

# THE NUCLEUS

March 2007

Vol. LXXXV, No. 7

## Monthly Meeting

*2006 Winner of the James Flack Norris Award in Physical Organic Chemistry, Michael Wasielewski, Speaks at UMASS Boston*

## NEBHE Science Network at MIT

*By Michael Filosa*

## Book Review

*A Trio of Books and Their Social Impact*  
*Reviewed by Dennis Sardella*

## Book Review

*Hitler's Scientists: Science, War and the Devil's Pact*  
*Reviewed by Vivian Walworth*



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**Cover:** March Speaker, Professor Michael Wasielewski, Northwestern University

**Deadlines:** May 2007 Issue: March 12, 2007

Summer 2007 Issue: June 15, 2007

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# NEBHE Science Network at MIT

By Michael P. Filosa

As a result of a request for volunteers by NESACS Speaker's Bureau Head, Jin Ji, Speakers Bureau members attended the fourteenth annual New England Board of Higher Education (NEBHE) Science Network at the Massachusetts Institute of Technology held on Saturday, November 18, 2006. Present from the Speaker's Bureau were Michael Filosa of ZINK Imaging, Robert Litman, Independent Consultant and Jin Ji of Harvard Medical School. NESACS members Dorothy and James Phillips of Waters Corporation were also present along with a past NESACS chair, Jean Fuller-Stanley, formerly of Wellesley College and now Associate Dean at William Paterson University in New Jersey. A number of other active NESACS members are involved in the Science Network and are listed in the Directory of Advisors published by NEBHE. A partial listing includes Perry Catchings of

Prime Organics, Howard Mayne of UNH, Mary Jo Ondrechen of Northeastern University, Dagmar Ringe of Brandeis University and Lawrence T. Scott of Boston College. The NEBHE Science Network at MIT is one of the components of NEBHE's Excellence Through Diversity (ETD) program, and was started in 1990.

The NEBEHE Science Network has grown into a substantial enterprise. Over six hundred students and mentors from all over New England converged on the Stratton Student Center at MIT. Registration and a continental breakfast were scheduled from 8-9 AM. As an early arriver I found myself sitting at a table with several of the key leaders of the conference. I was sitting with Harold Bibb, Professor of Biological Sciences and Associate Dean of the Graduate School, University of Rhode Island; José Lemos, Professor of Physiology, University of Massa-

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chusetts Medical School, and James Henkel, Professor of Chemistry, University of Connecticut. These men were just a small subset of the dedicated group of academic and business leaders who have been committed long term to this endeavor and its' objective of facilitating the educational development of underrepresented minorities in technical fields. It was uplifting and illuminating to meet these dedicated and inspiring leaders and to hear their personal stories.

Later Professor Lemos led an introductory session for mentors in which he gave an example of his own persistence in the face of rejection. He recounted how as a student he had his heart set on a research position at Woods Hole because he thought it would be very important to his future career. Twice he was turned down. He responded with some frustration, but also with more determination. The third time he applied was the charm,

*Continued on page 10*



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# Monthly Meeting

*The 877th Meeting of the Northeastern Section of the American Chemical Society*

Thursday – March 8, 2007

University of Massachusetts, Boston

Campus Center – 3rd Floor Ballroom, 100 Morrissey Boulevard, Boston, MA

**2:30 pm** Career Services Presentations and Resume Reviews, Mukund Chorghade, Chair, NESACS; Megan Driscoll and Jennifer Sass of PharmaLogics Recruiting.

**4:30 pm** Board Meeting

**5:30 pm** Social Hour

**6:30 pm** Dinner

**8:00 pm** Evening Seminar, NESACS Chair, Mukund Chorghade Presiding  
Speaker: Prof. Michael R. Wasielewski, Department of Chemistry and Center for Nanofabrication and Molecular Self-Assembly, Northwestern University, Evanston, IL 60208-3113  
*“Charge and Spin Transport Dynamics in Bio-inspired Molecules: From Photosynthesis to Organic Electronics”*

Dinner reservations should be made no later than noon, Thursday, March 1, 2007. Please call or fax Marilou Cashman at 800-872-2054 or e-mail at Mcash0953(at)aol.com. Please specify vegetarian. Reservations not cancelled at least 24 hours in advance must be paid. Members, \$28; Non-members, \$30; Retirees, \$15; Students, \$10.

