



Newsletter Fall 2013

AMERICAN CHEMICAL SOCIETY DIVISION OF CARBOHYDRATE CHEMISTRY

MEET THE GLYCOSCIENTIST

Meet the Glycoscientist is a new feature that introduces individual glycoscientists and their research groups to the carbohydrate community with the goal of fostering new relationships and collaborations.

Nicole L. Snyder, Davidson College: Training a New Generation of Undergraduate Glycoscientists

It is summer time at Davidson College in Davidson, North Carolina, and research is well underway in the laboratory of Assistant Professor Nicole L. Snyder. This summer Professor Snyder is working with eight talented and motivated undergraduates hailing from four

different states and three different countries. Her students are currently working on projects that focus on the synthesis and characterization of chemically and biologically relevant carbohydrate-based constructs from water soluble catalysts to bacterial antigens.



Professor Snyder and her undergraduate researchers at Davidson College. Front row from left: Joyelle Newton (Columbia, South Carolina), Sasha-Gay Cunningham (Jamaica), Nicole L. Snyder, Sarah Kim (Seoul, South Korea), Lizzy Anderson (Fort Worth, Texas). Back row from left: Karl Wold (Hickory, North Carolina), Edward Palumbo (New Bern, North Carolina), Matthew Brady (New Canaan, Connecticut), George Mukosera (Harare, Zimbabwe).

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Professor Snyder earned B.S. degrees in Chemistry and Biology from Westminster College, where she designed spectroscopic techniques for the quantitative determination of ergosterol under the direction of Professor Timothy A. Sherwood. Her positive undergraduate research experiences inspired her to attend graduate school, and in 2005 she completed her Ph.D. in Bioorganic Chemistry under the guidance of Professor Mark W. Pecuh at the University of Connecticut. Her thesis work focused on the synthesis, characterization, and biological evaluation of a number of ring-expanded carbohydrate analogs. While studying at the University of Connecticut, she also developed an interest in mentoring undergraduates. This inspired her to pursue a career at a small liberal arts college.

Professor Snyder obtained two years of practical experience in a liberal arts setting as a Visiting Assistant Professor at Wellesley College in Wellesley, Massachusetts. The Department of Chemistry at Wellesley generously provided her with a research laboratory and a small amount of funds to help her start an undergraduate research program in glycoscience.

In 2007, Professor Snyder began her independent career as an Assistant Professor at Hamilton College in Clinton, New York where she continued the

research program she began at Wellesley. In 2010, she received the prestigious *Class of 1963 Excellence in Teaching Award* for her work with undergraduates in the classroom and laboratory.

Professor Snyder joined the Davidson faculty in 2012 as an Assistant Professor of Chemistry, where primarily teaches Organic Chemistry and Immunology and Immuno-pharmacology. She is currently in the process of developing undergraduate courses on carbohydrate chemistry and toxicology.

In the laboratory, Professor Snyder employs a hands on approach and she relishes the opportunities she has to work side-by-side with her undergraduate collaborators. She has mentored nearly fifty undergraduate students so far, most of whom began working in her laboratory knowing little or nothing about carbohydrates. After a summer, semester or year of research, however, they leave the lab with a new appreciation of the critical roles these molecules play in industrial and biological processes, and with a new set of laboratory skills. Inspired by their experiences, many of her students have gone on to pursue graduate work and/or medical training, and several of them have specifically chosen research projects in the carbohydrate field.

Professor Snyder attributes the success of her research program

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FUTURE NEWSLETTERS

The Carbohydrate Division Newsletter is published twice a year, just before the two annual National ACS meetings. If you have items for inclusion in future please send the information to:

Secretary/Newsletter Editor

Eriks Rozners
erozners@binghamton.edu

to the hard work, discipline, and dedication of her undergraduate students, as well as to the strong relationships she maintains with her collaborators in the United States and abroad. Though she acknowledges that undergraduate research generally progresses at a slower pace than that of a graduate program, she maintains that the research performed by her students is just as innovative.

