

The Syracuse Chemist

April Speaker

Professor Peter Zugenmaier
“Materials of Cellulose
Derivatives and Cellulose
Composites: Characterization
and Application”



Abstract

Cellulose is a sustainable and biodegradable polymer produced in large quantities by nature. It has been used by mankind for centuries because of its favorable properties. The disadvantage lies in high production cost and its difficult processibility; that is, it cannot be melted and the solubility is limited to exotic solvents. Derivatization of cellulose increases the solubility. Some of the derivatized materials are thermoplastic and represent a solution to the problems in application. In this lecture we will focus on three features which enhance utility of cellulose. (i) In recent years cellulose composites represent another way for facile processing by extrusion. These cellulose-polypropylene composites show enhanced properties as compared to neat polypropylene and may replace composites with glass fibers due to advantages in weight, recyclability and easier disposal. (ii) Progress has been obtained with cellulose esters such as the predictability of essential physical quantities and melt flow. (iii) Microcrystalline cellulose derivatives synthesized in a heterogeneous manner have been successfully applied as chiral recognition agents in liquid chromatography. The structural features of these materials are decisive for their use. A model is proposed for the morphology of the cellulosic fibrils.

Biographical Sketch

Dr. Zugenmaier is currently a Professor Emeritus at Clausthal Technical University in Germany. His significant accomplishments in

cellulose chemistry and physics are being recognized by the ACS Division of Cellulose and Renewable Materials at the 231st ACS National Meeting in Atlanta. He is the 2006 recipient of the Anselme Payen Award which celebrates “outstanding professional contributions to

the science and chemical technology of cellulose and its allied products.” Throughout Dr. Zugenmaier’s career, he maintained research collaborations with SUNY-ESF and he has spent many summers and sabbatical leaves in the Central New York area. His specific research interests include crystal structure determination and conformational analysis of carbohydrates and polysaccharides as well as the liquid crystalline phase of polymers. He also works in polymer composites with emphasis on those exploiting cellulose and its derivatives.

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 Apr. 2006 issue deadline is Apr. 10, 2006
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 giunta@lemoyne.edu**

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Organized as the Syracuse Chemical Society in 1902 and chartered as a section of the American Chemical Society in 1907, the Syracuse Section now includes Central New York counties of Cayuga, Cortland, Madison, Oneida, Onondaga, Oswego, and Seneca.

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Syracuse Section Meeting Monday, Apr. 3, 2006

(see page 3 for details)

“Materials of Cellulose Derivatives and Cellulose Composites: Characterization and Application”

**Moon Library Conference Room
 110, SUNY-ESF**

6:00 PM appetizers, dessert, and
 beverages

7:30 PM Speaker presentation

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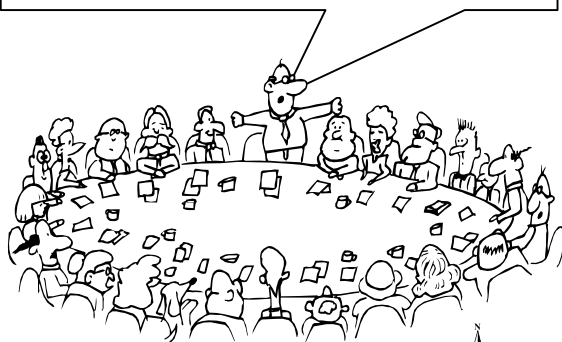
ACS Syracuse Section Meeting Schedule

Details on locations and the dinners that precede the talks will appear in future newsletters and in on the section website, <http://www.esf.edu/acssyr>. As always, the lectures are free and open to the public; typically, there is a charge and reservations required for the dinner portion. For further information, contact at 445-4128 or giunta@lemoyne.edu.

April Monday, April 3: Peter Zugenmaier (Clausthal Technical University, Germany), "*Materials of Cellulose Derivatives and Cellulose Composites: Characterization and Application*," SUNY-ESF, Moon Library Conference Room (Room 110).

May: Monday, May 8: Ralph Blomster, (University of Maryland at Baltimore), "*Plants as a Source of Drugs*"

For additional details, check our web site at www.esf.edu/acssyr



Directions

SUNY-ESF is located just east of downtown Syracuse, bordering Syracuse University and Upstate Medical University. Enter the Campus on Forestry Drive from Irving Avenue to get a parking pass. For a campus map, see: <http://www.esf.edu/outreach/maps/>

APRIL MEETING DETAILS: Mon., Apr. 3, 2006

"Materials of Cellulose Derivatives and Cellulose Composites: Characterization and Application"

**SUNY-ESF,
Moon Library Conference Room (Room
110)**

**6:00 PM appetizers, dessert, and
beverages**

7:30 PM Speaker presentation

Price: \$15, Students: \$10

**INFO: Art Stipanovic (315) 470-6860
e-mail: astipano@esf.edu**

Upcoming Section Events

Greater Syracuse Scholastic Science Fair: Volunteer Judges Needed

The local section will once again provide judges for chemistry-related entries into the Science Fair. This year, the section will award gift certificates to the top chemistry entries in both the junior and senior divisions. Senior division awardees will also be recognized at the section's May meeting, "Education Night." Both the junior and senior division fairs will take place at Nottingham High School in Syracuse on Sunday, April 2. Further information is available at http://www.most.org/p_gsssf_main.cfm.