## THE PUBLIC IS INVITED

### Directions to UMASS Boston:

#### Public Transportation:

**Subway:** Take the Red Line to JFK/UMass Station. A free shuttle bus will carry you to the campus.

**Commuter Rail:** Take the commuter rail to the JFK/UMass station from the South Shore on the Middleboro and Plymouth lines.

**By car from the north:** Take Interstate 93 South through Boston to Exit 15. Take a left at the end of the ramp onto Columbia Road, and then take your first right in the rotary. Follow the University of Massachusetts signs along Columbia Road and Morrissey Boulevard to the campus.

**By car from the south:** Take Interstate 93 North to Exit 14 and follow Morrissey Boulevard north to the campus.

**By car from the west:** Take the Massachusetts Turnpike (Interstate 90) east to Interstate 93. Take I-93 South one mile to Exit 15. Take a left at the end of the ramp onto Columbia Road, and then take your first right in the rotary. Follow the University of Massachusetts signs along Columbia Road and Morrissey Boulevard to the campus.

**Parking fees:** \$6 per single use.

**Next Meeting:** Esselen Award Meeting, April 12, 2007, Harvard University. Reception and dinner 5:30 pm, Harvard Faculty Club; Award Meeting: 8:15 pm, Pfizer Hall, Mallinckrodt Chemistry Building, 12 Oxford Street, Cambridge. Dr. Michael Marletta, Aldo DeBenedictis Distinguished Professor of Chemistry and Chair of the Department of Chemistry, University of California, Berkeley: “Nitric Oxide in Biology: From Discovery to Therapeutics.”

# Abstract

*“Charge and Spin Transport Dynamics in Bio-inspired Molecules: From Photosynthesis to Organic Electronics”*

The principal goal of our research is to explore the fundamental structural and electronic requirements for efficient energy and electron transfer in extended arrays of donor-acceptor molecules. In this presentation we will describe several new molecules and materials produced by a combination of chemical synthesis and self-assembly that use energy and charge transport strategies inspired by natural photosynthesis. These new molecules may find applications in the fields of solar energy conversion, photonics, and spintronics. Examples from several areas currently under investigation will be featured. These areas include charge and spin transport through repetitive molecular structures exhibiting wire-like behavior; molecules that undergo rapid charge separation due to symmetry-breaking in their photoexcited singlet states; and self-assembly of functional artificial light-harvesting antenna and photoreaction centers, whose efficient energy and electron transfer properties are a direct consequence of their supramolecular structures. ◇

# Biography

Michael R. Wasielewski was born in Chicago, Illinois. He received both his Bachelor of Science (1971) and Ph.D. (1975) degrees from the University of Chicago. He carried out his graduate research in physical organic chemistry under the guidance of Leon M. Stock. He then performed postdoctoral research, first with Ronald Breslow at Columbia University, and then with Joseph Katz at the Argonne National Laboratory. Following postdoctoral

*Continued on page 8*

**3<sup>rd</sup> Annual**  
Women Chemists Committee and  
Northeastern Section

# Golf Tournament

To be held in conjunction with the 234<sup>th</sup>  
National ACS meeting in Boston

**August 22, 2007**

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Awards - 8pm

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Updated information on NESACS website

**www.nesacs.org**

## Announcement

*The James Flack Norris  
and Theodore William Richards  
Undergraduate Summer Research Scholarships*

The Northeastern Section of the American Chemical Society (NESACS) established the James Flack Norris and Theodore William Richards Undergraduate Summer Scholarships to honor the memories of Professors Norris and Richards by promoting research interactions between undergraduate students and faculty.

Research awards of \$3250 will be given for the summer of 2007. The student stipend is \$2750 for a minimum commitment of ten weeks of full-time research work. The remaining \$500 of the award can be spent on supplies, travel, and other items relevant to the student project.

Institutions whose student/faculty team receives a Norris/Richards Undergraduate Summer Research Scholarship are expected to contribute toward the support of the faculty mem-

bers and to waive any student fees for summer research. Academic credit may be granted to the students at the discretion of the institutions.

