxicology Units of the Central Laboratory (West Trenton, NJ). In 1980, Dr. Brettell was appointed as the Technical Director of South Regional Laboratory (Hammonton, NJ), and later served as the Technical Director of the Central Laboratory until 1990 when he was assigned to the Chief Forensic Scientist's office. Dr. Brettell was promoted to Assistant Chief Forensic Scientist in 1993 and then to Chief Forensic Scientist in August of 1998. In 1993, he received a commendation from the NJSP Superintendent for his work on a narcotics investigation. For several years, Tom has taught Forensic Science in the Criminology and Justice Departments at The College of New Jersey and Rider University. He is the past Chair of the Criminalistics Section of the American Academy of Forensic Sciences and the past President of the Chromatography Forum of the Delaware Valley. Tom was presented the Chromatography Forum of the Delaware Valley Award in 1997 for service to the Forum and accomplishments in the field of separation science and also served on the Advisory Board of the Journal of Analytical Chemistry from 1996 to 1998. Dr. Brettell was recently appointed to the Governor's Advisory Council Against Sexual Violence and to the National Safety Council's Committee on Alcohol and Other Drugs. Dr. Brettell is a certified Diplomat of the American Board of Criminalistics and a Fellow in the American Academy of Forensic Sciences. He also holds memberships in the New Jersey Association of Forensic Scientists (Director 1999-2000), Northeastern Association of Forensic Scientists, the Mid-Atlantic Association of Forensic Scientists, and the American Chemical Society. Tom has numerous publications and has presented several seminars and technical presentations on various aspects of Forensic Science.

Talk: Measuring Alcohol in Blood and Breath for Forensic Purposes - A Historical Perspective
The first scientific investigations into the fate of alcohol in the human body started about 150 years ago. Since that time significant technical innovations have evolved to make

the analysis and measurement of ethanol in biological specimens scientifically reliable for medico-legal purposes. This presentation will discuss important events and trends in the evolution of chemical tests for alcohol intoxication. A historical perspective of the development of methodology will be described which includes the pioneer wet chemical methods and the present state-of-the-art instrumentation. Quantitative methods for the determination of alcohol in the blood, breath, and urine appeared early in the twentieth century. Around 1935 in the U. S., the first instrument was developed for measuring the concentration of alcohol in a person's breath. After the development of the Breathalyzer around 1953, breath-alcohol testing became established for law enforcement purposes both in the U.S. and Canada. The technology of breath-alcohol testing has changed dramatically over the years from chemical oxidation and colorimetric procedures towards physicochemical techniques such as gas chromatography, electrochemical oxidation, and infrared spectrophotometry. The classic wet-chemistry methods for blood alcohol were replaced by enzymatic procedures in the early 1950's and in the 1960's gas chromatographic methods began their domination. Today, headspace GC is the mainstay in forensic blood alcohol determination as well as for the analysis of other volatiles in biological fluids.

Winter-Spring 2007 Meeting Schedule

March - Desales University
HS Teacher's Night
April 24 - Moravian College - Student Awards and Poster Session
May - East Stroudsburg University
Pub Night Rescheduled!

Meeting Minutes **- November 2006**

The 791st meeting of the Lehigh Valley Section of the American Chemical Society was held on November 16, 2006 at Lehigh University. Chair T. Michelle Jones-Wilson called the meeting to order at 7:30 pm.

The first order of business was the election of the officers for the upcoming year. The floor was opened for nominations, but none were brought forward. The entire slate of officers was unopposed. The slate was elected by a voice vote. The Officers of the LVACS for 2007 will be:

Chair Paul Bouis
Immediate Past Chair and Alternate Councilor T. Michelle Jones-Wilson
Chair Elect Julie Ealy
Treasurer John Freeman
Secretary Chester Crane
Councilor Carol Baker Libby
Councilor Pamela D. Kistler
Alternate Councilor Roger Egolf

Treasurer's Report: The chapter has been awarded a project grant for $2800 that will be used for a Discover Chemistry Evening with activities oriented towards K-9 students. The proposed budget for 2007 was published in the November *Octagon*.