Professor Snyder says that she could not imagine herself in another career. Collaborating with undergraduate students in the classroom and laboratory continues to enrich her life, and she feels incredibly fortunate for the opportunities and experiences that lie ahead.

KUDOS



Congratulations to class of 2013 ACS FELLOWS!

The ACS Fellows program began in 2009 as a way to recognize and honor members for outstanding achievements in and contributions to science, the profession, and ACS. The 2013 class of Fellows represents 28 National Committees, 30 Divisions, and 49 Local Sections of the ACS. Additional information about the program, including nomination details for 2014 as well as a list of previous fellows, can be found at www.acs.org/fellows. Congratulations to **Gillian Eggleston** and

Xuefei Huang, the newly selected ACS Fellows who represent the Carbohydrate Division!

Below the Newsletter asked Gillian and Xuefei to comment on how involvement in the CARB Division helped their careers and to give advice to younger carbohydrate chemists.

Gillian Eggleston

was Treasurer of the CARB Division from 1998-2005, Chair Elect from 2004-2006, then Chair from 2006-2008, followed by Past-Chair from 2008-2010. She led the strategic plan for the Carbohydrate Chemistry Division of the American Chemical Society from 2008-2009.

"Being involved in the ACS CARB Division has really helped my career mostly because of professional development. Being an officer of the CARB Division meant that I had a lot of training from ACS on leadership etc and I found it very applicable to my job as a scientist in the US Department of Agriculture. As an officer, I had the opportunity to attend two ACS leadership conferences, multiple communication and leadership seminars, and even strategic planning training at a consultancy firm in Washington



DC. Taking on officer positions also gave me valuable experience, which definitely made me grow. Also, interacting with world-class carbohydrate chemists in the Division has been an excellent networking opportunity as well as a learning experience.

I would say the highlight of my involvement in the Division was leading the strategic

planning for the Division. The Division was in need of changes and new direction and this was a great opportunity to bring Division members together to think through a new strategy for the Division at the turn of the 21st century that would keep us alive and strong for many years to come.

My advice to young carbohydrate chemists or any other young scientist is to develop their communication skills. Scientific skills are not enough for success in today's workforce. You have to be able to communicate and sell your results. I would also tell a young carbohydrate chemist to join the CARB Division, utilize our new website to the max, network with all our members, attend our excellent symposiums, and BE ACTIVE and CONTRIBUTE to our Division."

Xuefei Huang

received his undergraduate education from the University of Science and Technology of China. In 1994, he came to the US and joined the group of Prof. Koji Nakanishi at Columbia University, where he worked on the development of circular dichroism methods for absolute configurational assignments and bio-organic studies of neurotoxins. Upon receiving his Ph.D. degree in 1999, he joined Prof. Chi-Huey Wong's group at the Scripps Research Institute as a postdoctoral researcher, where he was exposed to the wonderful world of glyco-chemistry and glycobiology. After another postdoc stint back at Columbia University with Prof. Nakanishi, he started his independent research career at the University of Toledo in 2002. He was promoted to Associate Professor in 2006 with tenure. In 2008, he moved to Michigan State University and was promoted to full Professor in 2012. His research interests are in



several areas including the development of glyco-nanoparticles for biological applications, total synthesis of complex oligosaccharides and glycoconjugates, and the development of carbohydrate based anti-cancer vaccines.

"My involvement in CARB Division affairs began as a co-organizer of a symposium at a national ACS meeting. Later I served as a Secretary and Newsletter Editor. Currently, I am the Program Chair of the Division. Getting involved in the Division has been an outstanding experience. I got to learn how the Division operates and meet with many glyco-researchers to discuss the state-of-the-art

development in the field. At the same time, this has been a great way to give back to the community. The Secretary and Newsletter Editor position serves as a liaison between the Division Executive Committee and individual members, which is important to communicate with researchers in the field and build up the sense of community. Furthermore, as a program chair, I have been in charge of organizing the CARB Division programs at the National ACS meetings from 2012 to 2013. The program chair shoulders the critical responsibilities of designing and organizing vibrant and diverse programming and providing a prime venue for glyco-scientists to meet and disseminate the latest research results. It has been a busy yet very fulfilling journey working for the Division. I strongly encourage everyone to join the divisional officers in the endeavor to make our Division an exciting home for all glyco-researchers."

