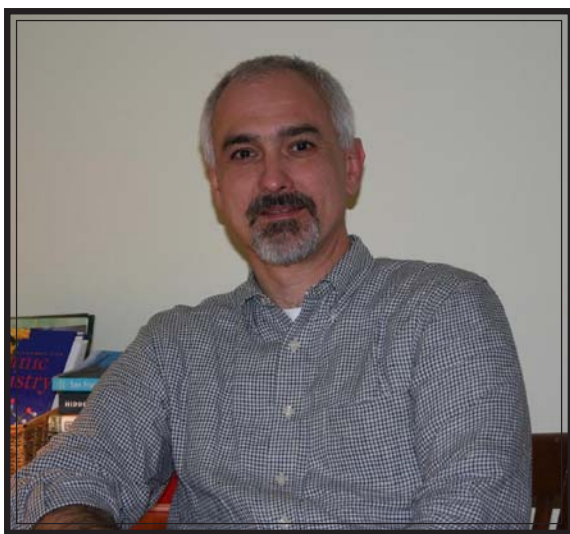




Chemical Bond

Volume 58
Number 4
April 2007

St. Louis Section, American Chemical Society



William L. Neumann
2007
St. Louis Award

ST. LOUIS AWARD SYMPOSIUM

Sponsored by the St. Louis Section of the American Chemical Society
and the University of Missouri-St. Louis.



In honor of the 2007 recipient
Dr. William L. Neumann
Principal Research Scientist –
Biomedical Optics Discovery
Research, Mallinckrodt Inc.

Friday, April 20
2:00 – 5:00 pm
Room B451, Benton Hall
University of Missouri-St. Louis.

PROGRAM DETAILS

2:00 Welcome and General Introductions

Dr. Steve Kinsley, Chair, St. Louis Section

2:05 Introduction of William L. Neumann

2007 winner of the St. Louis Award of the St. Louis Section of the American Chemical Society

2:10 Symposium moderator Dr. William L. Neumann

General Remarks

2:15 - 3:00 Professor Daniela Salvemini

Department of Internal Medicine, St Louis University School of Medicine,
“Oxidative and Nitrate Stress: A Painful Combination”

3:00 – 3:45 Dr. James K. Bashkin

University of Missouri-St. Louis and NanoVir, LLC.

“Chemical Genomics and the Possible Prevention of Cervical Cancer”

Refreshment Break (3:45 – 4:15)

4:15 – 5:00 Dr. Lanny S. Liebeskind, Samuel Candler Dobbs Professor,
Professor of Chemistry, Emory University, “Seeking Novel Reactivity, Selectivity,
and Efficiency in Modern Organic Synthesis”

5:30 – 6:30 Reception

Hosted by Dr. Thomas F. George, Chancellor, University of Missouri-St. Louis
and Professor of Chemistry and Physics at the Chancellor’s residence
(Parking for the symposium at the West Drive Garage, off Natural Bridge Road)

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Volume 58

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April, 2007

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Meeting & Seminars

Board of Directors

St. Louis Section—ACS Board of Directors meets on the second Thursday of each month, at the **Glen Echo Country Club** (map available on website). Meetings are open to all members, and all are encouraged to attend. Elected officers and chairs of major committees have the right to vote; others in attendance have voice but no vote. If you want to attend the dinner, please contact Steve Kinsley (kinsley@wuchem.wustl.edu) at least one week prior to the meeting date. The cost of dinner is \$20. Members wishing to become active in section activities are welcomed to their first dinner for free, compliments of the section.

Date: April 12

Social hour: 5:30 pm

Dinner: 6:30 pm

Business Meeting will start during dinner.

Future meetings: May 10

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University of Missouri- St. Louis

Seminars are held on Mondays at 4:00 pm in Room 451 Benton Hall.

April 2

Milton R. Smith

Michigan State University

Iridium Catalyzed Borylations of C-H Bonds: Evolution of an Intriguing Observation into an Efficient and Selective Synthetic Method

April 9

Gregory L. Côté

U.S. Dept. of Agriculture

Prebiotic Research at U.S.D.A.

April 16

David J. Van Horn

University of MO-Kansas City

Quantitative Aspects of Uranium Bio-transport

April 23

M. Fredrick Hawthorne

University of MO-Columbia

The History and Future Promise of Boron Neutron Capture Therapy of Cancer

April 30

***The 20th Annual Distinguished Alumni Lecture**

Joseph P. Bono, Lab. Director

U.S. Secret Service

Forensic Science and the United States Secret Service Laboratory

Chemical Progress Week

Monday, April 16:

Awards Night

Honors winners of the:

- High School Chem. Contest
- Leopold Marcus Award
- High School Teaching Award
- Chemical Sci. & Tech. Award
- Outstanding Jr. Chem. Student
- Outstanding Chem. Technology Stu.