Award winners are required to submit a report (~5-7 double-spaced pages including figures, tables, and bibliography) of their summer projects to the NESACS Education Committee by November 2, 2007 for publication in *The Nucleus*. They are also required to participate in the Northeast Student Chemistry Research Conference (NSCRC) in April 2008.

**Eligibility:** Applications will be accepted from student/faculty teams at colleges and universities within the Northeastern Section. The undergraduate student must be a chemistry, biochemistry, chemical engineering, or molecular biology major in good standing, and have completed at least two full years of college-level chemistry by summer, 2007.

**Application:** Application forms are available on the NESACS web site at <http://www.nesacs.org>. Completed applications are to be submitted no later than April 6, 2007 to the Chair of the Selection Committee:

Professor Edwin Jahngen  
University of Massachusetts Lowell  
Chemistry Department,  
Room 520, Olney Hall  
1 University Avenue  
Lowell, MA 01854-5047

**Notification:** Applicants will be notified of the results by e-mail on April 25, 2007 with written confirmation to follow. ◇

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# Book Review

## *A Trio of Books on Molecules and Their Social Impact*

### ***Napoleon's Buttons. 17 Molecules That Changed History,***

by Penny Le Couteur and Jay Burreson (Jeremy P. Tarcher/Penguin, 2004) 362 pp., ISBN 1-58542-331-9; \$14.95 paperback)

### ***Salt. A World History,***

by Mark Kurlansky (Penguin, 2002) 465 pp., ISBN 0-14-200161-9; \$15.00 paperback)

### ***Men Of Salt. Crossing The Sahara On The Caravan Of White Gold,***

by Michael Benanav (The Lyons Press, 2006) 256 pp., ISBN 1-59228-772-7; \$23.95 hardcover)

Reviewed by Dennis J. Sardella, Department of Chemistry, Merkert Chemistry Center, Boston College, Chestnut Hill, MA 02467

A couple of years ago, I received a copy of Mark Kurlansky's *Salt. A World History* as a gift and had enjoyed it so much so that when I saw the announcement for Michael Benanav's *Men Of Salt. Crossing The Sahara On The Caravan of White Gold* I was motivated to read it as a follow-up and complement. Not long afterward, a colleague returning from an ACS meeting mentioned seeing a fellow chemist reading a book with the intriguing title *Napoleon's Buttons. 17 Molecules That Changed History* and suggested that it might be a good candidate for a review in *The Nucleus*. Having finished it, I decided that the juxtaposition of this trio of books on the interplay between chemicals and human culture, written independently at two-year intervals and spanning the continuum from science to personal experience, might make for an interesting review.

*Napoleon's Buttons* is a scientifically (if not technically) focused presentation of the role played by chemicals in society and history, *Salt* simultaneously narrows the scientific focus to a single compound (more accurately, class of compounds, since compounds other than sodium chloride often make cameo appearances), but broadens the historical and cultural horizons, and *Men Of Salt* looks not at the compound itself, but is a personal account of the long and dangerous trek by camel caravan across the deserts of Mali in search of salt, and the lives of the men who mine and transport it. Taken as a whole, the three books segue rather neatly into one another,

reminding the reader forcefully and entertainingly that modern society is both founded on, and shaped by, chemicals, and that chemistry itself (like all good science) is built about a core of romance and adventure.

The intriguingly, yet misleadingly named, *Napoleon's Buttons* takes its title from the hypothesis (suspicion?) that one reason for the defeat of Napoleon's army in Russia was that the tin buttons on his men's uniforms crumbled due to the cold-induced phase transition from white to gray tin, leaving them susceptible to death from exposure. The authors admit forthrightly that there is no hard evidence to support this conjecture, though of course it makes an eye-catching title. Still, as someone once observed in another context, "It's such a neat story, if it isn't true, it ought to be." This shortcoming aside, though, *Napoleon's Buttons* is an enjoyable and informative book that takes seventeen compounds (more accurately, classes of compounds) and explores their impact on history and their role in contemporary society. Consistent with the fact that Le Couteur and Burreson are both chemists, *Napoleon's Buttons* is the only one of the three books to actually present chemistry, and the authors have thoughtfully included a compact introductory section on molecular structures to demystify material in subsequent chapters, helping readers to come away with an appreciation of the importance of topics like structural chemistry, intermolecular forces, stereochemistry and functional groups.