Branching Out In Different Ways

Carbohydrate Chemistry: New synthetic strategy leads to asymmetrically branched *N*-glycans

Congratulations to a distinguished team of CARB members whose work was featured in a recent C&EN article. For more information, see <http://cen.acs.org/articles/91/i30/Branching-Different-Ways.html>

Congratulations to Xi Chen on Carbohydrate Research Award!

Professor Xi Chen received the biennial Carbohydrate Research Award at the EuroCarb17 Symposium in July. She joins a distinguished group of Awardees, many of whom are CARB members: Laura L. Kiessling (2001) Geert-Jan Boons (2003), Peter H. Seeberger (2005), Todd L. Lowary (2007), Benjamin G. Davis (2009) and Matthieu Sollogoub (2011). For more information about the EuroCarb17 Symposium, see <http://www.eurocarb2013.org/>

Congratulations to Peter H. Seeberger!

The Berlin-Brandenburg Academy of Sciences and Humanities (formerly Prussian Academy of Sciences, BBAW) announced today the election of seven new members. New members are elected in recognition of their outstanding scientific achievements. Among the new academicians is Prof. Peter H. Seeberger, director at the Max Planck Institute for Colloids and Interfaces in Potsdam and Professor at the Free University of Berlin. In addition, he serves as honorary Professor at the University of Potsdam. BBAW, the biggest non-university research institution for the German states of Berlin and Brandenburg, carries on the tradition of the Prussian Academy of Sciences. Founded by Gottfried Wilhelm Leibniz (1646 - 1716) in 1700, its past and present scientific body consists of 78 Nobel laureates including Albert Einstein (1879 - 1955) and Max Planck (1858 - 1947).

Professor Seeberger also received the C. S. Hamilton Award for Organic Chemistry from the University of Nebraska.

Congratulations to Kevin Hicks on Award of Research Excellence

Kevin Hicks, a 37 year member and Past President of CARB won the Award of Research Excellence at the 29th International Fuel Ethanol Workshop in St. Louis on June 11, 2013. Hicks is the Research Leader for the Sustainable Biofuels Research Unit, Eastern Regional Research Center, ARS, USDA in Wyndmoor, PA. <http://www.ethanolproducer.com/articles/9935/icm-employee-usda-researcher-receive-annual-awards-at-few>

Congratulations to Chemical Communications 2013 Emerging

Investigators

Chemical Communications recently announced a special issue dedicated to 2013 Emerging Investigators, which highlights the very best work from scientists in the early stage of their independent career. Professor M. Carmen Galan at University of Bristol, UK; Professor Hien Nguyen at the University of Iowa, USA and Professor Daniel B. Werz at Gottingen University, Germany, all have been named as 2013 Emerging Investigators by *Chemical Communications*.

Karl Meyer and Rosalind Kornfeld Awards, Society for Glycobiology

The Society of Glycobiology have decided that Karl Meyer Award for 2013 goes to Dr. Markus Aebi and the 2013 Rosalind Kornfeld Award for Lifetime Achievement in Glycobiology goes to Dr. Carlos Hirschberg. Congratulations to Awardees!

CARBOHYDRATE CHEMISTS NEWS

Benjamin Swarts joins Central Michigan University as an Assistant Professor

In the summer of 2013, Ben Swarts joined the faculty in the Department of Chemistry at Central Michigan University. As a graduate student, Ben was trained in the laboratory of Zhongwu Guo at Wayne State University, where he worked on new methods for the chemical and chemoenzymatic synthesis of glycosylphosphatidylinositol (GPI) anchors and GPI-anchored proteins. He then moved to Carolyn Bertozzi's lab at UC Berkeley, where he developed techniques for imaging



mycobacterial glycoconjugates, work that was supported by postdoctoral fellowships from the

American Cancer Society and the Center for Emerging and Neglected Diseases. Now back in Michigan, Ben has started his lab at CMU, which will focus on the creation of chemical tools for investigating and targeting cell-wall glycoconjugates and proteins in mycobacteria, including the global pathogen *Mycobacterium tuberculosis*. For more information, please visit his group's website at <http://people.cst.cmich.edu/swar11bm/swartslab/>.

