

The Chemical Record

Volume 46, Number 1 - February, 2004

Columbus Section of the American Chemical Society, Inc.

<http://www.acscolumbus.org/>

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MEETING NOTICE

COLUMBUS SECTION OF THE AMERICAN CHEMICAL SOCIETY, INC.
Meeting # 791
Wednesday, February 25, 2004
Pfhal Executive Conference Center, OSU
280 West Woodruff Avenue, Next to the Blackwell
Columbus, Ohio 43140
614-247-4000

Schedule:

6:00 PM Reception. Cash Bar.
7:00 PM Dinner:
8:00 PM Program: Synthetic Control of Dendritic Nanostructures Both Within and Beyond Poly(amidoamine) Dendrimers. Prof. Donald Tomalia, in the Lecture Hall. The Lecture is free and open to all.

Menu: Barbeque Glazed Grilled Salmon Filet AND Crusted Chicken Breast (both will be served), with Grilled Onion Chutney and Chef's choice of starch and vegetable, ice tea and coffee.

Dinner Cost: ACS members and nonmembers \$20.00, retired and unemployed \$18.00, students \$8.00. Payment will be collected at the door. Cash and checks accepted.

Reservations: Please use the voice mail reservations service by calling 614-447-3600 extension 7047. Follow template for reservations*. Alternatively, please send e-mail to Gordon Renkes, at grenkes@chemistry.ohio-state.edu.

***VOICE MAIL TEMPLATE**

- First and last name: spell last name.
- Membership category: member, retired, emeritus, unemployed, student, other.
- Employer:
- Your phone number: In case we have to contact you.
- More information: <http://www.acs.columbus.org/>

RESERVATIONS DEADLINE: . Thursday, February 19th, 2004.

Your reservation is a dinner order that must be paid. Please help us to control costs by honoring your order.

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Directions:

From State Route 315, Lane Avenue exit. Go east, past Olentangy River Road, to Tuttle Park Place. Turn right at the traffic light and follow Tuttle Park Place, past Neil. The Blackwell will be on your left. Pfahl is next to the Blackwell. For complete directions, visit:

<http://fisher.osu.edu/campus/pfahl/index.htm>

Parking:

OSU stickers, park at your convenience. Parking for pay is available in the Tuttle Park Pl. Parking Garage (A), 2050 Tuttle Park Place. RECOMMENDED: The Blackwell offers convenient valet parking at \$5.00 and a receptionist would greet and guide attendees to Pfahl Hall.

About the Topic:

Nature has evolved exquisite synthetic strategies over the past 3-4 billion years for controlling biological nanostructures as a function of size, shape and regio placement of chemical groups. Critical constructs such as globular proteins and their various self-assemblies, not only define essential life processes and architectures, but also demonstrate the importance of controlling these three synthetic parameters. Dendrimers have exhibited remarkable globular protein-like properties as evidenced by their precise masses, comparable dimensions/ shapes and electrophoretic properties. They have been used as protein mimics in many applications such as gene transfection, diagnostics, enzyme mimics and as anti-prion agents. As such, these nanostructures are widely referred to as "artificial proteins.". In an effort to more closely mimic the "higher complexity" of many differentiated shapes and chemical surfaces found in biological proteins, several synthesis strategies have been investigated in our laboratory. The first approach provides a systematic strategy for differentiating dendron generations and surface chemistry within a single dendrimer structure. This is accomplished by hybridizing (oxidizing) various combinations of mercapto-core functionalized dendrons. A second strategy allows the systematic synthesis of chemically differentiated nano-cusps/clefts found in "partial shell filled," core-shell tecto(dendrimer) architectures. Covalent attachment of additional dendrimer shells to these architectures have allowed the systematic "bottom-up" synthesis of core-shell structures with virtually any combination of nano-dimension and surface chemistry desired. Such structures demonstrate important progress toward the mimicry of enzymes or protein aggregate-type structures (e.g., pyruvate dehydrogenase). This lecture will overview these methodologies, their implications and other related nanoscale dendritic effects.