Look for details on the High School Scholarship from the Section available to local students in *The Octagon*. Next meeting will be in January at Muhlenberg College.

Ned Heindel of Lehigh University introduced the speaker for the evening, Salvatore Salamone of Saladax Biomedical. His talk was entitled "Advances in Chemotherapy Management: Making drugs more effective and less toxic". An abstract of the presentation was published in the November, 2006 *Octagon*.

The meeting was adjourned following the presentation.

Respectfully submitted,
Chester Crane

This Month in Chemical History

Harold Goldwhite, California State Univ. Los Angeles
hgoldwh@calstatela.edu
Prepared for SCALACS, the Journal of the Southern California, Orange County, and San Gorgonio Sections of the American Chemical Society

In a previous column I discussed the career of Jean Perrin, Nobel Laureate in physics in 1926. Perrin's major contributions, which had a considerable impact on chemistry, were his demonstration that cathode rays were particulate, a precursor to J.J. Thomson's discovery of the electron; and his studies of Brownian motion which led not only to a value of Avogadro's number but also to an acceptance of the existence of physical atoms.

Perrin's best-known book "Les Atomes" went through many editions and was translated into several languages. My copy of the second English edition revised was translated by D. Ll. Hammick of Oriel College Oxford and was published By Constable and Company in London in 1923. It is entitled, simply, "Atoms". I mean to compliment the author when I say that the text is argued in a particularly logical and – dare I add- French manner in the spirit of

Descartes, Pascal, and Poincare. A quotation from the Preface will give the flavor: "To divine … the existence and properties of objects that still lie outside our ken, to explain the complications of the visible in terms of invisible simplicity, [italics are in the original] is the function of the intuitive intelligence which, thanks to men such as Dalton and Boltzmann, has given us the doctrine of atoms." " Induction and intuition have both up to the present made use of two ideas that were familiar to the Greek philosophers; these are the concepts of fullness (or continuity) and of emptiness (or discontinuity)."

Through discussions of such familiar observations as the thickness of gold leaf and his own observations on the uniform fluorescence of very dilute solutions of fluorescein Perrin is able to conclude that the mass of a hydrogen atom must be less than 10-21g. This estimate can be refined by studies of very thin ("black") soap films and thin oil layers on water to give an order of magnitude of the mass of one hydrogen atom as about one-thousandth of this.

Perrin's discussion of internal energies of molecules and specific heats is both lucid and up-to date (recalling that this is a 1923 text.) He integrates quantum theory (first enunciated by Planck to little acclaim in 1900, but given a substantial impetus by Einstein's work on the photoelectric effect in 1905) with its applications by Einstein and Nernst to both vibrational energies of molecules and the quantization of rotational energy.

Not surprisingly, the discussion of the Brownian Movement in this book is magisterial. After tracing the history from the time of the British botanist Robert Brown in 1827 who had the advantage of working with some of the first achromatic microscope objectives Perrin summarizes the work of other contributors to the area including Wiener, Gouy, and Ramsay. He then outlines the ideas which led him to his theory of the Brownian Motion. His own elegant experiments are then detailed, including the equipment needed to obtain photographs of the distribution of particles as a function of depth in a colloidal suspension. These results then lead to a value of Avogadro's number very close to the currently accepted value.

Current events (2006) may be reflected in a couple of remarkable statements in "Atoms". In a discussion of isotopes early in the book Perrin suggests (following Soddy and Fajans) that although ordinary chemical methods of isotope separation will fail completely the forces of inertia should make the separation possible. "A sufficiently energetic centrifugal fractionation should be capable of bringing it about." I am not sure if this prediction was tested during the Manhattan Project. Perrin used centrifuges rotating at around 2500 r.p.m. to produce a centrifugal force of around 1000g to separate dye particles for his work on the Brownian motion. "I need scarcely point out that, as in all other kinds of fractionating work, a good separation is a lengthy process. In the most careful of my fractionations I treated 1 kg of gamboge [a dye] and obtained after several months a fraction containing a few decigrammes of grains having diameters approximately equal to the diameter I wished to obtain."