Kamil Godula joins University of California San Diego as an Assistant Professor

Kamil's research interests are in the area nanotechnologies for analysis of glycan function during development and glycomaterials for stem cell-based tissue regeneration. <http://www-chem.ucsd.edu/faculty/>

Maciej Walczak joins University of Colorado-Boulder as an Assistant Professor

Maciej's research interests are in the area of therapeutically promising alkaloids, oligosaccharides, and glycoconjugates.

https://chem.colorado.edu/index.php?option=com_content&view=article&id=649&Itemid=185

ANNOUNCEMENTS

ACS Joint Board-Council Committee on CAS Needs Your Input

The ACS Joint Board-Council Committee on CAS (CCAS), an ACS governance committee charged with acting as an information conduit between the ACS membership and CAS management, continues to seek your input! The committee meets twice annually, in conjunction with the ACS National Meetings, and communicates via e-mail between meetings. CCAS will meet in closed session prior to the ACS National Meeting, on Friday, September 6, 2013. If you have any issues that you would like raised either at or after this meeting, please contact a member of the committee by phone or e-mail. A list of committee members appears at http://portal.acs.org/portal/PublicWebSite/about/governance/committees/cas/CNBP_030396. Someone will respond to your query as soon as possible.

Issues raised will be brought to the attention of CAS management, and responses will be disseminated to the appropriate individuals or groups as quickly as possible. Please remember that you are encouraged to contact a member of CCAS with feedback at any time, regardless of whether or not a formal call has been posted. We have also established a group on the ACS Network, <https://communities.acs.org/groups/chemical-abstracts-service-committee>, where you can post questions and read answers. CCAS now has a page on Facebook too.

Chuck Huber, for CCAS

<http://portal.acs.org/portal/PublicWebSite/about/governance/committees/cas/index.htm>

Special Issue of Biopolymers: Glycosciences

A special issue of Biopolymers "Glycosciences" has been published by Wiley. The issue Editor is Prof. C. Allen Bush, University of Maryland Baltimore County. Starting August 7, Wiley will offer OPEN ACCESS to Glycosciences Issue for 60 days. <http://onlinelibrary.wiley.com/doi/10.1002/bip.v99.10/issuetoc>

Books Available

Professor Derek Horton offers a full bound set of all volumes of *Carbohydrate Research* from Volume one and up to the date when the journal changed to the large-page format. It is available free of charge for any interested researcher or carbohydrate laboratory who could either pick up or arrange shipment from Washington, DC. Professor Horton also offers volumes of the *Methods in Carbohydrate Chemistry* series, as well as of *Advances in Carbohydrate Chemistry and Biochemistry* available for a modest donation.

OBITUARY

Professor Robin Ferrier

Dr Richard Furneaux has advised us of the passing of Professor Robin Ferrier, on 11th July, peacefully in the company of his wife Carolyn, son Duncan and daughter Alison.

Robin was a hugely positive figure in carbohydrate chemistry internationally, and in chemistry in New Zealand. Following his initial retirement from the Chair of Organic Chemistry at Victoria University of Wellington, Richard notes

that "We were lucky to have him with us at IRL (now renamed Callaghan Innovation) until his second official retirement and 80th birthday last year".