About the Speaker:

Dr. Tomalia founded Dendritic Nanotechnologies Limited in a joint venture with Starpharma Pooled Development (Melbourne, Australia). He serves as President and C.T.O. of this dendrimer-based nanotechnology company with production and laboratory facilities located at Central Michigan University, Mt. Pleasant, Michigan.

He was recently appointed Co-Director of a national center focused on Dendritic Polymer Based Nanotechnology located at Central Michigan University (2002). Other positions currently held by Dr. Tomalia include: Distinguished Visiting Professor (Columbia University) and Distinguished Research Scientist/Professor (Central Michigan University).

In 1990, he joined the Michigan Molecular Institute (MMI) as Professor and Director of Nanoscale Chemistry & Architecture (1990-1999). He co-founded Dendritech, Inc. the first commercial producer of dendrimers and was named founding President and Chief Scientist (1992-2000). He became V.P. of Technology for MMI (1998-2000) while simultaneously serving as Scientific Director for the Biologic Nanotechnology Center, University Michigan Medical School (1998-2000).

He joined the Dow Chemical Company as a synthetic polymer chemist with a focus on functional monomers and polymers (1962-1989). During that time, he discovered the cationic polymerization of 2-oxazolines (1966) and Starburst dendrimers (1979).

Tomalia is listed as the inventor of over 100 U.S. patents and is author/coauthor of more than 180 peer reviewed publications. Over 150 papers are focused in the dendrimer/dendritic polymer field, including a monograph entitled "Dendrimers and Other Dendritic Polymers" (J. Wiley) co-edited with J.M.J. Frechet (2001). Dr. Tomalia serves on the editorial advisory boards of Bioconjugate Chemistry (1999-) and NanoLetters (2000-).

Tomalia completed his undergraduate chemistry degree at the University of Michigan, Flint College and obtained his Ph.D. degree (physical-organic chemistry) from Michigan State University.

IN MEMORIAM

Kenneth W. Greenlee (1916-2003)

With Ken Greenlee's passing away in December 1, 2003, the ACS Columbus Section lost an "institution". The dictionary defines it as "a person long established in a place". Not only he held every elected office in the Section, but he was also the Section historian and archivist for over 50 years. As early as in 1962, he presented a paper with Frank C. Croxton and Cecil E. Boord at the 141st ACS National Meeting in Washington, DC, on

"The First 65 Years of the Columbus Section".

Incidentally, Frank Croxton was a well known researcher at the Battelle Memorial Institute and the Columbus Section Chair in 1963, and Cecil E. Boord was an OSU chemistry professor, Section Chair in 1918-1920 and 1927, and Ken's father-in-law. Ken himself was the Section Chair in 1955.

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When Ken received in 1988 the Columbus Section Award, instituted to recognize outstanding achievement and promotion of the chemical sciences within the geographic area of the Section, he summed up his career as having had

5 years of infancy
21 years of schooling
21 years of sponsored research at OSU
21 years in industry (his own company).

Having retired in 1984, he moved into a period of volunteer work and had hoped that it would also last at least 21 years. Unfortunately, he was about a year short of that goal.

He started to be interested in the history of the Columbus Section back in 1947, when the Section celebrated its 50th anniversary. He helped to produce a special edition of *The Chemical Record* for the Section 75th anniversary in 1972. He could not be with us for the Section 100th anniversary in 1997, because by then he moved out to Valparaiso, Indiana.

How Ken started at the Ohio State University (OSU) in 1942 can be stated in his own words:

"The professor needed an assistant in a gasoline project, and the new Ph.D. needed a war-related job."

The project was established in 1938 as the American Petroleum Institute (API) Hydrocarbon Research Project under the OSU Research Foundation with Cecil E. Boord as its director. Boord's photograph appeared on the cover of the *Chemical and Engineering News* of July 31, 1950, with a caption

"Designer and Builder of Gasolines".

