

# *The Fibril Angle*



**2005 Newsletter**

**Cellulose and Renewable Materials Division,  
American Chemical Society**

<http://membership.acs.org/C/CELL/>

# Cellulose and Renewable Materials

Program Chairs: Paul Gatenholm [Paul.gatenholm.@chem.chalmers.se](mailto:Paul.gatenholm.@chem.chalmers.se)  
Vincent Edwards [vedwards@srrc.ars.usda.gov](mailto:vedwards@srrc.ars.usda.gov)  
Debra Mohnen [dmohnen@ccrc.uga.edu](mailto:dmohnen@ccrc.uga.edu)

**Program: 231st ACS National Meeting - Atlanta, Georgia, March 26-30, 2006**

## **Anselm Payen Award Symposium: Order in Cellulosics**

Organizers: Maren Roman, Department of Wood Science and Forest Products, Virginia Tech, 230 Cheatham Hall (0323), Blacksburg, VA 24061, [maren.roman@vt.edu](mailto:maren.roman@vt.edu), Phone: 540-231-142; Derek G. Gray, Department of Chemistry, McGill University, 3420 University Street, Montreal, QC H3A2A7 Canada, [derek.gray@mcgill.ca](mailto:derek.gray@mcgill.ca), Phone: 514-398-6182

## **Modeling of Plant Biopolymers**

Organizer: Alfred French, Cotton Fiber Quality Research Unit, USDA, ARS, SRRC, 1100 Robert E. Lee Blvd, New Orleans, LA 70124, [afrench@nola.srrc.usda.gov](mailto:afrench@nola.srrc.usda.gov), Phone: (504) 286-4410; Alain Laederach, Department of Genetics, Stanford University, 300 Pasteur Drive, Stanford, CA 94305, [alain@helix.stanford.edu](mailto:alain@helix.stanford.edu), Phone: 650 725 4484

## **Nanotechnology A Fiber Perspective**

Organizers: Lucian Lucia, Department of Wood and Paper Science, NCSU, Raleigh, NC 27695-8005, [lucian.lucia@NCSU.Edu](mailto:lucian.lucia@NCSU.Edu), Phone: 9195157707; Orlando Rojas, Department of Wood and Paper Science, NCSU, Raleigh, NC 27695-8005, [orlando\\_rojas@NCSU.Edu](mailto:orlando_rojas@NCSU.Edu), Phone: 9195157494

## **Modification and Function of Value-Added Fibers**

Organizers: Steven C. Goheen, Analytical Chemistry, Pacific Northwest National Laboratory, Richland, WA 99352, [steve.goheen@pnl.gov](mailto:steve.goheen@pnl.gov), Phone: 509-376-3286; J. Vincent Edwards, Cotton Chemistry and Utilization, USDA, ARS, Southern Regional Research Center, 1100 Robert E. Lee Boulevard, New Orleans, LA 70124, [vedwards@srrc.ars.usda.gov](mailto:vedwards@srrc.ars.usda.gov), Phone: 504-286-4360; Jeanette m. Cardamone, wool research, ars usda errc, 600 E Mermaid Lane, Wyndmoor, PA 19038, [jcardamone@arserrc.gov](mailto:jcardamone@arserrc.gov), Phone: 215-233-6680

## **Topochemical Modification of Lignocellulosic Fibers**

Organizers: Arthur J. Ragauskas, School of Chemistry and Biochemistry, Institute of Paper Science & Technology at Georgia Institute of Technology, 500 10th St NW, Atlanta, GA 30332-0620, [Arthur.Ragauskas@ipst.gatech.edu](mailto:Arthur.Ragauskas@ipst.gatech.edu), Phone: 404-894-9701; Tom Lindström, KTH-STFI, [tomi@fpirc.kth.se](mailto:tomi@fpirc.kth.se); Paul Gatenholm, Department of Materials and Surface Chemistry/Biopolymer Technology, Chalmers University of Technology, SE-41296 Göteborg Sweden, [paul.gatenholm@chem.chalmers.se](mailto:paul.gatenholm@chem.chalmers.se), Phone: +46317723407

# Cellulose and Renewable Materials

Program Chairs: Paul Gatenholm [Paul.gatenholm.@chem.chalmers.se](mailto:Paul.gatenholm.@chem.chalmers.se)  
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Debra Mohnen [dmohnen@ccrc.uga.edu](mailto:dmohnen@ccrc.uga.edu)