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5:30 pm - Social Hour

6:30 pm - Dinner

7:30 pm - Program

Contact: Samir El-Antably
(314-664-5522)

Tuesday, April 17

Adaciom Luncheon

TBA

Friday, April 20

St. Louis Award Symposium

Honoring Dr. William L. Neumann,
Mallinckrodt, Inc.-Tyco Healthcare
Contact Lol Barton (314-516-5334 or
lbarton@umsl.edu)

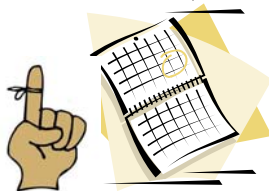
Saturday, April 21

St. Louis Award Banquet

Honoring Dr. William L. Neumann,
Mallinckrodt, Inc.-Tyco Healthcare
Kemoll's Restaurant
\$40.00/person
6:00 pm - Cocktails
7:00 pm - Banquet
8:00 pm - Program

Contact Samir El-Antably
(314-664-5522)

DATES



TO REMEMBER

Friday, April 13

Undergraduate Res. Symposium

Washington University
Contact Amy Walker
(walker@wustl.edu or 314-935-8496)

Saturday, April 21

Chemistry Olympiad

St. Louis CC at Florissant Valley
8:00 am - 2:00 pm
Contact Donna Friedman
(dfriedman@stlcc.edu) or Myron
Reese (mreese@mckendree.edu)

Friday, April 27

Chemistry Career Day

An introduction to Chemistry Careers
for high school chemistry classes
9:00 am - 12:30 pm
University of Missouri, St. Louis
Contact Keith Stine (kstine@umsl.edu
or 314-516-5346) or Jim O'Brien
(obrien@jinx.umsl.edu or 314-516-5717)

Saturday, June 2

Section Picnic

Tower Grove Park,
Old Playground shelter
\$5.00 per adult, children are FREE
Contact: Alexa Serfix
(barnoski@slu.edu)



Don't miss out!

If you would like to be reminded of upcoming ACS events, subscribe to our e-mail notification list. List members will receive periodic reminders of ACS-St. Louis Section activities. To become list member, send your e-mail address to:

barnoski@slu.edu

A look back at Chemistry

by Ted Gast

I am pleased to continue this series of articles begun last month by our chair, Steve Kinsley.

Let me take you back to the world of 1907. What did chemistry look like? Thompson had announced the existence of the electron only ten years earlier. The discovery of the proton by Rutherford lay 2 years in the future. Although the *alpha* particle had been discovered in 1898, the **plum pudding model** was still the accepted model of the atom. Indeed, to many scientists and physicists the existence of atoms was still in doubt.

The acceptance of the electron by chemists was slow in coming. Newspapers, scientific journals weighed in on the topic. What was the perception of the public at large? They didn't know anything about it. They were largely unaware of the controversies swirling within the scientific community.

Gilbert Lewis and Irving Langmuir were still refining their theories of valence (for their students.) In addition, Langmuir was working on chemical bonding. The discovery of the neutron, now known to all high school students, lay far in the future, 1932. The discovery of another lepton, the neutrino postulated by Fermi in 1932 escaped detection until the 1950's.

In 1907 ours was still very much a chemical society with emphasis on compounds, their properties, prices and such; not atoms and structure. Most of those were still unknown or currently under discussion. *The prestige of chemists was absolute.* Back then, even elite business clubs sported the name of *Chemist Club*.

A commercial source and use of helium would remain unknown for another 30 years. It wasn't until 1940, that the cost of helium fell to 1.5 cents /ft³ in 1940 (from \$2500/ft³ in 1915). [<http://periodic.lanl.gov/elements/2.html>] Isotopes and molecular weight were active areas of study. F (fluorine) had just been isolated in 1906 by Henri Moissan in France. The properties of Rd (radium) were still being discovered. Marie Curie, the first female lecturer in 1898, was now a professor and head of Laboratory at the Sorbonne University in Paris (1906). Po (polonium) was discovered in 1898 and its properties were still under investigation. Just a few months ago, we read in the newspapers that polonium had been used as a poison in a strange international alleged murder in London. In 1907, many of the elements of the periodic table were yet to be discovered – somewhere between 70 and 86 elements were listed at this time. The transuranium elements were as yet unheard of. In 1907, the Mendeleev, inventor of the periodic table died.