The examples Le Couteur and Burreson have chosen are overwhelmingly organic (carbohydrates, phenols, vitamins, steroids, dyes, etc.), the only inorganic compound being covered at length being salt (and, of course tin, which makes a brief cameo appearance in conjunction with the book's title).

As a chemist, one of the aspects of the book I particularly appreciated was not only that the authors did not shrink from including large numbers of molecular structures to illustrate their points, but that they actually linked the structural features with the compounds' properties and included balanced equations for reactions, albeit without going into their details (which may have been too much for even the most hardened nonscientist reader). All in all, though, the book made enjoyable reading and would certainly make an accessible introduction to the pervasive and largely positive societal role played by chemicals to give as a gift for a chemically unsophisticated acquaintance.

The third-from-last chapter of *Napoleon's Buttons* deals with salt (primarily sodium chloride), a topic that Mark Kurlansky tackles in exhaustive (though not exhausting) detail in his book-length exploration of salt's central role in world civilization. Kurlansky is not a scientist, and his focus in *Salt. A World History* is simultaneously less technical and more expansive than Le Couteur and Burreson's. This is a social history, and its range is staggering and its presentation detailed and filled with fascinating looks at cul-

*Continued on page 8*

## Biography

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studies, he joined the scientific staff of the Argonne National Laboratory, where he rose through the ranks to become a Senior Scientist and Group Leader of the Molecular Photonics Group. In 1994 Wasielewski joined the faculty of Northwestern University, where he is Professor of Chemistry. He served as Chair of the Chemistry Department from 2001-2004. Wasielewski's research interests include photoinduced electron transfer and charge transport in organic molecules and materials, self-assembly of nanoscale materials, the magnetic properties of radical ion pairs, ultrafast optical and magnetic resonance techniques, materials for molecule-based opto-electronics and spintronics, and the biophysics of proteins involved in the primary processes of photosynthesis. His research has resulted in over 300 publications. Wasielewski was elected a Fellow of the American Association for the Advancement of Science in 1995, and has held numer-

## Book Review

Continued from page 7

tures ranging from ancient China and Egypt, to medieval Europe, to revolutionary France, to Civil War America, to the contemporary Middle East. Kurlansky writes fluidly and I found *Salt* to be a real page-turner, with virtually every page offering up an intriguing anecdote or fascinating connection.

Michael Benanav is neither a scientist and adventurer of the laboratory, like Le Couteur and Burreson, or an author and prospector of historical archives, like Kurlansky, but a wilderness guide, a geographical adventurer, intrigued by the romance of the hazardous trek of camel caravans across

ous distinguished lectureships and fellowships. Among Wasielewski's recent awards are the 2004 Photochemistry Research Award of the Inter-American Photochemical Society and the 2006 James Flack Norris Award in Physical Organic Chemistry of the American Chemical Society. ◇

the Sahara to bring salt cakes mined in the desert wastes of Mali back to Timbuktu, the nearest outpost of civilization. Concerned that this millennia-old tradition might be facing extinction in a world where salt has become almost as cheap as dirt, he resolved to join a caravan to make the month-long trip, not as a passenger, but as a worker. *Men Of Salt* is the absorbing story of Benanav's experiences on that harrowing journey. Readers will not find any chemistry, or a great deal of historical or economic analysis. Rather they will find an insightful, and at times humorous, day-to-day account of the world of the men who unknowingly stand at the other extreme of the story told by *Napoleon's Buttons* and *Salt*, in a world linked to the prehistory of chemistry, where chemicals are obtained not by a walk to a stockroom or an email order to a corporate supplier, but are wrested from the earth and brought to consumers with great hardship and at enormous personal risk. Benanav's insights in *Salt* are not chemical, or historical, or economic, but inner and personal, not all that different from the joys, ideals and companionship of those who labor in the laboratory:

"What's perhaps more beautiful, even more important, are the truths expressed through the humble lives of the azalai, the miners and the nomads: that wealth is not a prerequisite for joy or self-respect; that commerce does not have to be founded upon greed; that each moment is ours in which to create delight, regardless of circumstances; that living in balance with the natural world is the key to long-term survival; that it's possible to embrace tradition and modernity for what they each have to offer, without forsaking either." ◇



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### CALL FOR 2007 NORTHEAST REGIONAL AWARD NOMINATIONS

#### THE ACS DIVISION OF CHEMICAL EDUCATION NORTHEAST REGION AWARD FOR EXCELLENCE IN HIGH SCHOOL TEACHING

**Purpose:** To recognize, encourage, and stimulate outstanding teachers of high school chemistry in the Northeast Region.