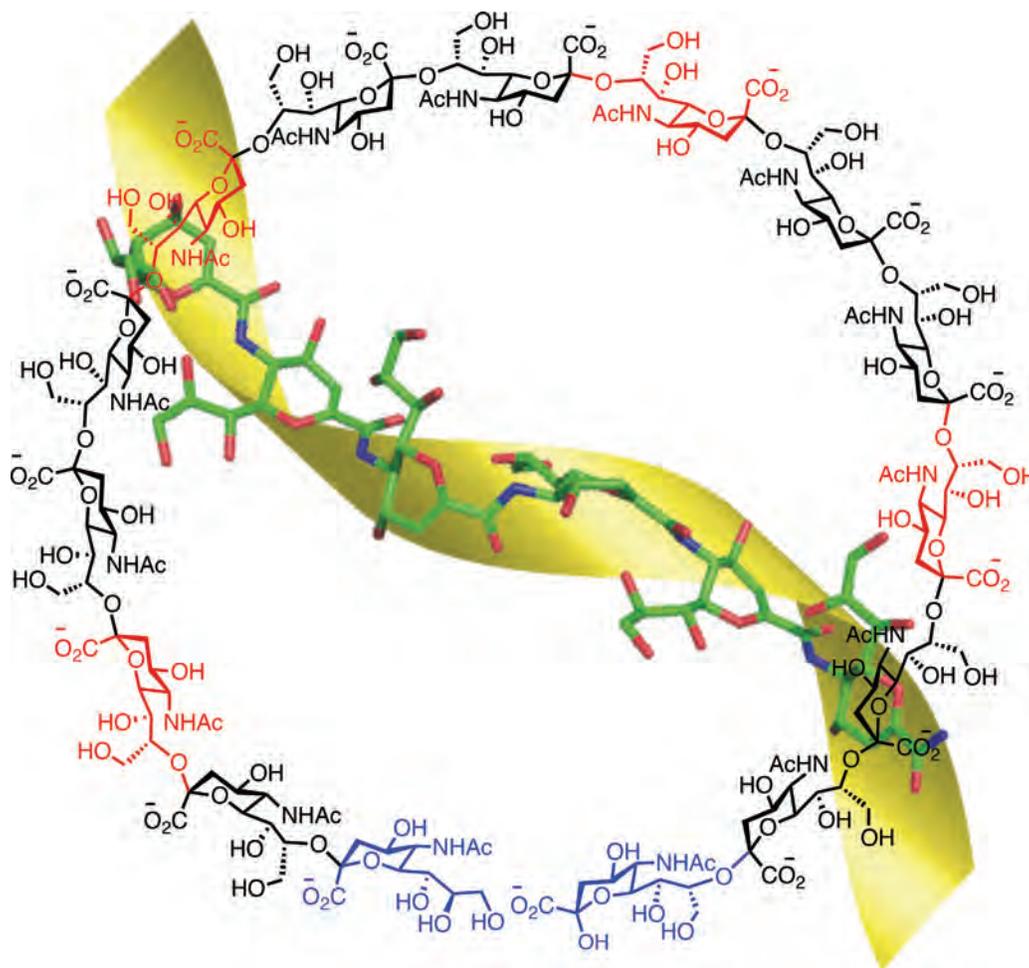
RECENT MEETINGS

CARB Program of 245th ACS National Meeting in New Orleans

We have had a very successful program at the 245th ACS National Meeting held in New Orleans last April with over 120 oral talks and posters presented. Each year, at the spring ACS National Meeting, the Division holds award symposia to celebrate the accomplishments of the Division award winners. This year's symposia have been highlighted by ACS Chemical Biology. For more information about the highlight, please go to <http://pubs.acs.org/doi/pdf/10.1021/cb400398f>

Biopolymers

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50th Anniversary Special Issue on Glycosciences
Guest Editor: C. Allen Bush

View this journal online at wileyonlinelibrary.com

WILEY



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UPCOMING MEETINGS

For more information, visit <http://carb.sites.acs.org/meetings.htm>

9th Annual Midwest Carbohydrate and Glycobiology Symposium

October 11-12, 2013, Department of Chemistry and

School of Green Chemistry and Engineering, University of Toledo, Toledo, USA

Dear Colleagues,

With the enormous success of the annual Midwest Carbohydrate and Glycobiology Symposium, it is only befitting that we continue with this tradition of excellence and host the 9th symposium this fall at The University of Toledo in Toledo, OH. This symposium provides an ever strengthening platform to showcase individual's research in carbohydrates, solidify professional relationships, formulate novel ideas for cutting edge science and give students the opportunity to improve their developing scientific skills in either oral or poster presentations of research accomplishments.