In 1907, Rudyard Kipling won the Nobel Prize for literature, Michelson for physics, and Eduard Buchner for chemistry. Americans wouldn't win their own prize for another seven years.

Coal and wood were still major industrial products. Whiskey and distilled spirits were major manufactured items; and there was no income tax! The Federal Reserve System did not exist. The major sources of revenue for the government were excise taxes on tobacco and liquor, and the tariff levied on imported foreign goods. Silver sold for

an average price of 66 cents per fine ounce in New York or 30 pence in London, which at that time was the financial capital of the world.

The Scottish physicist Joseph Kerr died in 1907, as well as his contemporary William Thompson, Lord Kelvin. Gustav Zeuner, German founder of technical thermodynamics and epistemologist, also died in Dresden. Most of the research in Chemistry and Physics at this time was being done in Europe, and especially in Germany.

In the coming months look for articles on St. Louis and the world in 1907. I dedicate all these articles to my children.



Marcus Award To Be Held at SLU

The 2007 Leopold Marcus Award competition will be held **Wednesday, April 11** at 4:00 p.m. in Lee Hall (Lecture Hall 1) on the campus of Saint Louis University. It is administered by the Department of Chemistry at Saint Louis University and the St. Louis Section of the American Chemical Society. The competition consists of presentations based on the undergraduate research projects of senior chemistry majors at Saint Louis University. The winner of the award is determined by vote of the professional chemists in the audience. All ACS members are invited to attend. Refreshments will be available after the competition. For further information, contact Bruce Kowert at (314) 977-2837 or kowertba@slu.edu.



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2007 High School Chemistry Contest Award Winners

REGULAR DIVISION

	<u>Student</u>	<u>School</u>	<u>Teacher</u>
1 st	Mack Su	Clayton High School	Michael Howe
2 nd	Amol Pai	John Burroughs School	Mary Harris
3 rd	Mike Jin	John Burroughs School	Mary Harris
4 th	Jeremy Bleeke	Clayton High School	Mike Howe
5 th	Kevin Guo	Parkway Central High School	Ken Greathouse
HM	Jason Liang	Parkway Central High School	Ken Greathouse
HM	Paul Orland	Clayton High School	Brad Krone
HM	Daniel Pasque	St. Louis Priory School	James Dodds
HM	Jeffrey Huang	Parkway Central High School	Ken Greathouse
HM	Nick Evens	John Burroughs School	Mary Harris
HM	Christine Edmonds	John Burroughs School	Sandra Mueller
HM	Wilbur Song	Ladue High School	Sarah Barton
HM	Tianya Li	Parkway Central High School	Ken Greathouse
HM	Kristy Yang	Parkway Central High School	Ken Greathouse
HM	Hannah Gu	John Burroughs School	Sandra Mueller

ADVANCED DIVISION

	<u>Student</u>	<u>School</u>	<u>Teacher</u>
1 st	Robert McGibbon	Clayton High School	Nathan Peck
2 nd	Jim An	Clayton High School	Nathan Peck
3 rd	Yipeng Huang*	Clayton High School	Nathan Peck
4 th	Michal J. Hyrc*	Clayton High School	Nathan Peck
5 th	Dakin L. Sloss*	Clayton High School	Nathan Peck
HM	Andrew Z. Liu	Parkway Central High School	Ken Greathouse
HM	Whitt Downey*	Clayton High School	Nathan Peck
HM	Phillip Levine*	Clayton High School	Nathan Peck
HM	John McAfee*	Clayton High School	Nathan Peck
HM	Raymond Chen	Parkway Central High School	Ken Greathouse
HM	David A. Levary*	Parkway Central High School	Ken Greathouse
HM	Kerri Blumer	Clayton High School	Nathan Peck
HM	Mark H. Heil	Clayton High School	Nathan Peck
HM	Zoe Liberman	Clayton High School	Nathan Peck
HM	Michael Z. Root	Clayton High School	Nathan Peck

HM: honorable mention

Names in **bold type** qualify to take the National Chemistry Olympiad Exam on April 21.

Alternates are indicated with an asterisk. Qualifiers are limited to a maximum of two from a given high school.

Can't wait for Snail Mail? Get the Chemical Bond at <http://www.umsl.edu/~acs/>

The Chemistry of Alternative and Sustainable Fuels

St. Louis Science Center: Center Stage and Rooms A, B, & C.