**Program: 231st ACS National Meeting - Atlanta, Georgia, March 26-30, 2006**

## **Renewable Products from Plant & Animal Materials**

Organizers: Wayne E. Marshall, Commodity Utilization Research, USDA-ARS, Southern Regional Research Center, 1100 Robert E. Lee Boulevard, P.O. Box 19687, New Orleans, LA 70179, [marshall@srrc.ars.usda.gov](mailto:marshall@srrc.ars.usda.gov), Phone: 504-286-4356; Leslie A. White, Cotton Chemistry and Utilization Research Unit, USDA-ARS-SRRC, 1100 Robert E. Lee Blvd, New Orleans, LA 70124, [lwhite@srrc.ars.usda.gov](mailto:lwhite@srrc.ars.usda.gov), Phone: 504-286-4550; Isabel M. Lima, Commodity Utilization Research, USDA-ARS, Southern Regional Research Center, 1100 Robert E. Lee Boulevard, P.O. Box 19687, New Orleans, LA 70179, [imlima@srrc.ars.usda.gov](mailto:imlima@srrc.ars.usda.gov), Phone: 504-286-4515

## **Poster Session**

J. Vincent Edwards, Cotton Chemistry and Utilization, USDA, ARS, Southern Regional Research Center, 1100 Robert E. Lee Boulevard, New Orleans, LA 70124, [vedwards@srrc.ars.usda.gov](mailto:vedwards@srrc.ars.usda.gov), Phone: 504-286-4360

## From the Desk of the Chair



We have recently witnessed two powerful storms devastating the coast of Gulf of Mexico. Our hearts are with our colleagues from New Orleans and other South locations who lost their homes and work places. Our Division together with ACS is participating in a task force aiming to help Katrina and Rita victims. On the behalf of the Division I proposed to the ACS President thematic program for San Francisco meeting covering; Chemistry in Emergency Room and Catastrophe Aid where we could contribute with symposia on

Polysaccharides for Wound Healing and Cellulosic Composites for temporary housing and shelters. I am very pleased to inform you that this proposal has been accepted, and this will be the subject of the thematic program for San Francisco – CELL will again be part of presidential event! We should already now start to prepare our work together with other Divisions.

I am very proud of all the work our Division is doing which will contribute to increase the use of cellulose and other renewable materials, and thus contribute to circumventing global warming. I believe that this is the most important action chemists can undertake. I was extremely pleased in San Diego where we presented a record 251 papers at the National ACS spring meeting, an all time high for our Division. I thought that record of 201 papers in Anaheim spring 2004 would remain long time. San Diego was a wonderful meeting with strong international attendance including large groups from Japan and Europe, but also visitors from South America. We had a prime location overlooking the Bay and excellent attendance in the meeting rooms. Our new initiative with tutorials on Sunday worked very well. Dr Kondo organized an excellent symposium covering hot topics on cell wall components and their assembly. They were clear connection to other symposia on wood, cellulose, pectins, hemicellulose, nanocomposites and renewable materials. Our goal of running thematic symposia with tutorials which connects meeting room's activity was achieved! Sunday's lively poster session with snacks and drinks brought crowds of friends and many new young faces. The culmination of this wonderful intellectual feast was the Anselme Payen Symposium and Award lecture given by this year awardee, Professor Dieter Klemm. Once again, thanks to all the symposia organizers, speakers and listeners for this very memorable event. The high lights of San Diego program are summarized later on in this issue. Our Division is not only organizing ACS meeting, but also initiated and support successful Gordon Conferences on The Chemistry of Polysaccharides which this year took place in Hong Kong. Read more about it and prepare to participate in next meeting organized by Derek Gray Summer 2007 in New England. Our new program chair Vince Edwards has put together an exciting program for Atlanta and since we will host Tannin Conference in fall 2006 in San Francisco we will also program there. Feel free to contact Vince with suggestions for symposia; it is still not too late. Due to the superb initiative and hard work of our previous chair, Kevin Edgar, we are proud to announce a new travel award providing \$500 support for graduate student that are giving oral presentation. The Award is limited to one student per symposia and will be administrated by symposia organizers in collaboration with Award Chair Steve Kelley and his vice chair Bill Winter. They also take care of Graduate Student Award and Anselme Payen Award, see announcements later in this newsletter.