We cordially invite you and your colleagues and/or students to attend this registration free symposium. Please inform us through E-mail (addresses: peter.andreana@utoledo.edu, steve.sucheck@utoledo.edu and jianglong.zhu@utoledo.edu) if you can attend, as well as the number of colleagues or students who will participate, so that we can arrange hotel reservations and attend to other issues. Please encourage your colleague(s) or student(s) to send us the title of his/her poster or oral presentation as soon as possible.

Visit <http://homepages.utoledo.edu/ssuheck/MCGS/MCGS.html> for more information

**9th ANNUAL
MIDWEST CARBOHYDRATE
AND
GLYCOBIOLOGY SYMPOSIUM**

October 11-12, 2013
@ THE UNIVERSITY OF TOLEDO

Organizers:
Peter Andreana
Steve Sucheck
Jianglong Zhu

For more information, visit:
<http://homepages.utoledo.edu/ssuheck/MCGS/MCGS.html>

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2015 Carbohydrates Gordon Research Conference

Co-Chairs: Jeffery C. Gildersleeve & Alexei V. Demchenko; Vice Chair: Lai-Xi Wang

June 2015, Mt Snow Resort, West Dover, Vermont (tentative)

Visit www.grc.org for more information and updates

The 2013 Annual Conference of the Society for Glycobiology

November 17-20, Vinoy Hotel, St. Petersburg, Florida

Visit <http://www.glycobiology.org/meetings.php> for more information

The 3rd International Conference on Chemical and Structural Biology of Nucleic Acids and Proteins

September 13-15, Atlanta, Georgia

Dr. Zhen Huang, our Division member, will be the organizer of this conference. This conference series focuses on nucleic acid-protein research, such as nucleic acid chemistry and structural biology, protein-nucleic acid structure and function, nanotechnology, modification and synthesis nucleic acid-targeting drug discovery (such

as anticancer drug), disease diagnostics, and the technical challenges in nucleic acid structural biology. The first conference in 2011: keynote speakers: Ada Yonath (2009 Nobel Laureate in Chemistry) and Thomas Steitz (2009 Nobel Laureate in Chemistry). The second conference in 2012: keynote speaker: Jack Szostak

(2009 Nobel Laureate in Medicine). The registration/check-in/reception is in the afternoon/evening on Sep 13 (Friday), and the conference will end in the early afternoon on Sep. 15 (Sunday). If you are interested in attending this international conference, please contact Dr. Zhen Huang (huang@gsu.edu).

Visit <http://chemistry.gsu.edu/faculty/Huang/> for more information

Joint meeting of the RSC Carbohydrate Group and the RSC Fluorine Group

September 2-3, University of Southampton, UK

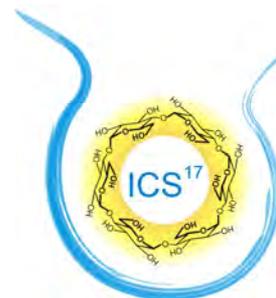
RSC Carbohydrate Award lecture: Dr Bruce Turnbull, University of Leeds

Students and postdocs working in any field of carbohydrate chemistry are encouraged to apply for an oral or poster presentation.

Visit [RSC Carbohydrate Group](http://www.rsc.org/CarbohydrateGroup) for more information on activities of UK colleagues

Second Announcement of ICS¹⁷

After the very successful 16th meeting in Tianjin our next cyclodextrin symposium ICS¹⁷ will take place from May, 29 - 31, 2014 at Saarland University in Saarbrücken in a new and spacious lecture hall on campus. Saarbrücken is the capital of Saarland situated in the South-West of Germany adjacent to France and Luxembourg easy to reach from Frankfurt or Paris airport by train. A pre-symposium tour to the Saar river on May 28 will help participants to overcome the jet lag. The famous loop of Saar river is part of our symposium logo.