May 29, 2007

Global warming, use of fossil fuels, and protecting the environment are three of the most important issues facing modern society. Chemists continue to play a major role in addressing these issues through the research and development of alternative, sustainable and environmentally safe fuels. Much of this research is happening in St. Louis and carried out by American Chemical Society members. As part of the celebration of the 100 anniversary of the St. Louis Section of the American Chemical Society, a symposium on “*The Chemistry of Alternative and Sustainable Fuels*” is being held at the St. Louis Science Center on Tuesday, May 29, 2007. This event is open to the public. Schedule follows:

**1:00 - Review of Posters on Alternative Energies from St. Louis Area
Public Schools**

**1:20 - Welcome to 100th Anniversary Symposium - Dr. Steve Kinsley, Chair of the
St. Louis Section ACS**

1:25 - Dr. Catherine Hunt, Chair of the American Chemical Society

**1:35 - “*Employing Biofuels in Batteries for Power Generation*”
Dr. Shelley Minteer, St. Louis University**

Dr. Minteer’s research interests are in the area of energy storage and energy conversion. Over the last 5 years, her research group has worked in the general area of fuel cells on projects from developing carbon monoxide tolerant hydrogen fuel cell catalysts to developing fuel cells that can use ethanol, glycerol, sugar, and soybean oil as renewable fuels.

**2:05 - “*Photosynthetic Organisms as Alternative Energy Sources*”
Dr. Robert Blankenship, Washington University**

Dr. Blankenship’s research interests center on the molecular mechanisms of energy storage by photosynthetic organisms and the use of biological systems as alternative energy sources. He and his group use an interdisciplinary approach to discover the essential aspects of how light energy is stored, as well as how these principles can be used for artificial and bio-inspired systems.

**2:35 - “*The Promises and Challenges of Biofuels*”
Dr. James McLaren, StrathKirn® Inc.**

Dr. McLaren has published 35 papers, written and published a major book, and made over 200 invited presentations on new technology, biotechnology, renewable resources, biofuels, market impact, and management processes. He is a member of the DOE-USDA joint project Review Panel for Competitive Grants on Biomass Genomics for Biofuels and a member of the Review Panel for the USDA National Research Initiative Competitive Grants related to Biobased Products and Bioenergy Production.

3:05 - Panel discussion with speakers

3:30 - Meet the speakers

2007 St. Louis Award Winner William L. Neumann

Dr. William L. Neumann received a B.S. in Chemistry from the University of Missouri in Columbia in 1983 and a Ph.D. in 1988 from UM-St. Louis where he worked with Professor Mike Sworin on synthetic methodologies directed at preparing antitumor cyclopentanoid natural products. After a 9-month post-doctoral appointment in radiopharmaceutical chemistry at Mallinckrodt Medical, Inc. he was hired as a permanent staff scientist. Dr. Neumann spent the next 4 years at Mallinckrodt participating in the development of a Tc-99m based organophosphine complex (Q12) as a human myocardial imaging agent. In 1990 he received the Mallinckrodt Presidents Award for Technical Innovation. In 1991, Dr. Neumann moved to Monsanto Corporate Research in the metal-mediated reaction chemistry group where he played a key role in the design and synthesis of chiral macrocyclic ligand systems for applications to synthetic metalloenzymes such as superoxide dismutase mimetics. As a result of mergers, Dr. Neumann moved his medicinal chemistry group to the chemistry and process technology division of Pharmacia and finally to the parallel medicinal chemistry department of Pharmacia-Pfizer. He was a research group leader during this time and extended his interest in catalysis to the invention and development of new metal catalyzed cross-coupling protocols for use in the parallel chemistry format. His group was instrumental in the translation of the new Liebeskind-Srogl cross coupling protocol, developed at Emory university, to the industrial parallel synthesis laboratory. In 2003, he moved to Metaphore Pharmaceuticals, where he served as Associate Director of Chemistry. At Metaphore Dr. Neumann was responsible for directing all discovery chemistry efforts, giving him the opportunity to extend the synthetic chemistry he invented at Monsanto. In 2005, Dr. Neumann returned to Mallinckrodt Imaging and is currently developing molecular imaging agents. He is the author of 21 publications, holds 22 US patents in the areas of radiopharmaceuticals, synthetic enzymes, inflammation, antithrombotics, pharmaceutical chemistry, and chemistry process research. He has also received several Monsanto research awards. Dr. Neumann is a reviewer for the Journal of Organic Chemistry, the Journal of Medicinal Chemistry, Bioorganic and Medicinal Chemistry Letters, Organic Letters, and Organometallics. He is also adjunct Professor in the Department of Internal Medicine, Division of Pulmonary, Critical Care and Sleep Medicine, St. Louis University.

