



*Advancing Scientific Knowledge  
Pertaining to Fibers and Fibrous Materials*

# The Fiber Society Newsletter

March 2010

In this edition of the newsletter, we update you on plans for the Spring 2010 Conference in Bursa, Turkey, recap the Fall 2009 Meeting at the University of Georgia, and list news and recent articles from the *Journal of Engineered Fibers and Fabrics*.

Please contact us with your thoughts or suggestions for future newsletter editions. We appreciate contributions of short news articles, announcements, or editorials of interest to our members.

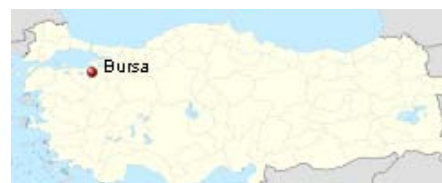
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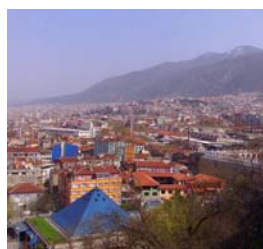
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## **2010 Spring Meeting Update** **International Conference on** **Fibrous Materials** **Merinos Congress Center** **Bursa, Turkey, May 12–14, 2010**



*Merinos Conference Center*



*Bursa*



*Uludag University*

The Spring 2010 Fiber Society Conference is organized by BUTEKOM, Home Textiles Research and Development Center, in collaboration with Uludag Exporters Union of Turkey, and The Fiber Society. The conference takes place in Bursa, the textile center of Turkey, May 12–14, 2010.

Conference papers will encompass fundamental research related to the science and engineering of fibers and fibrous materials.

Topics of interest include:

- Fiber and polymer science and nanotechnology
- Textile processing technology
- Dyeing, finishing, and biotechnology
- Textile testing
- Industrial textiles
- Functional textiles
- Fiber-reinforced composites
- Smart textiles
- Fashion design, costume history, and aesthetics
- Nonwovens
- Textile recycling, "green" technologies, and sustainable manufacturing
- Technical textiles

On May 11, one day prior to The Fiber Society Spring Conference, Clemson University's Center for Advanced Engineering Fibers and Films will present its **Advanced Fiber Process Development Workshop** at the conference site in Bursa, Turkey. The one-day course will provide background on the key elements in a fiber-spinning process and the state-of-the-art in modeling those elements. It will also offer information on polymer characterization, including on-line measurements that can be made to verify model predictions. A case study session will allow participants to gain hands-on experience with various models in an interactive setting. Process engineers, product development personnel, production managers, chemists, engineers, and physicists can all benefit from taking this course developed with National Science Foundation funding. Registration information will be available soon on the Fiber Society web site. Specific questions about the course may be directed to Pam Gabriel ([pam\\_gabriel@ncsu.edu](mailto:pam_gabriel@ncsu.edu)).

Presenters at the Fiber Society's 2010 Spring Conference are invited to submit full-length papers for publication in the **Journal of Engineered Fibers and Fabrics (JEFF)**. *JEFF* is a refereed electronic online journal sponsored by The Fiber Society, INDA, TAPPI, and AATCC. *JEFF* also welcomes contributions from non-Fiber Society members and the scientific and engineering community at large. Journal web site: [www.jeffjournal.org](http://www.jeffjournal.org).

*(Information below is adapted from Wikipedia)*

The spring meeting location in Bursa is in northwestern Turkey and the seat of Bursa Province. Bursa is Turkey's fourth largest city, and is located across the Sea of Marmara from Istanbul. Bursa is located on the northwestern slopes of Mount Uludağ (2,543 m, 8,343 ft).

International travelers will likely arrive via Istanbul Ataturk International Airport, or Istanbul Sabiha Gökçen International Airport, and then can drive, take a bus or (best option) fast ferry across the Sea of Marmara to Bursa. Further travel and accommodation details will be available on the Spring 2010 conference web site in the near future.

The city is frequently cited as "Yeşil Bursa" (meaning "Green Bursa") in a reference to the parks and gardens located across its urban extent, as well as to the vast forests in rich variety that extend in its surrounding region. Bursa is a popular tourist destination, and the city is synonymous with Mount Uludağ, which towers behind its core and is also home to a famous ski resort. The mausoleums of early Ottoman sultans are located in Bursa and the numerous edifices built throughout the Ottoman period constitute the city's main landmarks. The surrounding fertile plain, its thermal baths, several interesting museums, notably a rich museum of archaeology, and orderly urban growth are further principal elements that complete Bursa's overall picture.

Bursa is home to Uludağ University, and the city's population has one of the highest overall levels of education in Turkey. The city has traditionally been a major center for refugees from various ethnic backgrounds who immigrated to Anatolia from the Balkans during the loss of the Ottoman territories in Europe between the late 19th and early 20th centuries.

Final conference program information, registration instructions, and accommodation suggestions will be posted on the Fiber Society site as the meeting details are finalized.

Conference Chair is Dr. Yusuf Ulcay of Uludag University ([ulcay@uludag.edu.tr](mailto:ulcay@uludag.edu.tr)).