Ken Greenlee was the associate director of that project for several years. They helped the API to create a "bible of octane numbers", officially called ASTM Committee D-2, STP 225.

It is always of interest to list the first and last publications of an author, as they are cited in *Chemical Abstracts*.

While Ken's 1942 Ph.D. thesis was on

"Reactions of Sodium Derivatives of Unsaturated
Hydrocarbons",

his first paper, coauthored with Professor W. Conard Fernelius and published in 1942 in the *Journal of the American Chemical Society*, was on

"Hydrogenation of Disubstituted Acetylenes".

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Subsequent papers reflect his research in petroleum refining, synthesis and properties of hydrocarbons, and mechanism of combustion. During World War II the hydrocarbon research project at OSU was put on the secrecy list and later was given a citation for helping to win "the war in the air", specifically for the production from crude oil of the aviation fuel with the highest yield of octane. And, indeed, to cap that phase of his chemical career, Ken published his last paper in 1962 in the *Proceedings of the American Petroleum Institute* under the title

"Octane Numbers of Pure Hydrocarbon Blends and their Relationship to Precombustion Reactions".

In 1963, Ken started his own company, Chemical Samples Company, which was located in Columbus on Kenny Road between Henderson and Bethel Roads. He was extremely proud of its success and even once presented its history at the 191st ACS National Meeting in New York in 1986, appropriately entitled

"Samples and Serendipity. The True Story of Chemical Samples Company".

He referred to the beginning of this phase of his scientific career as follows:

"When after 21 years the job at OSU dried up, friends and would-be-customers hounded me into the business of making hydrocarbons, etc. for research purposes, i.e. samples."

The company's 1969 catalog "C-3" had a slogan on its cover "Serving Research". It listed some 3000 chemicals, among them 1200 hydrocarbons, alcohols, and ketones. The company was considered as the world's most complete source of these compounds.

Some of these compounds turned out to be pheromones and the company had become the major producer of insect sex attractants. The company was sold successfully in 1978 to Albany International Corporation, yet Ken continued to be involved in its management till his retirement in 1984.

Ken was a cofounder of the ACS Division of Small Chemical Businesses in 1978. Creating such a division was not a small feat because until then, with one exception, all the ACS divisions were strictly technical, each covering a specific chemical discipline such as agricultural and food chemistry, analytical chemistry, chemical education, inorganic chemistry, and the like. The exception was the Division of Professional Relations founded in 1972. The objective of the Division of Small Chemical Businesses has been to aid in the formation, development, and growth of small chemical businesses; to address the legal, social, educational, legislative, regulatory, and economic needs of self-employed chemists; to encourage and promote free enterprise among chemists; and to serve as a clearinghouse for

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information about services available to members engaged in or planning to start small chemical businesses.

Ken was the Division Vice-Chair I in 1979, when the Division had a probationary status, and became its Chair in 1980, when the Division became a fully fledged ACS Division.

In fact, it might be claimed that Columbus, Ohio, has been the birthplace of the Division, as other members of the Columbus Section, among them Alexandra C. Melnyk then the Section Alternate Councilor and Loren McBride of G. Frederick Smith Chemical Co., along with Ken were prime movers in the founding of the Division.

Ken claimed that his costliest volunteer work, in terms of time spent, was editing of the Newsletter of the Division of Small Chemical Businesses, which he had named *Small Chem Biz News*. Ken said that editing was natural to him. Apart from editing some junior and high school as well as college newsletters, he started in 1953, with John Pattison and Ellis Neunherz, the publication of the *Columbus Section Newsletter*, renamed in 1958 as *The Chemical Record*.

The chances are that we will never see another member of the Section such as Ken, who contributed so much and who had been so active for over 50 years.