Perrin concludes his discussion of the atom with the observation that many widely divergent phenomena, apparently unconnected, can in fact be linked by atomic and quantum theories of the early 1920's. I can close with nothing better than the following remarkable quotation: " … the equations for black [body] radiation and the Brownian motion … enable us to predict the rate of diffusion of spherules 1 micron in diameter in water at ordinary temperatures if the intensity of the yellow light in the radiation issuing from the mouth of a furnace containing molten iron has been measured." !

ChemShorts for Kids: Dry Ice

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

A Dry Ice Demo

Kids, what causes the "smoke" from bubbling beakers and flasks in TV shows and movies? Dry ice is another name for the solid form of carbon dioxide (CO_2). It is colder than water ice but can be handled safely for short periods of time with insulating gloves. There is a video of the classic dry ice fog demonstration on-line (at http://www.metacafe.com/watch/286601/dry_ice/), with a twist. After water is added to the dry ice to create a smoky fog, hand soap is squirted into the mix. The resulting cascade of bubbles is fun, but what makes this video really interesting is the bubbles vanishing in a puff of fog when touched.

To try this at home, we recommend an adult partner only for handling the dry ice, using tongs and insulating gloves (such as leather gardening gloves). A double Styrofoam cup makes a good container, and we suggest putting this inside a secondary container (like a dishpan, for example). A ceramic coffee cup would probably also work. A single large chunk of dry ice will last longer than a number of smaller chunks, and hot water works better than cold, but just use hot water from the tap. Boiling hot water could create a hazard in handling.

Dry ice is so called because it does not melt into liquid carbon dioxide before turning into gas. The process of a liquid changing state into gas is called evaporation. When a solid changes directly into gas, the process is called sublimation.

The white cloud that forms is not smoke, but rather

condensed water vapor. Tiny droplets of water make the white cloud. The clouds almost immediately disappear because the water droplets warm right back up and re-evaporate back to form invisible water vapor. This is how fog forms: when it is humid enough and the temperature drops enough you get lots of tiny water droplets forming.

Notes

Your adult partner can get dry ice from a specialty gas company, such as one that deals in oxygen, helium, and nitrogen, or from stores that ship perishable food. Bakeries and seafood shops can often provide a good lead, or a popular restaurant could be asked if they carry dry ice. Dry ice is cold enough to cause frostbite so protective gloves are necessary. Also, be aware that extra carbon dioxide is added to the air as dry ice vaporizes. Carbon dioxide is naturally present in air, but under some circumstances, the extra amount can present a health hazard.

Reference:
Dr. Anne Marie Helmenstine at
http://chemistry.about.com/library/weekly/aa010603a.htm
http://chemistry.about.com/b/a/257641.htm
http://chemistry.about.com/b/a/257641.htm

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An archive of previously published ChemShorts is available at ***http://membership.acs.org/C/Chicago/home.html***

CAS Indexes A Million Documents In 2006

Chemical Abstracts Service (CAS) reported it has for the first time indexed and added to the CAS databases more than a million document records in a single year, reflecting the worldwide acceleration of scientific research and patents. CAS announced this signal achievement on the eve of the 100th anniversary of the organization and Chemical Abstracts™, which was first published in January 1907.

As the world's most authoritative scientific information resource, CAS' records reflect dynamic research and patenting activity worldwide as the United States still leads but the Asian powerhouses grow stronger.

CAS database statistics for 2006 indicate the international distribution of the 1,016,669 publications indexed this year:

Languages of publication: 50

Top 3: English: 68.1%, Chinese 13.1%, Japanese 10.3%

Countries of origin: 194

Top 3: U.S.: 19.4%, China (PRC) 17.6%, Japan 16.6%

Patents from 50 issuing authorities accounted for 24.4% of the publications, but contained more than 50% of the new chemical substance information recorded by CAS. The greatest number of publications were articles from CAS' extensive journal coverage in chemistry and related science, for which CAS monitors more than 9,500 titles. Additional sources included conference proceedings, symposia and other documents.

"Throughout the lifetime of Chemical Abstracts and the CAS databases, our records have mirrored the progress of research in chemistry and related sciences," said Matthew J. Toussant, CAS vice president, editorial operations. "It took 30 years for CA to publish its first million abstracts, and we have now exceeded that total in a little less than one year. This achievement dramatically illustrates the rapid pace of research occurring worldwide."