The aim of the symposium will be to bridge the steadily growing gap between original high level basic science and useful commercial applications. Fostering communication between both fields will catalyze further development of cyclodextrin science. Our symposium will be organized within 6 thematic sessions to allow smooth reception and sincere discussions. Session 1 will be devoted to **CDs in Organic Synthesis** and include both regioselective synthesis of new CD derivatives and organic synthesis controlled or catalyzed by CDs and CD derivatives. Session 2 will deal with the **analysis of CD inclusion compounds** and CD derivatives useful for analysing or sensing of various guests. Session 3 will demonstrate the impact of CDs onto **Polymer Science**, such as improved polymer synthesis or modification of polymer properties. Furthermore, session 4 will be focused on the latest design of **Smart Materials**, such as molecular wires, stimuli responsive systems, molecular muscles, and selectively adhesive surfaces. Session 5 will summarize **colloidal systems** of active ingredients, and finally session 6 will be devoted to applications of CDs in **drug delivery, cosmetics and food technology** accompanied by an exhibition of the most important companies.

The following scientists already agreed to contribute keynote lectures (*preliminary titles*):

Matthieu **Sollogoub** from UPCM Sorbonne University in Paris, France: "*Up to 6 different functions on cyclodextrins: selective synthesis and applications in materials and catalysis*",

Helmut **Ritter** from Universität Düsseldorf in Düsseldorf, Germany: "*Cyclodextrins in polymer chemistry: Extension of nano-dimension up to cm-sized materials*",

Akira **Harada** from Osaka University in Osaka, Japan: "*Macroscopic self-assembly and self-healing through molecular recognition*",

Yu **Liu** from Nankai University in Tianjin, China: "*Molecular recognition and assembly of cyclodextrin directed to drug delivery*".

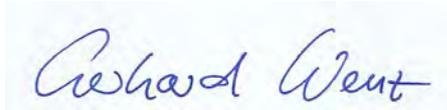
Actual information about the scientific program will kept updated on the web <http://www.uni-saarland.de/lehrstuhl/wenz/ics17.html>.

Furthermore, we intend to establish a new instrument called **CDexpertise**. In parallel to the plenary lectures experts will discuss in small groups about the following fields: (A) Food and drug regulations, (B) methodology for determination and collection of binding data, (C) Computation of inclusion complexes, and (D) best practice of synthesis of CD key derivatives. The results of these meetings will be communicated at the end of the symposium. Quality control within CD research and development should be improved by this instrument.

We shall also organize an interesting touristic program during the three days for accompanying persons showing various facets of our surroundings, situated close to the Mosel vineyards and the beautiful Saar Valley.

Dear colleague, we hope you like our concept and we are looking forward meeting you in Saarbrücken 2014. Abstract submission for oral and poster presentations will start in October 2013.

Best wishes

A handwritten signature in blue ink, reading "Richard Went", is centered on a light blue rectangular background.

Chairman of ICS¹⁷

Travel grants to the International Carbohydrate Symposium

12-17 January, 2014, Bangalore, India

The U.S. Advisory Committee for International Carbohydrate Symposia, Inc. will make travel grants to the ICS to be held in Bangalore, India 12-17 January 2014 to eligible glycoscientists. To be eligible for a grant, the applicant must be either a student or a post-doc studying in the U.S. and have submitted an abstract to the ICS covering results of research done in the U.S. Applications consisting of a letter of request and a copy of the submitted abstract should be made to Prof. James N. BeMiller, Whistler Center for Carbohydrate Research, Purdue University by e-mail (bemiller@purdue.edu). Deadline September 30, 2013.

PROGRAM SPONSORS

A big "Thank You" to the sponsors of our program

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