W. Val Metanomski

ACS--Kids and Chemistry Presentation at "First Night Columbus"

By Jeff Trent

A bright red and white "**Happy New Year from the Columbus Section of the American Chemical Society**" greeting was displayed in front of the ACS Kids & Chemistry exhibit at COSI during the First Night Columbus Celebration, December 31, 7:30 -11:30pm. Participants watched the First Night Fireworks that followed to ring in the New Year.

The ACS exhibit started the New Year off right with chemistry emphasizing Fluorescence, Phosphors, and UV-Light. Celebrants entered the 10x10x14ft glowing display area through an arched doorway. Six fluorescent black lights provided the benign UV-A Light energy to excite the electrons of the Zinc Sulfide or Strontium Aluminate in display items allowing emission of the characteristic green glow as the electrons returned to ground state. Glowing stars, planets, dinosaurs, robots, string, and squish toys were presented along with display panels describing the Solar System from a glowing book on space.

Jeff Trent as "Professor Jeff" welcomed visitors to the display with a box of apparently ordinary rocks which Fluoresced bright Pink, Yellow-Orange, Purple and Green when

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exposed to black-lights. This was due to activators such as the elements Sulfur, Manganese, and Europium present in the rock's mineral matrix.

A giant Periodic Table and a three panel poster describing the black-light chemistry from (www.howstuffworks.com/black-light.htm/printable) and glowing material chemistry from (www.howstuffworks.com/question388.htm/printable) were presented. Additional space was provided for several expandable multicolored Hoberman Spheres including a Giant 5 foot Sphere that children and parents could fit inside!

A first floor poster welcomed guests upstairs to the City View area of COSI for a **“Glowing Display by the Columbus Section of the American Chemical Society”**. The City View area provided a spectacular downtown city lights backdrop for the entire display. A special thank you goes to COSI Activity Director, Michelle Bondurant, for providing such a wonderful space for ACS – Kids & Chemistry outreach. And also, a special thank you to the Director of First Night Columbus, Bev Soult, who agreed that a Happy New Year Exhibit from ACS would be nice adjunct to the First Night Celebrations.

VOLUNTEERS NEEDED FOR STATE SCIENCE DAY

On Saturday, May 8th, 2004, State Science Day 2004 will be hosted by The Ohio State University at its French Field House in Columbus – just up the road from the Shoe. Since 1998, as part of its commitment to chemical education at all levels of the community, the Columbus Section of the American Chemical Society has sponsored awards in the Grade 7-9 and 10-12 groups for outstanding projects in the chemical sciences. The objective is to acknowledge and reward those students who have not only understood the scientific method, but also have exhibited creative thought.

WE NEED YOUR HELP !!!

As you can imagine, the number of students involved and projects presented is large and we need judges to evaluate them and decide on the award winners. While being a chemist or ACS member is not required, certainly a general knowledge of some branch of chemistry is desirable. After all, a Ph.D. inorganic chemist may not remember much more about the Krebs cycle than its name. I know that I don't, anyway. But even limited knowledge in one area can be supplemented and effectively utilized through interactions with judges having complementary skills.

Clearly, these students are some of the best that Ohio has to offer and already show an interest in chemistry. What better way to encourage budding scientists and expose these youngsters to the human face of the chemical enterprise? It might also be a good way to do early recruiting for future undergraduate and graduate students, and interns. Listen up, faculty members and employers !

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Judging is scheduled from 9:00 a.m. to noon. Refreshments and orientation will occur from 7:00 to 8:30 a.m., and you really need not be there much before 8 in order to get a clear idea of what will be happening that morning.

Please consider taking one morning out of the entire year to offer advice and encouragement to youngsters who could be taking the first steps in a Nobel Prize career. And they would have you to thank for it. If you would enjoy the opportunity to meet the next generation of scientists, please e-mail me at bob.kroshefsky@scotts.com or call me at 937-644-7584.