To gain access to the wealth of information in CAS databases, scientists, students, and patent professionals can use a variety of CAS products and search services. "Our comprehensive database of chemistry and related scientific information is an invaluable resource," said Catharina Maulbecker, CAS vice president of marketing and sales. "The added value of the STN® and SciFinder® search tools enables the scientific community to apply the information to full advantage as they build upon this century of knowledge."

More information on CAS databases and search services can found on the web at **www.cas.org.**

ACS Presidential Events – Chicago, ILL

Catherine T. ("Katie") Hunt, ACS President 2007, will be cosponsoring a full week of exciting presidential events and sessions in Chicago. In her desire to address substantive societal issues, she has selected Sustainability of Energy, Food and Water as the presidential theme for the Chicago meeting in March and Material Innovations: From Nanotech to Biotech and Beyond as the presidential theme for the Boston meeting in August. Her goal is to successfully execute meaningful thematic programming at national meetings that will not only nucleate ideas, foster community, and accelerate innovation, but will be essential to effectively communicate chemistry to a broader audience. Openly discussing these topics as a scientific community will better enable us to speak with one voice to our membership, the media and the general public.

SUSTAINABILITY OF ENERGY, FOOD AND WATER. Three presidential sessions will be featured, including Sustainability: A World View on Sunday, March 25, Technology Challenges and Opportunities for a Sustainable Future on Monday, March 26, and Educating for Sustainability on Monday, March 26. These themes are well-aligned with the ACS strategic plan and the new thematic programming initiative of ACS divisions and secretariats for national meetings. For full descriptions of these sessions, refer the Sustainability (SUST) listing in the technical program or on-line at chemistry.org/meetings/chicago2007.

* Sustainability: A World View, Sunday, March 25, 1 to 4 PM, McCormick Place.

* Presidential Reception, Sunday, March 25, 4:30 to 6 PM, McCormick Place.

* Pressing Challenges and Technology Opportunities for a Sustainable Future, Monday, March 26, 8 to 11:30 AM, McCormick Place.

* Sustainability Luncheon, Monday, March 26, 11:45 AM to 1:15 PM, McCormick Place. (See Ticketed Events for ticket information.)

* Educating for Sustainability, Monday, March 26, 1:30 to 4:30 PM, McCormick Place.

CHEMISTRY IN ACTION: IT'S EASY BEING GREEN COMMUNITY OUTREACH PROJECT FOR UPPER ELEMENTARY AND MIDDLE SCHOOL STUDENTS [cosponsored by Committee on Community Activities]. Saturday, March 24, 11 AM to 1 PM, The Notebaert Nature Museum at 2430 N. Cannon Dr.

OTHER SYMPOSIA AND EVENTS SUPPORTED BY THE PRESIDENT. In addition to all Sustainability events, the following sessions are cosponsored by the ACS President.

* Student Affiliates ACS Chapter Awards [sponsored by CHED] Sunday, March 25, 7 to 8:30 PM, Hotel Westin Michigan Avenue.

* Realizing the Full Potential of Solar Energy Conversion through Basic Research in Chemistry and Biochemistry [sponsored by PHYS; cosponsored with SUST], Monday, March 26, 8 AM to 5 PM, McCormick Place.

* Sustainability and Chemistry: Tomorrow's Challenge for Today's Students [sponsored by SOCED; cosponsored with CEI], Monday, March 26, 9 to 10 AM, Westin Michigan Avenue.

* Going with the Flow: Water Sustainability: Past, Present, Future

[sponsored by HIST; cosponsored with SUST and ENVR] Tuesday, March 27, 8:30 AM to 12 Noon, McCormick Place.

* Benchmarking the Research Competitiveness of U.S. Chemistry and Chemical Engineering [sponsored by PRES, cosponsored with CHED, CEPA, ComSCI, and International Activities Committee] Tuesday, March 27, 2 – 4:30 PM, McCormick Place.