Judges are needed to make the event a success. Having practicing scientists take an interest in their work can provide additional motivation and validation to young prospective scientists. College and university chemistry students can be appropriate judges for the junior division, so if you are a member or advisor of a college chemistry club, consider this outreach activity. If you are interested in judging at this event, please contact Prof. Tess Freedman at tbfreedm@syr.edu or (315)443-1134.

US National Chemistry Olympiad Exam

The Syracuse Section is again participating in the Chemistry Olympiad program, a chemistry competition for high school students. In the US, the program begins at the grass roots of ACS local sections, with a two-hour chemistry exam offered to high school students. In the Syracuse Section, this exam is open to any interested high school student, and the top scorers will be recognized at the May section meeting, "Education Night." The top scorers will also be invited to the next step of the competition, the US National Chemistry Olympiad Exam. This all-day test is administered to a limited number of students in each local ACS section. Because the 20 highest scorers in the nation will be

invited to further prepare and compete for a place on the US team in the International Chemistry Olympiad, students taking the national exam must be US citizens. Those top chemistry students participate in a study camp in June at the Air Force Academy in Colorado. From that group, a team is selected to represent the US at the International Chemistry Olympiad in Gyeongsan, Republic of Korea.

In the Syracuse Section, the local exam will be offered in at least two locations during the first week in April. The national exam will be administered at Le Moyne College on Thursday, April 20th, starting at 9:30 AM. For further information, contact giunta@lemoyne.edu or (315)445-4128.

Employment Workshop

The Syracuse Section presents a workshop on Effective Job Searching on April 8, 2006 at the Syracuse University Center for Science and Technology. Topics to be addressed include, targeting the market, resumé preparation, effective interviewing, and effective networking. The main workshop will run from 9 AM to 12:30 PM, after coffee and doughnuts that will be available from 8 AM. Individual Resumé reviews will be available in the afternoon from 1:30 PM. The workshop is free of charge. To reserve a place, contact Ms. Finnegan at (315)312-3048, finnegan@oswego.edu or Dr. Tess Freedman (315)443-1134, tbfreedm@syr.edu.

SUNY-Oswego chemistry professor Ray O'Donnell will lead the workshop. Dr. O'Donnell is an ACS Career Consultant, and in that capacity he has run workshops of this sort all around the US for several years. Dr. O'Donnell's involvement with employment and other professional relations issues at ACS has been recognized by the ACS Division of Professional Relations, which presented its Henry Hill Award to him in 2004. Dr. O'Donnell is currently chair elect of the Division of Professional Relations.

National Notes

Call for WCC Overcoming Challenges Award Nominations

The Overcoming Challenges Award (OCA) acknowledges the efforts of women and undergraduates who have overcome economic, personal, and/or academic hardships in pursuit of an education in the chemical sciences. The award consists of a plaque, a \$250 honorarium, and \$1,000 for travel expenses to the fall ACS National Meeting where the award is presented. Award candidates must be women matriculating as an undergraduate chemical science major/minor in a two-year program or at a four-year school not granting a doctoral degree in chemical-related disciplines. Nominations are due May 1, 2006, and should be sent to: Women Chemists Committee, American Chemical Society, 1155 16th Street, N.W., Washington, DC 20036. For additional information, contact the WCC at wcc@acs.org or visit <http://membership.acs.org/W/WCC>.

Second Career Chemical Education Scholarships Available

The Hach Scientific Foundation would like to offer second career chemical education scholarships to chemists. Scholarship money is available for second career chemistry teachers! The Hach Scientific Foundation is a private multi-million dollar foundation dedicated to chemistry and chemical education. The Hach Scientific Foundation is providing scholarships across the country to chemists interested in pursuing a Masters in education and teachers certificate. For more information, visit: <http://www.hachscientificfoundation.org/teachers.shtml>.

Bristol-Myers Squibb plans new plant; Central New York in the running

Bristol-Myers Squibb announced on March 8 that its board approved a plan to build a \$660 million plant to make biologic products. Four

US sites are under consideration for the new plant. Site selection is anticipated by the end of June. Construction is expected to begin later in the year, and production to begin about five years later.