Bill, his wife Jeannette, and daughter Sarah live in Kirkwood. They own a 100 year old house which is on the national historic register and that has been their major project. They spend most of their free time playing with their daughter and their two black Labradors. Both Bill and Jeanette are avid runners and Bill enjoys playing the guitar and recoding with friends all of whom were at one time Monsanto chemists.

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**St. Louis Section-ACS
Request for Nominations
For 2008 Officers**

The St. Louis Section of the American Chemical Society requests nominations for officer, directors, and councilors to stand for election in the Fall of 2007. If you would like to nominate someone for any or all of these offices, please fill in this nomination ballot and mail it, postmarked no later than June 15, 2007 to:

Dr. Jeffrey Cornelius
Department of Chemistry
Principia College
1 Maybeck Place
Elsah, IL 62028

You may also e-mail your nominations. While it will be difficult to assure your anonymity as a nominator, your identity will be removed from the e-mail before it is forwarded to the Nominating Committee. Send e-mail nominations to Steve Kinsley at sak.ltd@att.net.

**Nominating Ballot
St. Louis Section-ACS
2008 Officers**

Chair-Elect _____

Secretary _____

Treasurer _____

Directors (up to three) _____

Councilors (up to two) _____

Let Us Know What You Think!

Take our 2007 Local Section Member Survey

Please share your thoughts about the activities of the Saint Louis Section by completing our 2007 member survey. Your input will help us better understand what you hope for from the Local Section in the future, your awareness of our activities, your interests and how they may be changing, and what we can do to better serve you and all of our members. Please take the survey even if (*especially* if) you've never participated in any local section activities before. We'd like to know how we're failing to interest you and what we can do to make your local section membership more meaningful to you. This year, our survey is available on-line and can be accessed by entering the following address into your browser:

<http://www.surveymonkey.com/s.asp?u=485973310765>

The survey link will be available beginning on Monday, April 9th. The direct link to the on-line survey is also available on the Local Section website (www.umsl.edu/~acs). The survey should not take more than 10 minutes to complete. If you wish, you may print a copy of the survey from the Local Section website where it is available as a PDF file and mail it to Keith Stine, the Local Section Chair-Elect, at the address given below. If you are unable to access the internet, we would be glad to mail you a copy of the survey that you can fill out and return to us. Please send these requests to Keith Stine at the below address or call him at (314) 516-5346. We ask that you complete the survey by July 9, 2007. Your input is important and will impact our future planning and activities.



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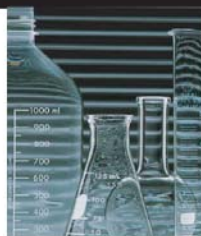
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Science Fair Call for Judges

Members of the ACS St. Louis Section are needed as judges to evaluate chemistry projects for special awards at the Greater St. Louis Science Fair. High School and Junior High winners receive prizes from the section (science books and more), while all elementary school participants with chemistry related projects receive participation ribbons.

Greater St Louis Elementary Science Fair

Monday, May 7th, at Queeny Park

We will distribute participation ribbons to entrants with chemistry projects beginning at 6:00pm.

Greater St Louis Secondary Science Fair

Thursday, May 10th, at Queeny Park

Judging starts at 6:00pm

Interested in judging? Please contact John Kauffman

phone: (573) 356-1142

e-mail: kauffmanj@centurytel.net or John.Kauffman@fda.hhs.gov

ACS Center Stage

As part of the 100th year anniversary, we will be participating in the Center Stage program at the St. Louis Science Center. The presentations should be geared to a general audience and can be on a topic of your choice. There are still some open dates. If you would like the opportunity to present a program, please contact Greg Wall by telephone at 800-325-5832 ext. 3139 or by e-mail at gwall@sial.com.

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Chemical Progress Week 2007

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*Please make your reservations
by April 9.*



Awards Night Dinner Reservation

Date: Monday, April 16

5:30 pm Cocktails, 6:30 pm Dinner, 7:30 pm Program

Member
name _____

Number attending _____ x \$25.00 = Amount remitted \$ _____

St. Louis Award Banquet Reservation

Date: Saturday, April 21

6:00 pm Cocktails, 7:00 pm Banquet, 8:00 pm Program

Member
name _____

Number attending _____ x \$40.00 = Amount remitted \$ _____

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from back of previous issue*

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