* Excellence in Graduate Polymer Science Research Symposium [sponsored by POLY; cosponsored with YCC and PROF], Poster Session: Sunday, March 25, 6 to 8 PM, Hyatt Regency Chicago; Oral Session: Monday, March 26, 8:30 AM to 5:30 PM, McCormick Place;

* Undergraduate Research in Polymer Science [sponsored by POLY], Oral Session: Sunday, March 25, 8:30 to 12:30 PM, McCormick Place; Poster Session: Sunday, March 25, 6 to 8 PM, Hyatt Regency Chicago.

* Women Achieving Success: the ACS as a Platform in Leadership Development [sponsored by WCC; cosponsored with PROF], Tuesday, March 27, 9 to 10:40 PM and 2 to 5:15 PM, Hyatt Regency McCormick Place.

39th Marm Registration and Submission Opens

39th Middle Atlantic Regional Meeting (MARM) Announces Opening of Registration & Online Abstract Submittal

Ursinus College, Collegeville, Pennsylvania, is the site for the ACS MARM 2007 Regional Meeting, hosted by the Philadelphia Local Section. The dates are May 16 – 18. Both advance registration and online abstract submittal are open but will be closing in a very few weeks. Students are also encouraged to submit their work.

General Co-Chairs, Victor Tortorelli and Sharon Haynie, and their committee have put together an exciting and innovative program selected with the professional interests of the members in the region in mind. Visit the website at www.marmacs.org for a listing of presentations and events by day. Among the many topics are biological chemistry, chemistry of aging, sirtuin biochemistry, molecular magnetism, carbon nanotubes, glycoproteins, and excited electronic states.

The meeting will open Tuesday evening, May 15, with a welcome reception; and a barbecue will be held Wednesday evening. Also planned is a Cope Scholars Award symposium, along with several awards recognizing the contributions of chemists, industry, and educators in the region, a Women Chemists luncheon and half-day workshop on "Thriving in the Workplace" and ACS Career Management workshops.

Dr. Anne O'Brien will host a District Directors Breakfast Thursday, May 17. All attendees are invited for a complimentary breakfast and to meet governance, hear the latest news from the spring national meeting, and offer comments, suggestions, and opinions on your Society. Following breakfast is a symposium on Green Chemistry, the first formal Presidential Event at a regional meeting sponsored by ACS President Katherine Hunt .

Mark your calendars -- this is one meeting you don't want to miss!

LVACS Scholarship Opportunities Organic Chemistry Scholarship

The Lehigh Valley Section of the American Chemical Society's Scholarship for Organic Chemistry Competition takes place on Saturday April 28, at Moravian College Bethlehem, PA, Collier Hall of Science - Dana Lecture Hall 9:00AM-10:30AM. The competition entails taking the ACS Organic Chemistry Examination 50%), a letter of recommendation from the student's organic chemistry professor (10%), and an essay on a topic in organic

chemistry (40%). The value of the scholarship is $1000. Additionally the top essay will receive $100. Details for the letter and the essay follow below. The student should be below the junior level currently enrolled in organic chemistry attending college at an institution in the section. The student also must be a chemistry biochemistry or chemical engineering major. Students should indicate their interest in the scholarship in advance to John Freeman at 522 Raub St Easton PA 18042 , jcf2@rcn.com

Letters of Recommendation: When writing a letter of recommendation on behalf of a student who is applying for Lehigh Valley ACS Scholarship, please speak to the student's skills in lecture and laboratory from Organic Chemistry I and Organic Chemistry II. In addition to performance on written exams and a course grade for Organic Chemistry I, it would be helpful to comment on the student's proficiency in organic lab and his or her participation in recitations. We would also like, if possible, the letter to address the students' quantitative skills by commenting on their performance in quantitative analysis or its local equivalent. Please place your letter of recommendation in a sealed plain envelope and place your signature over the seal. The student will be required to bring the sealed letter to the ACS Organic Chemistry Standardized Exam on 9 AM April 28, 2007.

