

About Your Instructor

Gregory A. Sotzing, Ph.D. and Associate Professor of Chemistry and Polymer Science, Institute of Materials Science, University of Connecticut

Greg Sotzing received his B.S. with honors distinction at Mary Washington College VA in 1993 and a Ph.D. at the University of Florida in 1997. His doctoral research was in the general area of Organic/Polymer chemistry with a focus on heterocyclic and polymer synthesis, conductive polymers, electrochromics, and specifically on the energy gap control of conjugated conductive polymers. He published some of the early work on poly(3,4-ethylenedioxythiophene) and was part of the dual conjugated polymer concept for electrochromic windows. After receiving his Ph.D., Sotzing worked as a postdoctoral scholar under the mentorship of Professor Robert H. Grubbs (2005 Chemistry Nobel Laureate) and Professor Nathan S. Lewis on the development of conductive polymer sensors for explosives and disease detection. In 1999, he joined the faculty at the University of Connecticut as a tenure track Assistant Professor of Chemistry and in 2005 he was granted tenure and promoted to the level of Associate Professor. Sotzing has raised millions in Federal and Industrial sponsored research from institutions such as the NSF, NIH, Petroleum Research Fund of the ACS, Office of Naval Research, Army, Air Products and Chemicals, Kraft Foods, Philip Morris USA, Sekisui Integrated Research, and Triton Systems, Inc. He has several options and licenses for his technology patented through the University and continues to stay active in intellectual property development, consulting, and interactions with industry. Recently, one composition of matter discovered by Sotzing and patented through the University was commercialized by Air Products and Chemicals, Inc. More information on this can be obtained at <http://www.airproducts.com/AdvancedMaterials/Conducting.htm>. Sotzing is known as an expert in the area of conductive polymers especially as it pertains to polythiophenes, optical transparency, electrochromics, sensors, and their stability. He has published over 50 scientific papers, and presented over 70 invited lectures in the field. His most recent work on polythiophene electrochromic color changing thread from electrostatic spinning published in *Advanced Materials* journal was covered by National Geographic, New Scientist, Discovery, The Learning Channel and National Public Radio and Television.

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Return Services Requested

Conductive Polymers: State of the Art



A Short Course for Engineers, Scientists, Designers and Quality Assurance Managers

Wednesday, May 23 and
Thursday, May 24, 2007
9:00 a.m. - 5:00 p.m.

Sponsored by:

Institute of Materials Science &
IMS Associates Program
University of Connecticut
Storrs, Connecticut

Electronic chemicals consisting of conductive polymers have recently been introduced into the marketplace. There continue to be significant research and development efforts toward the use of these materials in electrical and electro-optic applications such as the replacement and repair of indium doped tin oxide (ITO), electrochromics, small molecule organic light emitting diodes (SMOLED) and polymeric light emitting diodes (PLED), photovoltaics, and sensors to name a few. With the display industry being a multi-billion dollar market and with displays becoming more and more commonplace, electronic chemicals will continue to thrive and evolve as new products enter the marketplace.

Traditional conductive polymers such as polyacetylene and polyaniline have been less successful in their market transition compared to polythiophenes. This can be attributed to several reasons including lack of stability and/or processing difficulties, and less than satisfactory optical properties. Polythiophenes, primarily poly(3,4-ethylenedioxy)thiophene (PEDOT), also known as Baytron-P, has found a home in several commercial applications. Other polythiophenes such as regioregular 3-alkylthiophenes have tremendous potential for applications including flexible transistors, radio frequency identification tags, and as a hole injection layer for light emitting diodes. Recently, UCONN intellectual property has been licensed to a major chemical industry that produces a conjugated polythiophene based upon the fused ring system thieno[3,4-b]thiophene as an optically transparent conductor serving as a hole injection layer for OLED displays.

The purpose of this course is to introduce conductive polymers and provide some of the key concepts underlying these organic plastics that conduct electricity. Focus of this short course will be on the general class of polythiophenes, their electrochemical and electro-optical characterization for use in display technology: optically transparent conductors in several applications stemming from ITO replacement to hole injection layers and for electrochromic windows, mirrors, and displays. Formulations and stability will also be addressed. The course will cover fundamentals such as energy gap control, and both molecular and polymer design tailored to these specific applications.

Who should attend

This course will be useful to people with experience in plastics and electronic materials as well as to students and beginners in the field. A background in polymers, conductive polymers and/or electronic materials is not required. Anyone involved with display technologies, electronic chemicals, specialty polymers, and tailored design of electronic chemicals will benefit from it.

Course Location and Schedule

The course will be offered on the Storrs campus of the University of Connecticut, School of Business Building, Room 112, May 23 - 24, 2007 from 9 AM to 5 PM each day.

Registration

The registration fee of \$700 includes workshop attendance, set of course notes, lunch and coffee breaks each day. Registration for this course closes May 9, 2007.

Discounts Available

Participants from firms employing 30 people or fewer receive a \$150 discount per participant. Companies employing more than 30 people can receive a \$150 discount per participant by sending more than two participants to the course.

Refund and Cancellation Policy

The registration fee is refundable, less \$35, prior to the first day of the course only if you notify Student Services: 877-892-6264 or 860-486-4905. Participants who do not attend and fail to cancel are subject to the full fee. Participant substitutions may be made. The Institute of Materials Science reserves the right to change instructors and cancel or reschedule the course in the event of insufficient enrollment or unforeseen circumstances.

Further Information

Questions regarding the course should be directed to Mark Dudley at 860-486-2256 (voice), 860-486-4745 (fax) or mark.dudley@uconn.edu. You may register online or by phone, mail or fax (see registration form).

IMS Associates Program

The IMS Associates Program assists industry with short term projects in research and development. The Program also assists with manufacturing projects where comparable expertise or facilities are not readily available from the private sector. For more information see: www.ims.uconn.edu.

Course Highlights

- **Fundamentals of Conductive Polymers**
- **Tailored design of custom materials**
- **Polythiophenes and their application**
- **Electrochemical and Electro-optical characterization**
- **Displays, Electrochromics and Photovoltaics**
- **Stability of Conductive Polymers**
- **Conductive polymer processing and formulation**

Schedule #1008

Conductive Polymers: State of the Art

May 23 - 24, 2007

Registration Form

Name _____

Title _____

Company _____

Business Address _____

Phone _____

Fax _____

E-mail _____

Please let us know if you require special services or arrangements due to a disability.

Registration Fee

- \$700 Registration Fee
- \$550 Registration Fee for firm with 30 or fewer employees - or -
If more than two people from a firm of over 30 employees
- \$250 One Registration for IMS Associates Program members (additional registrations \$550)

Method of Payment

- Check or Money Order payable to UConn
- Purchase Order # _____
Agency Name _____
- VISA MasterCard Discover Diners Int'l
- Card # _____ Exp. Date _____

Cardholder's Signature _____

4 Ways to Register

Online: www.ims.uconn.edu/ims/content/view/74/128

Customer Service: 877-892-6264 or 860-486-4905

Mail: University of Connecticut
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One Bishop Circle, Unit 4056
Storrs, CT 06269-4056

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