**Eligibility:** The nominee must be actively engaged in the teaching of chemistry or a chemical science in a high school (grades 9-12) on at least a half-time basis.

#### THE NORTHEAST REGIONAL AWARD FOR EXCELLENCE IN VOLUNTEER SERVICES

**Purpose:** To recognize the volunteer efforts of individuals who have served the American Chemical Society by contributing significantly to the goals and objectives of the Society through their Regional Activities.

**Eligibility:** The nominee must be a member of the ACS, residing in a Local Section within the Northeast Region, who has made significant contributions to the Section and Region of the ACS.

**Deadline:** The deadline for both of these awards is June 1, 2007.

**For More Information:** Contact D. Richard Cobb at <d.richard.cobb@kodak.com>.

**Presentation of the Awards:** At the 2008 Northeast Regional Meeting (NERM) in Burlington, Vermont, June 29–July 2.

## NEBHE at MIT

*Continued from page 4*

and he was accepted into the program. He stated that the faculty he met, and the relationships he developed opened doors for him, and have been of great importance throughout his career.

Later Professor Bibb as master of ceremonies at the plenary session introduced the keynote speaker: Professor Ronald L. Mallet, Professor of Theoretical Physics at the University of Connecticut. Professor Mallet interspersed serious discussion of the physics of time with respect to the accuracy of atomic clocks, black holes and lab experiments designed to compress time with his own personal story and desire for the ability of humans to time travel. Prof. Mallet recounted how his father died when he was ten years old. Shortly after his father's death he read *The Time Machine* by H. G. Wells. He longed to go back in time to see his father, and this desire ultimately led him into his study of physics and his career as a professor. Later I was asked by Prof. Bibb what I thought of the talk. I told him Prof. Mallet had taught

a good lesson about mixing the hard science of time with popular culture and his own personal story in a way that captivated an audience ranging from young high school students to seasoned professionals and academics. For me this was an important lesson for the Speakers Bureau in designing appealing presentations for the public.

Chemistry as a profession was well represented with ten mentors and twenty-nine students. As part of the program we had several sessions in which to interact with students and learn about their academic interests and for the mentors to explain their jobs and career interests and experiences. I found that a chapter I had written about dyes to be a poor prop for explaining my work on digital printing technology to the students with whom I was speaking. Originally, I thought I should bring vials with dyes, both in their colorless crystalline form, and in their colored form to illustrate the colorless-to-colored process we use in the novel multi-color printing paper we have invented at ZINK Imaging, as well as actual images. The students were interested in my descriptions, but

I definitely needed better props. Prof. Rory Waterman from the University of Vermont did bring colored dyes in vials to illustrate the inorganic materials he works with. It is wise for a mentor to make sure he or she thinks through their demonstration materials carefully and matches them to their audience.

There were also a series of workshops specifically targeted to be relevant either to high school and community college students or college and graduate students such as *Inside Info on Applying to College; Applying to and Succeeding in Graduate School; Tools and Products: Developing Commodities for the Future; The Human Body: Advancing Biomedical Sciences; Land, Sea and Space: Exploring and Planning for the Future*. There was also a College Admissions Fair for high school and transferring students, a STEM Resource Fair for College students to talk to graduate schools, and internship providers about opportunities, and a graduate student workshop entitled *Preparing for an Independent Career*.