Sites in four states—Massachusetts, New York, North Carolina, and Rhode Island—are under consideration. The candidate site in New York is in Clay, in Onondaga county. The Syracuse Post-Standard reports that area members of Congress, economic development officials, and educational leaders are working to convince the company to site the new plant in Onondaga county. Economic incentives and the availability of a suitable work force are among the factors to be considered, according to Bristol-Myers spokesman Tony Plohoros.

Bristol-Myers Squibb has put considerable resources into the area of biologics, drugs made from animal or plant cells. Late in 2005, it received FDA approval to make and sell a rheumatoid arthritis drug, Orencia, a biologic developed to a large extent at the East Syracuse facility. Work on the drug was begun in the company's Seattle facility, but work has been done on it locally since 1995. Over the last three years, the East Syracuse facility has been mass producing the drug for its clinical trials. Bristol has reportedly invested over \$100 million over the last two years in upgrades to the Thompson Road site, adding warehousing and testing capabilities for biologics. It has also hired 365 people since 2002, mostly for biologics. The site currently manufactures Orencia, but it is not expected to be able to supply Orencia demand. Drug industry analysts say that the drug may eventually have annual sales of over \$1 billion.

As this newsletter goes to press, several chemistry-related positions at the East Syracuse facility are posted on the Bristol-Myers Squibb employment site. For further information, see <http://www.bms.com/career/data/>.

Starting a New Career? Preparing for a Change? Been Downsized?

YOU should take advantage of the
Americal Chemical Society's Career Program:

EFFECTIVE JOB SEARCHING

Presenter: Dr. Ray O'Donnell
ACS Career Consultant

Workshop includes: Targeting the Market
Resumé Preparation
Effective Interviewing
Effective Networking

Saturday April 8, 2006

8–9 AM Coffee & Doughnuts

9 AM–12:30 PM Workshop

1:30–4 PM Resumé Reviews

Location: Room 1–019

Center for Science and Technology, Syracuse University

Registration: Ms. Finnegan: 315–312–3048, finnegan@oswego.edu

Dr. Tess Freedman: 315–443–1134, tbfreedm@syr.edu

Sponsored by the Syracuse Section of the American Chemical Society



JOIN OUR TEAM

Bedoukian Research is seeking a BS/MS Organic Chemist for our Research & Development Laboratory.

Company Overview:

Bedoukian Research, Inc. is a producer of high quality aroma and flavor ingredients and insect pheromones located in Danbury, CT.

Description of Position:

The individual will work under the direction of a senior scientist with the laboratory. Primary responsibilities will include the hands-on development and evaluation of syntheses for new and existing products along with the support of production activities. The individual will also participate in routine administrative, regulatory, safety and maintenance activities as applied to the laboratory environment..

Desired Skills:

- Broad knowledge of organic chemistry.
- Experience in small molecule synthesis; excellent laboratory technique and the discipline to maintain detailed experimental records.
- Familiarity and experience with distillation, GC, GC/MS, IR and chemical literature.
- Excellent analytical, problem-solving and communication skills.
- Proficiency in the use of Windows-based computers.

The position will be available September 1st, 2006.

Forward your resumé and cover letter to: Douglas Pesak, Ph.D.
21 Finance Drive, Danbury, CT 06810
Fax: 203-830-4010
Email: dpesak@bedoukian.com

Bedoukian Research will only consider US Permanent Residents.
Expense reimbursement for relocation is not included.
Excellent benefits including 401k, medical, dental, life and disability plans.
We are an Equal Opportunity Employer committed to diversity in the workplace.



PLEASE POST

**Syracuse Section of the
American Chemical Society**

APRIL MEETING DETAILS

Monday, April 3rd, 2006

Speaker: Dr. Peter Zugenmaier

Professor Emeritus

Clausthal Technical University, Germany

**“Materials of Cellulose Derivatives and Cellulose
Composites: Characterization and Application”**

6:00 PM appetizers, dessert, and beverages

7:30 PM Speaker presentation

Location: Moon Library Conference Room 110, SUNY-ESF

Reservations deadline: noon Friday, March 31st.

E-mail: astipano@esf.edu

Phone: Art Stipanovic (315) 470-6860

Price: \$15 per person; \$10 for students

Directions to SUNY-ESF

SUNY-ESF is located just east of downtown Syracuse, bordering Syracuse University and Upstate Medical University. Enter the Campus on Forestry Drive from Irving Avenue to get a parking pass. For a campus map, see: <http://www.esf.edu/outreach/maps/>

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