14th Annual International TANDEC Nonwovens Conference

NEW DEVELOPMENTS IN NONWOVENS

UT Conference Center
The University of Tennessee, Knoxville
November 9-11, 2004

Program Schedule
ABOUT THE CONFERENCE...

The 14th Annual International TANDEC Conference will be held at UT Conference Center, Knoxville, Tennessee, November 9-11, 2004. It will focus on several exciting areas of the nonwovens industry and technology, including:

1. New Developments in Nonwovens
2. Nanofiber Nonwovens
3. Melt Processing of Nonwovens – Innovations in Spunbond and Meltblown Technology
4. Barrier Fabrics
5. Fundamental Research and Testing in Nonwovens.

You will receive concise and practical information on new nonwoven products and development, and gain a firm understanding of the latest technological advances in meltblowing, spunbonding and related processes.

TANDEC Conferences feature a broad cross section of speakers, who combine the best aspects of industry, academia, and the consulting sphere. Professionals in nonwovens R & D, marketing, production, academia, government and management will benefit by attending this conference. This annual event also provides opportunities to meet key technical and business leaders in nonwovens and textiles from around the world. For additional conference information please meet us in cyberspace at: http://web.utk.edu/~tancon

ABOUT TANDEC...

The Textiles and Nonwovens Development Center (TANDEC), located at The University of Tennessee, is a cooperative multi-million dollar facility sponsored by The University of Tennessee, with the partnership of ExxonMobil Chemical Company and additional support from Corporate TANDEC Members. TANDEC features several melt blowing pilot lines including bicomponent technology, a one meter spunbond line, and many other processing and testing facilities designed to make a truly state-of-the-art nonwovens research center.

TANDEC is to be recognized as the leading research and application development facility for the worldwide nonwovens industry. TANDEC brings together academics and industry to provide leadership in research, educational opportunities, and industry services that fosters new development in the nonwoven and textile field. TANDEC serves as a focus for nonwovens research at the University of Tennessee and other institutions. Research opportunities are enhanced by outreach to the industry through TANDEC members and partners, the TANDEC Conference, the TANDEC Advisory Board, the Newsletter, representation at worldwide nonwovens conferences and activities, and periodic one-on-one discussions with industry representatives. TANDEC facilitates initial research to be leveraged for external funding and involves faculty, research professors, and students in these efforts. TANDEC’s strongest area of leadership is its support for industry. It has the largest and widest range of nonwovens processing equipment available to the general industry, serving as a testbed and exposing students to industrially significant problems.

TANDEC Tour November 11, 2004 Thursday 2:00 pm to 4:00pm

- 24-inch Reicofil Bicomponent Melt Blowing Line – Updated September, 2004
- one meter Reicofil 2 Spunbond Line
- 20-inch Accurate Melt Blowing Line
- 6-inch Research Melt Blowing Line
- TANDEC Fabric Testing Facilities and more…

Walking distance from the Hilton and the Holiday Inn. Map will be provided.
Parking voucher will also be prepared for those who drive.
TANDEC-Textiles and Nonwovens Development Center
1321 White Avenue
Knoxville, TN 37996 (865-974-6298)
14th Annual International TANDEC Nonwovens Conference
Program Schedule (November 9-11, 2004)

Tuesday November 9, 2004

8:00 a.m. Welcome Address by Dr. Billie Collier, Interim Associate Vice Chancellor for Research and Director of TANDEC, The University of Tennessee

8:10 a.m. Greeting by Dr. Dong Zhang, Conference Chairman

Session 1. New Developments in Nonwovens
Session Chair: Dr. C. Y. Cheng, Consultant

8:15 am - 8:40 am
Elastic Bicomponent Spunbonded Fabrics
Jared Austin, BBA Fiberweb Simpsonville, Simpsonville, SC, USA

8:40 am - 9:05 am
"Fibers and Nonwovens - Thoughts on the next 8-10 years..."
Bill Haile, Retired from Eastman Chemical Company, Kingsport, TN, USA

9:05 am - 9:30 am
Optical-Based Inspection of 3-D Nonwoven Corrugated Textiles in the Production Line in Real Time
Lukas Matela, TU Liberec, Dept. of Measurement, Halkova 6, LIBEREC

9:30 am - 9:45 am
Questions and Discussion

9:45 am - 10:15 am
Coffee Break

10:15 am - 10:40 am
Antimicrobial Concentrates for Nonwoven Applications
Troy Missler, Bhushan Deshpande, Chris Griffin, Techmer PM, Clinton, TN