Fellow NESACS attendee, Bob Litman had the following comments:

*"The small group interaction in the morning and at lunch provided an excellent opportunity for students with questions about graduate school and careers to get some answers from professionals. One student who attends Williams College was concerned that, because she is attending a liberal arts college, perhaps her science background would be inferior. I (successfully) reassured her that Williams would provide an excellent foundation in the sciences for her and that she should not be concerned about Williams being a liberal arts college. If she decided to attend a graduate school for a specialty in any area, that she would also have the opportunity to take or audit any under graduate courses she might need to supplement her background.*

*Another aspect of this group that I talked with was that they didn't understand the importance of language arts in the sciences. This was a great sur-*

*Continued on page 12*



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# Book Review

## *Hitler's Scientists: Science, War, and the Devil's Pact,*

by John Cornwell (Viking, 2003, hardcover, ISBN 0670030759), and (Penguin, 2004, paperback, ISBN 9780142004807).

Reviewed by Vivian Walworth  
Jasper Associates, Concord, MA

Terrorist activities within recent years make Cornwell's account of eminent scientists and his concern over their sense of responsibility to humanity (or lack of it) very compelling in today's world. An important issue discussed throughout the book is the matter of ethics among scientists. Should they confine their interest to research and stay aloof from potential destructive applications of their findings or should they impede such outcomes?

From the start of the 20<sup>th</sup> century Germany was recognized as a prime center for scientific research. Cornwell cites the many German contributions that merited Nobel prizes in the first two decades, ranging from Roentgen's discovery of X-rays, Nernst's work in thermodynamics, Ostwald's elucidation of chemical reaction rates, Lenard's work on cathode rays, and von Laue's

diffraction of X-rays by crystals to Haber's synthesis of ammonia and von Bayer's work on dye synthesis.

In Berlin the Kaiser Wilhelm Institute, later renamed the Max Planck Institute, was established in 1910 under the direction of Fritz Haber. The early staff included such notable scientists as Max Planck, Walter Nernst, and Albert Einstein. Haber's ammonia synthesis had led to the Haber-Bosch process for production of low-cost nitrogen fertilizers, a great boon to the agricultural world. However, Haber evidently saw no need for scientists to assume social responsibility, for during World War I he applied his talents to the synthesis and military utilization of nitrogen-based explosives, as well as the chlorine and mustard gas that accounted for many casualties. A manifesto justifying German militarism and its support by

scientists, published in 1914, was signed by Haber and many of his associates. Only Einstein refused to sign.

Cornwell goes on to describe Hitler's rise to power and the resulting discrimination against those of Jewish descent. He discusses in detail the programs in eugenics and so-called racial hygiene – the euthanasia of those declared unfit. In 1933, as an expression of racial hygiene, Jewish scientists were dismissed en masse from teaching and research. Although exemptions were offered to some who had served in World War I, many of them refused to apply. Such renowned scientists as James Franck, Max Born, and Hans Krebs joined the exodus. Albert Einstein had already emigrated to the United States. The work of scientists who left contributed greatly to advances

*Continued on page 12*

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## Hitler's Scientists

*Continued from page 11*

in England and the U.S., and at the same time German science declined.

Some mystery surrounds those who chose to stay. A few rose to power in the absence of the leading scientists, and some who stayed embraced the Nazi cause. Much to her later regret, Lisa Meitner stayed because she felt safe as an Austrian citizen. She managed to escape after Austria fell to the Nazis.

The rocket scientist Wernher von Braun was recruited into the German army as an enthusiastic and talented graduate student in rocket science, and he led in the successful development of German rockets. After World War II he headed rocketry research in the U.S. He professed no interest in politics. As expressed by lyricist Tom Lehrer,

“ ‘Once the rockets are up, who cares where they come down?

That's not my department', says Wernher von Braun.”

Another who stayed was Heisenberg, famed for delineating the uncer-

tainty principle. He and the Danish physicist Niels Bohr had been close friends in their early years. Before the war there had been sufficient advances in fission physics to stimulate interest on both sides in the development of an atomic bomb. In the war years Heisenberg headed the German atomic research project, which failed to yield a workable weapon. In September 1941, Heisenberg visited occupied Denmark to participate in a lecture series on astrophysics. There has been much speculation about private discussions between Bohr and Heisenberg during that visit (for instance, in Brian Friel's play “Copenhagen”), and their own later accounts differed markedly. Some have suggested that Heisenberg was deliberately impeding German progress toward an atomic bomb. Others believe that he went to Bohr to ask for his collaboration. We'll never know.