Essays: The student should choose a molecule, a group of molecules or a process in organic chemistry including its synthesis or structural elucidation for a molecule or a representative molecule of a group or a number or examples and mechanism for a process. Judicious use of structures is expected. The essay should address the impact of the molecule or process on society, and the student's personal interest in the process or molecule. The essay should run approximately 3 pages +/- a quarter page of text, not including figures in times new roman 12 point font or equivalent with 1 inch margins on all sides. The students name a brief title and page number should appear in the header of each page. An additional page with references should be included. References should be presented as end notes according to the style of the Journal of Biological chemistry.
(See http://www.jbc.org/misc/ifora.shtml).

The essay will be rated on:

- •20% - Ease of reading, including grammar, spelling, and logical flow of the material.
- • 40% - Appropriate depth of coverage on the development of the molecule.
- • 30% - Appropriate depth of coverage on the impact on society and student's interest.
- • 10% - Appropriate use of references.
- • 5% - Adherence to the formatting rules provided.

LVACS Undergraduate Research Travel Award

A $250 Travel Award is being offered by LVACS

Purpose

The prize must be used to help defray expenses associated with presentation of undergraduate research at a national or regional meeting.

Eligibility

Student must present research at the Undergraduate Research Poster Session, to be held at the April 24, 2007, meeting of the Lehigh Valley ASC. Undergraduate Research Poster Session details available at **http://www.esu.edu/lvacs**. The winner will be chosen by lottery.

What the award can be used for:

The award must be used between March 26, 2007* and April 24, 2008 to pay for travel, registration, or accommodations associated with attending a national or regional American Chemical Society or American Institute of Chemical Engineers (AIChE) conference to present research carried out as an undergraduate (or the summer after you graduate if you receive your B.A. or B.S. this spring).

Potential meetings:

•MARM, May 16-18, Collegeville, PA http://www.marmacs.org/, abstract deadline March 19
•234th National Meeting of the ACS, Aug. 19-25, 2007, Boston http://www.chemistry.org, abstract deadline March or April 2007 (depends on division)
•235th National Meeting of the ACS, April 6-10, 2008, New Orleans http://www.chemistry.org
•AIChE Spring 2006 National Meeting, April 22-26, Houston,http://www.aiche.org/conferences
•AIChE 2007 Annual Meeting, Nov. 4-9, Salt Lake City, http://www.aiche.org/conferences
•AIChE Mid Atlantic Regional Student Conference, Bucknell University, April 20-22, 2007, http://www.aiche.org/Students/Conferences/index.aspx
•AIChE National Student Conference, Salt Lake City November 4-9,2007 http://www.aiche.org/Students/Conferences/index.aspx
*including 233rd National Meeting of the ACS, March 25-29, 2007, Chicago

2007 LVACS Officers

See **www.esu.edu/lvacs** for listing and contact information

Undergraduate Research Poster Session

Sponsored by The Lehigh Valley Section of The American Chemical Society

April 24, 2007
Moravian College
5:00-6:15 PM

Preceding the 795th meeting of the Lehigh Valley Section of the ACS
(Meeting details will be published in the April Octagon)

Who may participate?

Undergraduates attending a college or university within the Lehigh Valley section of the ACS. Research may have been done at the student's home institution with a chemistry or chemical engineering faculty member or during a summer research experience elsewhere.

To participate

Submit an abstract by **April 16, 2007**, as a Microsoft Word attachment to an email to cblibby@cs.moravian.edu. Please indicate "LVACS Poster Session" in the subject line of your email header.

Abstract format

Times font
TITLE (all capitals)
Authors' names, authors' institutions and addresses
Abstract of research, 150 words maximum

Travel Award

One poster session participant will be chosen to receive a $250 award to support travel to present research at a national or regional ACS or AIChE meeting.

Other requirements and information

- Poster presenters must provide their own pins and poster board (preferably 30 x 40 inch foam core, available at A. C. Moore, Michael's craft stores, or art supply dealers). Easels will be provided for displaying the posters.

- "Tips for Effective Poster Presentations" can be found in Chapter 2 of the ACS Style Guide (2nd Edition).

- Abstracts will be acknowledged by an email message that will include details about meeting room, set-up time, and the travel award.

If you do not get a response within two days of abstract submission or you have any other questions, contact Carol Libby, **cblibby@cs.moravian.edu**, 610-861-1629