10:40 am - 11:05 am
Fast automatic inspection of the esthetical quality of color printed non-woven wipers
Robert Massen, MASSEN machine vision systems GmbH, Germany

11:05 am - 11:30 am
Recent Developments and Applications of Ensemble Laser Diffraction Technology for Diagnostics of Nonwovens
Amir Naqwi, Powerscope Incorporated, Minneapolis, MN, USA

11:30 am -11:45 am
Questions and Discussion

11:45 am - 2:00 pm
Lunch Break (on your own)
Tuesday November 9, 2004

Session 2. Nanofiber Nonwovens
Session Chair: Dr. Larry Wadsworth, The University of Tennessee

2:00 pm - 2:25 pm
Application of Nanofiber Technology to Nonwoven Thermal Insulation
Phil Gibson and Calvin Lee, U.S. Army Soldier Systems Center, Natick, MA, USA

2:25 pm - 2:50 pm
Nanofiber Technology: Challenges and Opportunities for the Nonwovens Industry
Frank K. Ko, Materials Engineering, Fibrous Materials Research Center, Drexel University, Philadelphia, PA, USA

2:50 pm - 3:15 pm
High Throughput Electro-Blowing Technology for Fabrication of Nanofibrous Barrier Fabrics
Benjamin S. Hsiao, Stonybrook Technology and Applied Research, Stony Brook University, Stony Brook, NY, USA

3:15 pm - 3:30 pm
Questions and Discussion

3:30 pm - 3:55 pm
Coffee Break

3:55 pm - 4:20 pm
Phase Behavior and Morphology of Polymer Blend Nanofibers Produced by Electrospinning
Kevin Kit and and Kai Feng, Materials Science and Engineering, University of Tennessee, Knoxville, TN, USA

4:20 pm - 4:45 pm
Electrospinning Theory and Techniques
Peter Tsai, TANDEC, University of Tennessee, Knoxville, TN, USA

4:45 pm - 5:10 pm
Low-cost Plasma Activation and Chitosan Grafting of PP Nonwovens
Mirko Cernak, Comenius University, Bratislava, Slovakia

5:10 pm to 5:25 pm
Questions and Discussion

5:25 pm - Adjourn

5:30 pm - 7:00 pm
Poster Session at UT Conference Center, Atrium
Session Chair: Dr. Bryan Haynes, Kimberly-Clark Corporation

5:25 pm - 7:00 pm
Reception at UT Conference Center, Atrium
Wednesday, November 10, 2004

**Session 3. Melt Processing of Nonwovens – Innovations in Spunbond and Meltblown Technology**

Session Chair: Dr. Mike Berrigan – 3M

8:00 am - 8:25 am  
**Update on REICOFIL® Meltblown System**  
Hans Georg Geus, Reifenhäuser GmbH & Co. Maschinenfabrik, GERMANY

8:25 am - 8:50 am  
**The Performance and Capabilities of Neumag’s Ason Spunbond Pilot Line**  
Fumin Lu, Ason Neumag Corporation., Fort Lauderdale, FL, USA

8:50 am - 9:15 am  
**Bi-Component Substates and Properties for Spunbond and Meltblown**  
Mark Snider, Fiber System Group, Nordson, USA

9:15 am - 9:35 am  
Questions and Discussion

9:35 am - 10:10 am  
Coffee Break

10:10 am - 10:35 am  
**Annular Melt Blowing Jets Analyzed by Combining CFD with Experimental Measurements**  
Eric M. Moore*, Robert L. Shambaugh, and Dimitrios V. Papavassiliou, Oklahoma University, School of Chemical Engineering and Materials Science, Norman, Oklahoma. *Presently with 3M, St. Paul, MN

10:35 am - 11:00 am  
**New Development of Bicomponent Fiber Meltblown Nonwovens and Fiber Splitting**  
Christine Sun, Dong Zhang, Regina Xiao and Yanbo Liu, TANDEC, University of Tennessee, Knoxville, TN, USA

11:00 am - 11:25 am  
**Product Developments with Advance MB Technology**  
Ron (Rongguo) Zhao, Biax Fiberfilm Corporation, Greenville, WI, USA

11:25 am - 11:40 pm  
Questions and Discussion

11:40 pm - 2:00 pm  
Lunch Break (on your own)
Wednesday, November 10, 2004

**Session 4. Barrier Fabrics**  
Session Chair: Dr. Phil Gibson, U.S. Army Natick Soldier Center

2:00 pm - 2:25 pm  
**Properties Study of New Bico Spunbond and Melt Blown Barrier Fabrics**  
John Hagewood, Hills Inc. W. Melbourne, Florida, USA