Cornwell discusses the development of war machines, including advanced aircraft; radar; so-called wonder weapons; codes and code-breaking; slave labor in German factories, including the rocket facilities at Peenemünde and the IG Farben plants;

and medical experiments on human subjects in concentration camps.

The accounts of the German operations and the attitudes of scientists within and outside the Nazi regime provide a backdrop for Cornwell's final sections that discuss the motivations of scientists and impact of the war on terror. He questions the influence of our own military/industrial complex on what research is funded and addresses the responsibility scientists should take for the political and ethical aspects of their work. In biotechnology he criticizes the attempts to patent gene fragments and considers the ethics of cloning.

Cornwell's challenge to all research scientists is to consider carefully the social implications of the work we undertake. We cannot escape responsibility by standing aloof and claiming no interest in politics.

The material in this book is well presented and highly relevant. I strongly commend it to the attention of NESACS members. ◇

## NEBHE at MIT

*Continued from page 10*

*prise to all of them. We talked about the different platforms for using verbal and written skills (including thesis writing, journal articles, grant proposals, meeting presentations and teaching). I think they found it somewhat reassuring that all the other classes they are taking are not wasted time.*

*Most of these students also felt a Bachelors Degree was the end of the line for getting a “Good Job”. One of the points we attempted to make in our group was that your employment flexibility generally increases with the degree of knowledge that you possess. BS degrees can get you entry level positions that may be entertaining at first but can readily become tedious. Getting advanced degrees will increase not just their knowledge and skill base but also their employability.”*

The day ended with an ice cream reception in which the connections and information gained that day could be

*Continued on page 13*



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## NEBHE at MIT

*Continued from page 12*

solidified and to wind down from an exciting and valuable experience for both students and mentors.

Next year's NEBHE Science Network Meeting at MIT will be October 20, 2007. For more information go to [www.nebhe.org/sciencenetwork](http://www.nebhe.org/sciencenetwork). See also the article entitled, "A First Time Mentor" by Dr. Jin Ji in the January issue of *The Nucleus*. ◇

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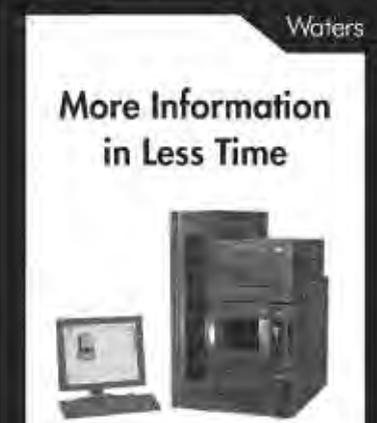


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Carlos Bustamante (UC Berkeley )  
TBA  
Harvard, Pfizer Lecture Hall 5:00pm  
Huw Davies (Univ. Buffalo)

TBA  
George Buchi Lectures in Organic Chemistry  
MIT, Rm6-120 4:00p-6:00PM

### Mar 2

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MIT, Rm6-120 4:00p-6:00PM

### Mar 5

Sunney Xie (Harvard Univ.)  
“Holding Single Molecules up to the Light:  
From In Vitro to In Vivo Investigations in  
Biophysical Chemistry”  
MIT, 56-114 4:30pm

Prof. Barry M. Trost (Stanford Univ.)  
TBA  
Boston College, Merkert 130  
4:00 PM

### Mar 6

Prof. Ken Reid, (Oxford Univ., U.K.)  
“Collectins - Proteins of Innate Immunity With  
Potential for  
Therapeutics for Infection and Inflammation”  
Tufts, Pearson Chemistry Building, Room P106  
4:30

### Mar 7

Dr. Edward Wong, (University of New  
Hampshire, Durham)  
“Cross-bridged Tetraamines, the Sequel”.  
UMass Dartmouth, Building Group II,  
Room 115  
4:00PM

### Mar 8

Nathan S. Lewis, (Cal. Institute of Technology)  
TBA  
Harvard, Pfizer Lecture Hall  
4:00 pm to 5:00 pm