Refer to the websites of the Columbus Section <http://www.acscolumbus.org> and The Ohio Academy of Science <http://www.ohiosci.org/ssd.htm> for more details.

CALL FOR MENTORS

Help build the future of the Chemistry Field by Inspiring Young Minds!

The American Chemical Society Columbus local section is developing a mentoring program to establish relationships between the current members and college students interested in chemistry.

The idea of the program is to help and guide students on the path toward a future in chemical industry or academia. The program will begin with a one-hour information session for those who might be interested in being mentors. After a more thorough explanation of what mentoring and the program involves those interested will be invited to attend a one day (approximately eight hours with lunch provided) mentoring workshop to develop some key skills that are useful for mentors and people in general. An informal session will then be held inviting students and members of the Younger Chemists Committee to meet the mentors and discuss their aspirations and goals. All parties will be asked to put forth preferences for whom they wish to work with. After students and mentors are paired they are expected to develop a one on one relationship that will allow them to learn from each other. Monthly gatherings will be held to monitor the progress of the mentoring program and discuss any questions that have arisen. Please consider offering your experience and knowledge to the younger generation. The rewards of helping a young mind and giving back to the field that has given so much to each of us are endless.

Information Session

March 23rd at 6:00pm

Room 2136 Newman-Wolfrom

The Ohio State University 100 West 18th Avenue

For more information contact Amanda Hofacker at ahofacke@chemistry.ohio-state.edu, or by phone at (614) 371-1181 or (614) 688-4085.

Thundat Recognized in *Time* Magazine

By Don Songstad

Time magazine in the January 12, 2004 issue has an article about Dr. Thomas Thundat. The article is entitled "Beyond the Sixth Sense. How can you tell what's in the air? In a suitcase? In your blood? Meet science's detection pioneers" Thomas spoke at the Columbus Section September meeting in 1999. "Chemical, Physical, Biological Detection Using Microcantilevers" was the title of his talk.

STAY IN TOUCH WITH THE EDUCATION AND INTERNATIONAL ACTIVITIES DIVISION...

You'll be among the first to know about new ACS publications, workshops, conferences, grants and other opportunities when ChemunityNews arrives by email every other month.

Signing up is easy. Simply email us at chemunitynews@acs.org and type "subscribe" in the subject line.

NEW FROM CAREER SERVICES

Begin 2004 with a new online service to enhance your career. Explore Advanced Career Tools (ACT)! These career tools include a free searchable database of nearly 300 articles on topics such as resume writing, interviewing, legal issues, stock, salary negotiations, and more.

You can also take advantage of personal career coaching that will provide one-on-one assistance in areas such as learning to succeed in performance reviews, developing skills in negotiating salary, and obtaining a detailed analysis of your behavioral style. This component of ACT, while a cost item, is discounted for ACS members at below-market rates. Visit <http://chemistry.org/careers> to use ACT.

WCC OVERCOMING CHALLENGES AWARD FOR WOMEN UNDERGRADUATES

The Overcoming Challenges Award acknowledges the efforts of women undergraduates who have overcome economic, personal and/or academic hardships in pursuit of an education in

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the chemical sciences. The award consists of a plaque, a \$250 honorarium, and \$1,000 for travel expenses to the ACS Fall 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, 2004, and should be sent to: Women Chemists Committee, American Chemical Society, 1155 16th Street, NW, Washington, DC 20036. For additional information, contact the WCC at wcc@acs.org. or visit <http://membership.acs.org/W/WCC>.

You are encouraged to apply and/or nominate deserving women for the WCC Overcoming Challenges Award.

WELCOME NEW MEMBERS!