## From the Desk of the Chair



Our Division has also been very successful in managing funds and continues to be economically very healthy. This would not be possible without hard work of our treasurer, Jan Cardamone. Many ACS Divisions are losing members, as have we for the last few years. However, this year we broke this negative trend and for the first time have started to gain members. Tim Rials, our Membership Chair, who has traveled around with displays and membership applications is responsible for this miraculous trend break and need to continue efforts to get into four digits.

One way to achieve this positive trend is to incorporate smaller and larger societies as subdivisions. Bill Marmer is currently carrying out negotiations with Daneel Ferreira who represents Tannin group in attempts to unit our groups. In order to be able to incorporate subdivisions we need to vote changes in our bylaws and I believe that more organization will be incorporated in our Division in coming years.

You would not receive this letter without the hard work done by Shawn Mansfield, our Publicity Chair, who is also taking care of our website. There are challenges ahead because the website has to replace the distribution of separates which will no longer be printed by the ACS. It has cost us a lot of money to print and send the book of CELL abstracts for each meeting. Now, we will not be able to do this. This service has to be replaced with print on demand from the website. Talking about challenges, if you see any potential fresh blood around you, you should bring names to nomination Chair, Wolfgang Glasser. CELL NEEDS YOU! We stay well connected with the ACS "head office" through our council Helena Chum, and our work is extremely well documented through efforts of our secretary John Kadla. Last but not least our two new members at large, Debra Mohnen and Maren Roman, have been involved in activities of executive committee and show potential for future leaders in the division.

Thanks again all of you! You are writing the history.

Welcome to this issue of The Fibril Angle!

*Paul Gatenholm*

Chair, CELL

# Treasurer's Report

## Cellulose and Renewable Materials a financially healthy Division of ACS Health of the Division: Year Ending December 31, 2004

The Cellulose and Renewable Materials Division, ACS, maintains a financially healthy profile. A Graduate Student Travel Fund to attend meetings and present at Division symposia was established and will be supported by funds from corporations to match Division support funds. Royalty income increased. Restricted portfolios dedicated to the Graduate Student and Anselm Payen Awards grew sufficiently in principle to provide interest and dividends necessary to offer the \$2,000 and \$3,000 awards, respectively. Publication costs increased to provide and disseminate information to a broad audience announcing the Divisions new emphasis on "renewables" and to draw attention to these offerings. It is anticipated that this new focus will help increase membership. Total financial assets remained stable.

*Jan Cardamone*  
Treasurer



**Representatives from Cellulose**

# Anselme Payen Awards Symposium Report – 2005

The Symposium honoring Professor Dieter Klemm from the Friedrich-Schiller-University of Jena, Jena, Germany, the 2004 Anselme Payen (AP) Awardee of the Cellulose and Renewable Materials Division of ACS, consisted of three essential parts: The Sunday-lectures, normally devoted to tutorials, were taken up by well-orchestrated presentations highlighting the industrial/commercial perspectives on cellulose research. The lectures featured such topics as the supply of specialty cellulose (Borregaard) and the conversion of cellulose into commodity as well as specialty products (Buckeye, Wolff Cellulosics, Eastman and Rhodia Acetow). (Bad weather in central Europe prevented a presentation on developments in the regenerated cellulose field by Lenzing).

The second element of the AP Symposium consisted, as usual, of a display of the frontiers of research in cellulose and renewable materials. The series of six half-day sessions provided focus on cellulose acetate (with presentations by the authors of the recently released monograph on the same topic that was sponsored by the Global Acetate Manufacturers' Association, GAMA), on advanced reactions with cellulose, and on the structure, properties and performance characteristics of various celluloses and cellulose derivatives.

The third part of the AP Symposium event transpired in the traditional manner during the Divisional banquet on Tuesday evening. A crowd of nearly 120 festive guests listened to numerous speeches (mostly delivered with thick German accents) while feasting on chicken and waiting for wine (which was ordered but not delivered in time). The awardee was given the customary roasting from the side of the (former) students, the colleagues, and the research partners. Dr. Fink read a congratulatory letter from Prof. Bertram Philipp, the former head of the famous polymer institute in Teltow, Germany, where much of the early work on cellulose regeneration took place.

The well-rounded symposium was organized by the award nominators (Fink, Glasser and Heinze), and it was financially supported by Eastman Chemicals, GAMA, and Kluwer Publishers (which publishes the periodical CELLULOSE, [www.springerlink.com](http://www.springerlink.com)).