### Mar 8-9

Rolf Thauer, (Max Planck Institute for Terrestrial  
Microbiology, Philipps University, Marburg)  
TBA  
MIT T. Y. Shen Lectures, Rm TBA  
4:00p-6:00p  
Contact Lenore Rainey 617-253-1841

### Mar 12

Pete Wolczanski (Cornell Univ.)  
TBA  
Brandeis, Gerstenzang 122 3:45PM

### Mar 13

Prof. Janis Louie, (Univ. of Utah)  
TBA  
Boston College, Merkert 130  
4:00 PM

### Mar 13

Prof. Arthur Veis, (Northwestern Univ.)  
“Collagen Molecular Assembly Mechanisms: the  
Key Role of  
Recognition Modules Within the Carboxyl  
Propeptide Domain  
In Chain Selectivity”  
Tufts, Pearson Chemistry Building,  
Room P106  
4:30

### Mar 14

Dr. Gary W. Brudvig (Yale Univ.)  
“Water-splitting chemistry of photosystem II  
and artificial systems.”  
UMass Dartmouth Building Group II, Room 115  
4:00PM

### Mar 15

Mark Ratner, (Northwestern Univ.)  
TBA  
MIT, 6-120 5:00 PM

### Mar 19

Charles Schmuttenmaer (Yale Univ.)  
“Probing Transient Photoconductivity in  
Nanostructured Materials using Time-Resolved  
THz Spectroscopy”  
MIT, 56-114 4:30 PM

Homme Hellinga (Duke Univ.)  
TBA  
Harvard, Pfizer Lecture Hall  
4:15 pm to 5:15 pm

### Mar 20

Scott Schaus (Boston Univ.)  
TBA  
UNH Room L103 11:10 am

### Mar 21

Professor Richard R. Schrock, (MIT, Frederick  
G. Keyes Prof. Chemistry, Nobel Laureate)  
“The Discovery and Development of High  
Oxidation State Catalysts for the Metathesis of  
Alkenes and Alkynes”  
Boston College, Merkert 127 4:00 PM

Evan Guggenheim (MIT)  
“Photo-cross-linking and identification of  
nuclear proteins that bind to platinum-DNA  
adducts”  
MIT, 6-120 4:00pm

Dr. Patricia Babbitt, Univ. California San  
Francisco  
Northeastern, Hurtig Hall 129 12:00PM

### Mar 22

Professor Richard R. Schrock, (MIT, Frederick  
G. Keyes Prof. Chemistry, Nobel Laureate)  
“Applications of High Oxidation State  
Metathesis Catalysts in Organic and Polymer  
Chemistry”

Boston College, Merkert 127 4:00 PM

Phil Baran (Scripps Research institute)  
Organic Chemistry Seminar:  
MIT, Rm. TBA 4:00pm

Stephen Kowalczykowski (U.C. Davis)  
TBA  
Harvard, Pfizer Lecture Hall from  
4:00 PM

Prof. Julius Vancso (Univ. of Twente)  
“Bottom Up Macromolecular Nanotechnology  
with Stimulus Responsive Polymers”  
U.Mass. Lowell OH218 3:30PM

### Mar 23

Professor Richard R. Schrock, (MIT, Frederick  
G. Keyes Prof. Chemistry, Nobel Laureate)  
“Catalytic Reduction of Dinitrogen to Ammonia  
with Protons and Electrons”  
U.Mass. Lowell OH218 3:30PM

### Mar 27

Prof. Ashley Bush, (Massachusetts General  
Hospital)  
“Copper and Zinc Interactions with Beta-  
Amyloid Alzheimer’s disease”  
Tufts, Pearson Chemistry Building,  
Room P106 4:30pm

Prof. Joseph P. Noel (The Salk Institute for  
Biological Studies)  
“Mechanistic, Structural and Evolutionary Basis  
for Chemical Complexity in Nature”  
Chemical Biology Seminar  
Boston College, Merkert130 4:00 PM

### Mar 29

Prof. Jean-Pierre Vairon (Univ. Pierre et Marie  
Curie, Paris)  
“The Cationic (Co)Polymerization of Trioxane  
Initiated by Perchloric Acid”  
U.Mass Lowell, OH 218  
3:30 PM

## Notices for the Nucleus Calendar should be sent to:

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