By George Noethlich, Membership Chair

Please join us in welcoming the following members who have recently joined the Section:

LEAH BLATZER	JYH YEE LAN	YU WANG
STEPHANIE S BUEHLER	YAO LIU	HALEY J. WRIGHT
TINGWEI B CAI	ZUOSHENG LIU	HONG XIE
KAELIN M CAWLEY	JAMIE L MCFARLAND	TANYA N XINGH
NATALYA N	MASAHARU NISHIOKA	XINHUI YE
DEGTYAREVA	LORI B ORENIC	LIANG YI
JUSTIN F DEWOLFE	SUNDEEP RAYAT	TESHOME YISGEDU
MICHAEL J FERRACO	MICHAEL RIDER	LINGKE ZENG
DAVIDA C FRICK	IRVING D SAND	YUN ZHANG
JOAN HANSON	ASHLEY S SCOTT	JIUXIANG ZHU
ALVIN HOLDER	TANYA N SINGH	
DENNIS HOLTMAN	SRIRAM VISWANATHAN	
M IBBA	PENG GEORGE WANG	

2004 COLUMBUS SECTION ACS CALENDAR OF EVENTS

Compiled by Maria Rosenthal

February

- 12 YCC Open House at Anthony Thomas Candy Company
- 15 Annual Report to ACS due.
- 25 Monthly Section Meeting with Donald Tomalia at Pfahl Conference Center, The Blackwell, OSU

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March

- 9 Monthly Section Meeting organized by YCC for all members.
"The Chemistry of Glass Blowing"
Buffet Dinner at the Brazenhead Restaurant on Fifth Avenue at 6:00. Variety of appetizers and sandwich options. Following dinner we will walk across the parking lot to Glass Axis where we will see a demonstration of glass blowing.
- 23 Mentoring Information meeting - OSU
- 29-Apr 1 ACS National Meeting, Anaheim

April

- TBA Wine Tasting at Greystone Winery, with introduction and comments on winemaking, sampling of selected wines, and dinner.
- 22 CHEMISTS CELEBRATE EARTH DAY.
Theme: What do you know about H₂O?
Unifying Event: Testing Rain Water

May

- 8 State Science Day - ACS Awards
- TBA Annual Awards Banquet: Columbus Section Award, High School Chemistry Teacher of the Year

June

- 2-4 Central Regional Meeting, Indianapolis

August

- 22-26 National Meeting, Philadelphia

October

- 6 Dr. William Carroll, ACS President-Elect, visits the Columbus Section
- 17-23 NATIONAL CHEMISTRY WEEK
THEME: HEALTH AND WELLNESS

November

- TBA Family Event

December

- TBA Joint meeting with AIChE

About *The Chemical Record*

The Chemical Record, official newsletter of the Columbus Section of the American Chemical Society, is published monthly, September-December and February-May (eight issues per year.) Opinions expressed by editors or contributors do not necessarily represent the official position of the Columbus Section. We welcome your contributions to your *Chemical Record*. Please submit them via postal or electronic mail to George Greene, PO Box 360941, Columbus, Ohio 43236-0941, george.greene@abbott.com. Electronic mail contributions should be in plain-text messages or in

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Word 97 (or earlier release) file attachments. Please do not add unnecessary spaces and carriage returns in the bodies of the paragraphs, etc. *Thank you very much!*

***Deadline for Contributions to the March issue of The Chemical Record:
Friday, February 13, 2004***

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Thoughts to Ponder.....

One cannot lead without putting others first.

Take your work seriously, but never yourself.

--Margot Fonteyn, Dancer

If enough people think of a thing and work hard enough at it, I guess it's pretty nearly bound to happen, wind and weather permitting.

--Laura Ingalls Wilder, writer

Character consists of what you do on the third and fourth tries.

--James A. Michener

When you blame others, you give up your power to change.

--Robert Anthony

Everybody is ignorant, only on different subjects.

--Will Rogers

CHANGE OF ADDRESS

Changes in postal or e-mail address should be reported to the Membership Chair, George Noethlich, 2740 Bella Via Avenue, Columbus OH 43231-2305, e-mail gnoethlich@wideopenwest.com. George will forward the change-of-address information to ACS Headquarters.

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