## Highlights from the 229<sup>th</sup> ACS Meeting in San Diego, CA

The American Chemical Society has just held its Spring 2005 Annual Meeting in San Diego, CA. The *Cellulose and Renewable Materials Division*, which (with about 800 members) is a “small” division by the standards of the society’s 28 peer divisions, had put together a record-breaking series of symposia and tutorials that featured a total of 251 oral and poster presentations. The symposia dealt with such topics as “frontiers in cellulose chemistry”, the assembly of cell wall components, marketing aspects of renewable materials, wood preservatives and molds in homes, pectins, hemicelluloses, and nanocomposites. The awarding of the Division’s Anselme Payen Award represents the annual highlight of the spring-conference. The corresponding symposium organized in honor of the previous year’s recipient provides focus on that scientist’s scholarship area. This area, which, in recognition of the 2004 Anselme Payen Award winner, Professor Dieter Klemm of the University of Jena, Germany, defined the “frontiers” in 2005, featured 42 presentations with emphasis on the application of advanced methods in organic chemistry to cellulose and cellulose derivatives. The spectrum of the “frontiers” ranged from the industrial perspectives to medical applications and advanced biomaterials. A special one-day symposium segment was dedicated to the commemoration of the 100th anniversary of the discovery of cellulose acetate. This event was supported by the *Global Acetate Manufacturers’ Association* (GAMA, see Editorial in CELLULOSE 10[2], 2003, 101) of Brussels, Belgium. The well-attended symposium on xylan, mannan, and other hemicelluloses provided an illustration for the current attention on isolation, characterization and industrial applications of hemicelluloses. The interactions between cellulose with these non-cellulosic polysaccharides were high-lighted during this symposium. The utilization of hemicelluloses was also the focus of this year’s *Graduate Student Award*, which went to Maria Gröndahl from Chalmers University of Technology, Göteborg Sweden.

*Wolfgang Glasser*

### **2005 Symposium on Xylans, Mannans and other Hemicelluloses: Biology, Chemistry and Technology**

In the spring 2002 in Orlando, Paul Gatenholm (Chalmers University of Technology, Sweden), and Maija Tenkanen (University of Helsinki, Finland), organized the first ACS symposium on hemicelluloses. This resulted in the book: “*Hemicelluloses: Science and Technology, ACS Symposium Series 864*”. A sequel to the theme was seen in March 2005 in sunny San Diego. For this event, the organizing team had gained one more member, Kevin Hicks, (ARS/USDA, USA). The program on the whole formed to be not only interesting but also delightfully international with scientists from all around the globe. Six continents and twelve countries were represented!

There were altogether 25 presentations divided into four sessions. The symposium started with topics concerning the biosynthesis and enzyme interactions of hemicelluloses. Bruce Stone from La Trobe University, Australia, started the symposium by giving a stimulating overview on organization of non-cellulosic polysaccharides in the cell wall of wheat grain. Gregory Côté from USDA gave an anniversary lecture on acetyl xylan esterases. These

facinating multifunctional enzymes were first described twenty years ago by Peter Biely and his coworkers. The second session treated the recovery of hemicelluloses from wood and cereals. The clear highlight of this session was the talk given by Stefan Willför from Åbo Akademi University, Finland. He showed the audience the pathbreaking results from the successful pilot scale isolation of spruce galactoglucomannan from thermomechanical pulping process waters. The same theme on large scale isolation was followed by Bodo Saake from BFH, Germany, who presented optimization isolation process of xylan from oat spelts.

On the second day of the symposium there were two more sessions. In the morning, the presentations handled the functional properties and applications of hemicelluloses. Corn arabinoxylans have gained a lot of interest especially in the USA. They have potential applications for example as emulsifiers and as edible films as shown by Madhav P. Yadav from ARS/USDA and Pingyi Zhang from Purdue University, respectively. Production and properties of films from xylylans and mannans were also further discussed by other speakers in the session. In the afternoon, the focus was on the interactions and applications of hemicelluloses with cellulose. In this session Kazuo Sakurai from University of Kitakyushu, Japan, gave the audience fresh ideas by presenting results on macromolecular complexation of schizophyllan and single-stranded polynucleotide.