2:25 pm - 2:50 pm  
**Composite Nanofiber Substrates for High Efficiency Aerosol Filtration**  
Thandavamoorthy Subbiah and S. S. Ramkumar, The Institute of Environmental and Human Health, Texas Tech University, Lubbock, TX, USA

2:50 pm - 3:15 pm  
**Commercial and Industrial Filter Trends**  
Kyung-Ju Choi, AAF International, Louisville, Kentucky, USA

3:15 pm - 3:35 pm  
Questions and Discussion

3:35 pm - 4:00 pm  
Coffee Break

4:00 pm - 4:25 pm  
**New Comfort Ventilated Barrier**  
Joe Moore, Tredegar Film Products, Richmond, Virginia, USA. Antonietta Splendiani and Lino Iulianetti, ADMA Srl, Research Center, Laboratori Val Pescara, Loc. Salvaiezzi, Via Mazzolari, Italy

4:25 pm - 4:50 pm  
**New Effect Additives for Polymer Fibers and Textiles**  
Matthew Gande, Ciba Specialty Chemicals, Tarrytown, NY, USA

4:50 pm - 5:15 pm  
**The Effect of Carbon Black Type on Electrospun Butyl Rubber Nonwoven Mats**  
P. Threepopnatkul, N. Viriyabanthorn, C. Kulsetthanchalee, W. Zukas, and J. Mead, University of Massachusetts Lowell, MA, USA

5:15 pm – 5:30 pm  
Questions and Discussion

5:30 pm Adjourn

7:00 pm - 9:00 pm  
**TANDEC Conference Banquet** at:  
Hilton Knoxville Hotel Ballroom  
501 West Church Avenue SW  
Knoxville, TN 37902 (865-523-2300)  
Banquet Speech (8:00pm -9:00pm)  
Global Technology Transfer... Extracting Value from Intellectual Property  
Corrine A. Sukienik  
Director, Global Technology Transfer  
Kimberly-Clark Worldwide, Inc.
Thursday, November 11, 2004

**Session 5. Fundamental Research and Testing in Nonwovens**  
Session Chair: Dr. John Collier, The University of Tennessee

8:00 am - 8:25 am  
**Elongational Rheology by Different Methods and Orientation Number**  
John R. Collier*, Xiaoling Wei**, Simioan Petrovan*, *Chemical Engineering Department, The University of Tennessee, Knoxville TN, USA and **Center for Advanced Engineering Fibers and Films, Clemson University, SC, USA.

8:25 am - 8:50 am  
**Biobased Derived Nonwoven Materials**  
Ioan Negulescu, Chen Yan, Xiaqun Zhang, Liangfeng Sun, Michael Saska, Kelly Rusch and Ronald Malone, Louisiana State University and AgCenter, Baton Rouge, LA and Valeriy G. Yachmenev and Timothy A. Calamari, Jr., USDA Southern Regional Research Center, New Orleans, LA

8:50 am – 9:10 am  
**The Influence of Processing Conditions on the Structure of Melt Blown Webs**  
Randall R. Bresee, Department of Materials Science and Engineering, The University of Tennessee, Knoxville, TN, USA, and Uzair A. Qureshi, Jentex Corporation, Buford, Georgia, USA

9:10 am – 9:30 am  
Questions and Discussion

9:30 am - 10:00 am  
Coffee Break

10:00 am - 10:25 am  
**Composite Materials for Inflatable Membrane Structures**  
Edgar Stach, The University of Tennessee, College of Architecture and Design, Knoxville, TN, USA

10:25 am - 10:50 am  
**Mechanical Characteristics of Biobased Composites**  
Y. Chen, L. Sun, and I. Negulescu, School of Human Ecology, Louisiana State University, Agricultural Center, Baton Rouge, LA. And B. J. Collier, University of Tennessee, Knoxville, TN. And M. A. Moore, School of Human Sciences, Florida State University, Tallahassee, FL.