During intermissions the participants had possibilities to continue the scientific discussions on the sunny terrace located in the front of the lecture room. Some of the delegates noticed that the small trees on the terrace carried similar dark-brown flat pods than carob trees and thus most probably contained seeds rich in galactomannans! The speakers also enjoyed an evening together having a delicious dinner at the Harbor House seafood restaurant with a beautiful view to the San Diego Bay. CELL division, ARS/USDA, Fibergel Technologies Inc., Megazyme, Larex and Lenzig AG are acknowledged for the sponsorship of the symposium. Without it the symposium dinner would not have been possible. In all, the second ACS symposium on hemicelluloses turned out again a success.

We believe that the seeds inside these pods are rich in galactomannans!

Stefan Willför presented results from isolation of mannans in pilot scale.

The get-together dinner for symposium speakers was a success, too!

*Kirsi Mikkonen and Maija Tenkanen*



# Highlights from the 229th ACS Meeting in San Diego, CA



## Highlights from the 229th ACS Meeting in San Diego, CA



**Congratulations** to Maria Gröndahl (second from left) as the recipient of the ACS Graduate Student Award!! Maria is shown here with her colleagues and supervisor, Dr. Paul Gatenholm, from Chamlers

# Report on the 2005 Gordon Conference on Polysaccharide Chemistry, Hong Kong, June 6-9, 2005

The 2003 Gordon Conference on the Chemistry of Polysaccharides, organized by Paul Gatenholm in a location on an Italian hillside near Barga was clearly a hard act to follow, in terms of location and program. This year's conference, chaired by Professor Shigenori Kuga, University of Tokyo, met that challenge with a very unique location, and a broad program that spanned many aspects of polysaccharide structure, function and biochemistry.

The conference location, on the campus of the new Hong Kong University of Science and Technology (HKUST), was truly dramatic. Built on a hill-side at Clearwater Bay that plunged down to the South China Sea, the spectacular, immaculately maintained modern campus seemed far away from the hustle and bustle of down-town Hong Kong. Modern residence suites, lecture facilities and a range of services were available on campus, and the ubiquitous double-deck busses left every few minutes, permitting afternoon sight-seeing in downtown Kowloon and Hong Kong. A Conference excursion by boat from the dock of the HKUST Marine Institute provided a fascinating glimpse of the bays and islands in the region; a few minutes from the ultra-modern campus are floating fishing villages where time seems to have stood still for centuries.

The program covered the biosynthesis, biodegradation, structure and mechanics, chemical and enzymatic modification of polysaccharides, along with preparation of colloids, complexes and ordered materials made from these renewable materials. (The program is available at <http://www.grc.uri.edu/programs/2005/polysacc.htm> ) One of the strong points of the program was the number of younger speakers bringing fresh perspectives on several of the topics. The program also helped to bridge the sometimes dauntingly wide gap between researchers in the fields of polysaccharide biochemistry and molecular biology and those who are more focused on material properties and applications. We were treated to papers and posters on topics ranging from an overview of glucan biosynthetic pathways to the roles of cellulose microfibrils in musical instruments, flexible LCD screens and biomedical materials.

U.S. participation in the last two Gordon conferences, one in Europe and the latest one in Asia was somewhat limited in numbers. It is hoped that the next meeting, to be chaired by Derek Gray (McGill University) with co-chair Vincent Bulone (Université Claude Bernard - Lyon I), scheduled for 2007 in the northeastern U.S. homeland of the Gordon Conferences, will attract a larger US audience while maintaining its appeal to participants from around the world.

Derek Gray, Co-Chair, 2005



HKUST Campus

# Nominations for CELL Division Awards

## **ANSELME PAYEN AWARD**

Cash Award: \$3,000

Application Deadline: December 1

Award Announcement: Following Spring National ACS Meeting

Award Presentation: Next Spring National ACS Meeting

This award is named for the distinguished French scientist who discovered cellulose, and pioneered in the chemistry of both cellulose and lignin. The Anselme Payen Award, which includes a bronze medal and an honorarium of \$3,000, is given by the Cellulose and Renewable Materials, ACS, to honor and encourage outstanding professional contributions to the science and chemical technology of cellulose and its allied products.

The Anselme Payen Award is international and all scientists conducting research in the field of cellulose are eligible for nomination. Selection of the awardee is based on the application package. These are individually ranked by a panel of nine judges who are appointed by the current Chair-Elect and are unknown to each other. Three judges rotate off the panel each year. The identity of all members is known only to the Chair of the awards committee who compiles the results. After the awardee accepts, the Chair of the Awards Committee announces the winner at the next Spring ACS meeting. The awardee for that year is honored at the following Spring ACS meeting at a Symposium and Banquet. The award bears the year the winner was announced. It is presented the following year to allow time for organization of the Symposium and Banquet.

## **DIVISION FELLOW AWARD**

In 1983 the Division established the Division Fellow Award to recognize its members whose dedication, leadership and enthusiastic service has kept the Cellulose and Renewable Materials Division moving forward.

### **Selection of Awardees**

In October following the fall ACS meeting, the Awards Chair solicits nominations for the Division Fellow Award from current members of the Executive Committee and from any past officers. Nominations are sent to the Awards Chair by December 1. The Awards Chair selects 3 to 5 judges who make up the Division Fellow Award Committee. The judges rank the nominees. The judges will also indicate the number of awards that should be given with a maximum of three awards being possible in a single year. The Program Chair announces the name(s) of Division Fellows at the Spring ACS meeting with the Award(s) to be given at the following Fall ACS meeting. The Fellows are presented with plaques.

# ACS Division of Cellulose and Renewable Materials – Graduate Student Travel Awards 2006

The ACS Division of Cellulose and Renewable Materials (CELL) is sponsoring a program to provide funding for graduate students to travel to a National ACS meeting in 2006 to present orally the results of their research. Grants may be applied only for registration, travel, and accommodations (receipts must be presented to the CELL treasurer, Dr. Jeannette Cardamone, for all expenses), and are restricted to **oral presenters** at CELL programs of the ACS National Meetings. **Only members of the ACS and the Division of Cellulose and Renewable Materials are eligible.** Awards will be limited to one per symposium. Awards will be given at the sole discretion of the symposium organizers, who will consider the following criteria: (1) any applicant who will be making his/her first presentation (regardless of format) at a national ACS meeting, (2) applicants with outstanding academic merit, (3) applicants with financial constraints. The deadline date for receipt of applications for 2006 meetings is as follows:

**December 1, 2005 – Spring Meeting 2006 ACS Meeting (Atlanta, Ga)**

**In order to apply for the award, please submit the following:**

1. A brief resume (please limit to 1 page).
2. A completed official application form that you may download from <http://membership.acs.org/C/CELL>. The application form is also available from Vince Edwards, CELL Program Chair and Chair-Elect ([vedwards@srrc.ars.usda.gov](mailto:vedwards@srrc.ars.usda.gov)).
3. An abstract of the work to be presented, using the standard ACS abstract format (150 words, one paragraph). See ACS web site for guidelines (<http://www.acs.org>). The abstract **MUST** be suitable to be presented in a CELL-sponsored symposium.
5. A brief note from your advisor (e-mail is sufficient, no more than 1-page in length in any case) confirming your participation in the meeting at which you will be making your presentation, commenting on your technical ability and potential in the field of Cellulose and Renewable Materials, and listing any other travel support that would be available from the department or research grants.
7. ACS membership number must be included on the application.

Through this program, the Division hopes to increase the participation of younger scientists in the field of Cellulose and Renewable Materials chemistry.

Please send your application to:

Dr. Paul Gatenholm

[Paul.gatenholm.@chem.chalmers.se](mailto:Paul.gatenholm.@chem.chalmers.se)

# Nominations for CELL Division Awards

## GRADUATE STUDENT AWARD

An annual award cosponsored by the Cellulose and Renewable Materials Division of the American Chemical Society and Eastman Chemical Company.

### WHO IS ELIGIBLE?

Any graduate student studying the chemical nature of cellulose, paper, textiles and other renewable materials. This includes, but is not limited to, study of the biosynthesis of biomass components and natural fibers, novel chemical routes for separating biomass into its constituent components, innovative processes for converting biomass, its individual components, or natural fibers into value-added products, and the development of new analytical techniques for characterizing the chemical properties of these materials. The competition is open to any graduate students currently enrolled or have graduated with the past year.

### HOW DO I APPLY?

The Application package consists of the following: A cover letter stating the applicant's personal information i.e. full name, address, daytime telephone number, fax number, e-mail address and social security number. As well as, the title of research activity, graduate school attended, research supervisor's name and research committee members' names. A paper suitable for publication that represents the applicant's most significant graduate research accomplishment. The applicant must be the principal author of this paper. A summary document describing the applicant's research contributions and defining how that work fits into the current state-of-the-art (3-5 pages). A letter signed by the applicant's research supervisor and verifying that the student meets the requirements of the Graduate Student Award.