10:50 am - 11:15 am  
**Stretchable Web Technologies**  
Charles B. Hassenboehler, TANDEC, University of Tennessee, Knoxville, Tennessee, USA

11:15 am – 11:40am  
Questions and Discussion

11:40 am – 2:00pm  
Lunch on your own

2:00 pm - 4:00 pm TANDEC Tour  
1321 White Avenue  
Knoxville, TN 37996 (865-974-6298)

4:00pm Adjourn
Poster Session

5:35 pm - 7:00 pm, Tuesday, November 9, 2004, UT Conference Center, Atrium
Session Chair: Dr. Bryan Haynes, Kimberly-Clark Corporation

Nano Fiber Nonwovens
M. Matharasi Angelline Predhima, P.S.G. College of Technology, Peelamadu, Coimbatore -641004, Tamilnadu, INDIA

Effects of Additives on the Shearing Rheology of PET
Xiaoling Wei, Gary Lickfield*, Christopher Cox**, Center for Advanced Engineering Fibers and Films, *Materials Science and Engineering, **Mathematical Sciences, Clemson University, Clemson, SC

Effective Elongational Rheology and Polymer Molecular Characteristics
Xiaoling Wei, John R. Collier*, Simioan Petrovan*, Center for Advanced Engineering Fibers and Films, Clemson University, South Carolina, *Chemical Engineering Department, University of Tennessee, Knoxville, Tennessee

Determination of Molecular Weight of Dissolving Pulp by Rheological Method
Xiaoling Wei, John R. Collier*, Simioan Petrovan*, Center for Advanced Engineering Fibers and Films, Clemson University, South Carolina, *Chemical Engineering Department, University of Tennessee, Knoxville, Tennessee

Effect of Additive concentrations on Surface Energy of Fibers and Meltblown Nonwovens
Jihua Xiao, Dong Zhang, and Christine Sun, TANDEC, The University of Tennessee, Knoxville, TN, USA

Cellulosic Nonwovens Prepared by Melt Blowing Lyocell
Atul Dahiya*, Billie J. Collier*, John R. Collier**, and Simioan Petrovan**, *Materials Science and Engineering Department, The University of Tennessee, Knoxville, TN, USA and **Chemical Engineering Department, The University of Tennessee, Knoxville, TN, USA

(All programs are subject to change at last minute)
REGISTRATION

Please mail the registration form, call the Conference Center at (865) 974-0250, or fax your registration to us at (865) 974-0264 before October 25, 2004. After October 25, 2004, a late registration fee of $50 will be charged. The registration fee includes admission to the conference, conference book of papers, reception, TANDEC banquet, and TANDEC tours. All early registration will receive confirmation by mail. A walk-in registration desk will be open at 7:00 a.m. on the first day and 7:30 a.m. on the remaining days at the Conference Center.

FAX Your Registration to:
(865) 974-0264. Operates 24 hours a day, 7 days a week!

CALL UT Conference Center at:
(865) 974-0250.

MAIL Your Registration Form to:
TANDEC Conference,
UT Conference Center
P.O. Box 2648,
Knoxville, TN 37901, USA

ON-LINE Registration at: http://tancon.utk.edu/online.html

E-MAIL Your Registration to: tancon@utk.edu

ACCOMMODATIONS

The Knoxville Downtown Hilton has been designated as the conference hotels. A block of rooms is being held at a special conference rate. Reservations can be made by calling the hotel directly. These special rates may be discontinued after October 25, 2004, so please make your reservations early.

Knoxville Hilton Hotel
$ 89.00 single/double
Group Code: TAN
Hotel Phone: (865)523-2300 (8:00am – 4:00pm)
Direct: (865)251-2578 (8:00am – 4:00pm)
Direct Toll Free: (877)644-5866 (8:00am – 4:00pm)
Toll-Free: 877-6-HILTON
Website: http://www.hilton.com

Other nearby hotels:

Holiday Inn Select Hotel
$ 85.00 single/double
Group Code: TAN
(865) 522-2800

OFFICIAL AIRLINE FOR TANDEC CONFERENCE

US Airways
Discounts from all points on US Airways System to Knoxville, Tennessee for attendees of the 2004 TANDEC Conference. Discount Fares are valid for travel from November 6-14, 2004. US Airway has been designated as the official carrier for the attendees of the TANDEC Conference, November 9-11, 2004, in Knoxville, TN. US Airway agrees to offer an exclusive low fare for attendees. This special fare will offer a 5% discount off First or Envoy Class and any published US Airways promotional round trip fare. A 10% discount off unrestricted Y or B8US/B4AUS fares will apply with 7 day advance reservations and ticketing required. Plan ahead and receive an additional 5% discount by ticketing 60 days or more prior to departure. These discounts are valid provided all rules and restrictions are met and are applicable for travel from all points on US Airways route system.
US Airway will also offer exclusive negotiated rates for attendees who are unable to meet the restrictions of the promotional round trip fares. Certain restrictions, including advance purchase requirements, may apply. These special rates are applicable for travel from the Continental United States. The above discounts are not combinable with other discounts and promotions, and are valid between November 6-14, 2004. Additional restrictions may apply on international travel. To obtain these discounts, you or your professional travel consultant must call US Airways Group and Meeting Reservation Office toll free at, (877) 874-7687; 8:00 a.m. to 9:30 p.m. Eastern Time. Refer to Gold File Number: 62162790.