### THE SELECTION PROCESS

All applications must be complete by October 1 and the Recipient will be notified by December 1. Selection of an awardee will be based upon the information included in the application package.

### THE AWARD

The Graduate Student Award for Excellence in Cellulose or Renewable Materials Research consists of a check for \$2,000 and an individual plaque honoring their accomplishment. The recipient will be invited to attend the following Spring ACS meeting and deliver an oral presentation describing their work.

### Submit the completed application package to:

Dr. Steve Kelley  
Professor and Department Head Department of Wood and Paper Science  
North Carolina State University  
Campus Box 8005 Raleigh, NC  
27695  
Ph: 919-515-5321  
E-mail: [steve\\_kelley@ncsu.edu](mailto:steve_kelley@ncsu.edu)

# Membership Special Offers

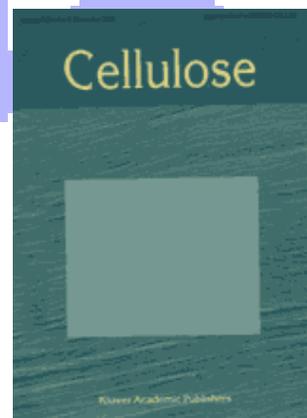
The **Cellulose and Renewable Materials Division of the American Chemical Association** and the scientific journal *Holzforschung* are pleased to announce a new cooperation. Beginning in 2004, members of ACS-Cell will receive deeply discounted membership prices on the print and on-line versions of *Holzforschung*.

*Holzforschung* is an international scholarly journal, led by the editors Horst Nimz and Oskar Faix, that publishes cutting-edge research on the biology, chemistry, physics and technology of wood and wood components, Rated year after year as the number one scientific journal in the category of Pulp and Paper (ISI Journal Citation Index), *Holzforschung* represents innovative, high quality basic and applied research. The German title reflects the journal's origins in a long scientific tradition, but all articles are published in English to stimulate and promote understanding between experts all over the world.

For more information on the journal and a free electronic issue, visit our website at: <http://www.degruyter.de/journals/holz>. ACS-Cell will keep you updated on how to order your membership subscription. Should you have any further questions, please contact the *Holzforschung* Editorial Office at [Editorial.Office@degruyter.de](mailto:Editorial.Office@degruyter.de). We look forward to a productive cooperation between our two organizations!



The **Cellulose and Renewable Materials Division of the American Chemical Association** has an arrangement with the scientific journal *Cellulose* (Kluwer Academic Press, [www.wkap.com](http://www.wkap.com)) which allows members of the Cell Division to enter personal (*i.e.* non-institutional) subscriptions to the journal at the much-discounted rate of \$65 per year (2004-rate). By subscribing to *Cellulose* in 2004, Cellulose Division members will have an opportunity to gain first-hand information about the most recent advances in cellulose and polymer chemistry and ultrastructure.





## American Chemical Society Application for Membership

Name: \_\_\_\_\_  
Professional Affiliation: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_  
Country: \_\_\_\_\_ Zip: \_\_\_\_\_  
Phone (including area code): \_\_\_\_\_  
Fax (including area code): \_\_\_\_\_  
E-mail Address: \_\_\_\_\_

- \_\_\_\_\_ I am a member of the American Chemical Society.  
\_\_\_\_\_ My ACS membership number is:  
\_\_\_\_\_ I want to join the American Chemical Society.  
\_\_\_\_\_ Full Division Membership (Requires ACS membership): \$10.00/year.  
\_\_\_\_\_ Affiliate Membership (Does not require ACS membership): \$11.00/year.  
\_\_\_\_\_ National Affiliate (Doesn't qualify for membership, but major vocational interest is related to a chemical science)  
\_\_\_\_\_ Division affiliate (Neither a member of ACS nor a National Affiliate)  
\_\_\_\_\_ Associate Member (Completed a degree not certified by ACS, and lacking 3 years working experience)  
\_\_\_\_\_ Student Membership (Requires student membership in ACS): free  
\_\_\_\_\_ Emeritus Member (At least 35 years of paid membership, retired from full-time professional employment, over age 70): free

Please return this application along with a check for membership dues to:

Dr. Timothy G. Rials  
University of Tennessee  
Department of Forestry, Wildlife, & Fisheries  
2506 Jacob Dr.  
Knoxville, TN 37996-4570

Please make checks payable to: Cellulose, Paper and Textile Division, ACS.