CANCELLATIONS

Refunds for the conference registration fee will be made for prepaid registration fees less a $75 processing fee. Cancellations will be accepted in writing, by phone, by fax and by e-mail until 5:00 pm November 2, 2004. No refund will be given after November 2, 2004. However, substitute attendees are welcome with prior notification.

QUESTIONS

Please contact:

Dong Zhang, Conference Chairman
TANDEC
The University of Tennessee
Knoxville, TN 37996, USA
Tel: (865) 974-3573 or Fax: (865) 974-3580
E-Mail: tancon@utk.edu
URL: http://tancon.utk.edu or http://tandec.utk.edu

Christine Q. Sun, Editor Conference Proceedings
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The University of Tennessee
Knoxville, TN 37996, USA
Tel: (865) 974-0572 or Fax: (865) 974-3580
E-Mail: qsun1@utk.edu

Emily Clark, Conference Secretary
TANDEC
The University of Tennessee
Knoxville, TN 37996, USA
Tel: (865) 974-6298 or Fax: (865) 974-3580
E-Mail: eclark1@utk.edu

Barry Neal, Program Manager
The University of Tennessee Conference Center
600 Henley Street
Knoxville, TN 37901, USA
Tel: (865) 974-0250 or Fax: (865) 974-0264
E-Mail: bneal@utk.edu

The University of Tennessee, Knoxville, does not discriminate on the basis of race, sex, color, religion, national origin, age, handicap, or veterans' status in provision of educational opportunities or employment opportunities and benefits. UT Knoxville does not discriminate on the basis of sex or handicap in its educational programs and activities, pursuant to requirements of Title IX of the Education Amendments of 1972, Public Law 92-318; and Section 504 of the Rehabilitation Act of 1973, Public Law 93-112 and the Americans With Disabilities Act of 1990, Public Law 101-336, respectively. This policy extends to both employment by and admission to the University. Inquiries concerning Title IX and Section 504, and the Americans With disabilities Act of 1990 should be directed to the Office of Affirmative Action, 403-C Andy Holt Tower, The University of Tennessee, Knoxville, TN 37996-0144; or (865) 974-2498. Charges of Violation of the above policy should also be directed to the Office of Affirmative Action. E01-5701-01-025-97
REGISTRATION FORM

14TH ANNUAL INTERNATIONAL TANDEC CONFERENCE • #TANDEC N14
November 9-11, 2004 • The University of Tennessee Conference Center • Knoxville, TN

Please Check When Applicable:

Individual, Full Conference  @$825  $_______ (INFULL)
Individual, Full Conf. after 11/01/04  @$850  $_______ (INFULLL)
Co-author or Group Discount, Full Conference  @$600  $_______ (DISCOUNT)
Individual, Per Day  @$350  $_______ (INDAY)

Please indicate which day: _____ Nov. 9, _____ Nov. 10, _____ Nov. 11

Faculty and Government, Full Conference  @$350  $_______ (FAFULL)
Student, Full Conference  @$150  $_______ (STFULL)
Companion Ticket for Dinner Only  @$35  $_______ (DINER)
Additional Book of Papers in CD ROM  @$200  $_______ (PAPER)


Name ________________________________________SSN* __________________________
Title __________________________________________________________________________
Phone # (_____)_______________________Fax # (_____)_____________________________
Organization ___________________________________________________________________
Address ________________________________________________________________________
City, State, Zip, Country_________________________________________________________
E-mail Address ________________________________________________________________
Name of Companion for Dinner____________________________________________________

TOTAL
Payment Enclosed $___________
(All checks must be made payable to The University of Tennessee)

Method of Payment
Check enclosed
Charge to Credit Card #_________________ Exp. Date______________
Type of Card: ___Visa   ___MC   ___Discover • Authorized Signature_____________________

Please return your registration to:  TANDEC Conference
                                  UT Conference Center
                                  P.O. Box 2648
                                  Knoxville, TN 37901, USA
                                  (Fax: 865-974-0264)

* Used for encoding in conference address files only.