We hope to see you in Bursa!

## Fiber Society Fall Conference: Athens, Georgia, USA

The Fiber Society held its Fall Conference on October 28-30, 2009, on the campus of the University of Georgia in Athens, Georgia, USA.

Conference papers encompassed fundamental research related to the science and engineering of fibers and fibrous materials.

Major conference themes included:

- Biobased fibers and polymers
- Fibers with nanotubes and nanoparticles
- Electrospinning and nanofibers
- Fiber formation / fabrication /characterization and modeling
- Innovative uses and enhancement
- Fibers in health and medicine

The technical sessions fostered new interactions between academic, industrial, and government scientists and engineers engaged in research and development of fiber-based materials.



*Fiber Society President Gajanan Bhat and Conference Chair Ian Hardin open the 2009 Fall Conference at the Georgia Conference Center.*



*Professor Jason Locklin, Department of Chemistry, University of Georgia, began the technical sessions with a Plenary Lecture on Polymer Brushes*



*Nabyl Khenoussi of the University of Haute Alsace begins his talk "Macromolecular Configuration and Electrospinnability."*



*Haskell Beckham of Georgia Tech explains details of his paper "Fiber Surface Modification and Coloration by Electrostatic Assembly Followed by Covalent Fixation."*



*Glenn Simmonds of DuPont gave a very interesting presentation on "Market Lesson for Fiber Science Researchers—A Case Study."*



*Qing Chen of Hong Kong Polytechnic University lectures on "Experimental Studies on Liquid Water Transport of Plant Structured Knitted Fabric."*



*The well-attended Poster Session provided many opportunities for interaction and further discussion.*

Three outstanding papers were presented in the 2009 Fiber Society Student Paper Competition.



*The winning student paper was given by Vijoya Sa of Clemson University, pictured with her advisor Konstantin Kornev.*



*Competition Finalist Tracie Owens of Georgia Tech gives her paper on organic liquid wicking in polyester fabrics.*

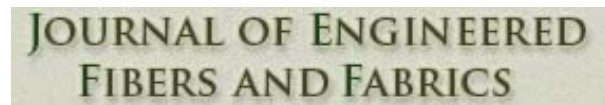
*Competition Finalist Daria Monaenkova of Clemson University explains stress transfer effects in wicking experiments.*

The Fiber Society would like to thank the hosts and organizers of this successful conference, the **Department of Textiles, Merchandising and Interiors**, in the College of Family and Consumer Sciences at the University of Georgia. Special thanks go to **Professor Ian Hardin**, who served as the chair of the 2009 Fall Conference.



The Fall 2009 Conference Book of Abstracts is available in PDF format on The Fiber Society website: [www.thefibersociety.org](http://www.thefibersociety.org) .

## JEFF Recent Articles



The *Journal of Engineered Fibers and Fabrics (JEFF)* has published the third and fourth issues of its fourth volume (2009) of peer-reviewed scientific journal articles. *JEFF* is an international, peer-reviewed open-access scientific e-Journal that publishes original R&D on all aspects of fabric technologies and their value chain -- from raw materials to end use products.

*JEFF* is sponsored by The Fiber Society and three associations: the American Association of Textile Chemists & Colorists (AATCC); the Association of the Nonwoven Fabrics Industry (INDA); and the Technical Association of the Pulp and Paper Industry (TAPPI).

The mission of *JEFF* is to publish a highly recognized and peer-reviewed research journal that fosters scientific efforts across many disciplines, to enhance the performance of fibers, their converted forms, and their applications. The *JEFF* editorial board includes area editors in North America, Asia, and Europe.

Journal articles may be viewed and downloaded at no charge from the web site:  
[www.jeffjournal.org](http://www.jeffjournal.org).

Paper submissions are actively sought for future issues. Submission guidelines are available at the journal web site and through the online editorial manager.

Contact information for the Managing Editor of the Journal of Engineered Fibers and Fabrics:

Edward A. Vaughn  
Professor Emeritus  
School of Materials Science and Engineering  
Clemson University  
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864-654-2242

## *Journal of Engineered Fibers and Fabrics* Volume 4, Issue 3 – 2009

### **Characterization by Mercury Porosimetry of Nonwoven Fiber Media with Deformation**

*G. Rutledge, J. Lowery, C. L. Pai*  
Department of Chemical Engineering and  
Institute for Soldier Nanotechnologies,  
Massachusetts Institute of Technology,  
Cambridge, Massachusetts, USA

### **Controlling Liquid Release by Compressing Electrospun Nanowebs**

*K.G. Kornev*  
Clemson University  
Clemson, South Carolina, USA  
*X. Ren, Y. Dzenis*  
University of Nebraska  
Lincoln, Nebraska, USA

### **Copper Alginate-Cotton Cellulose (CACC) Fibers with Excellent Antibacterial Properties**

*M. Grace, S. Bajpai*  
Government Medical Science College  
Jabalpur, INDIA  
*N. Chand*  
Advanced Materials and Process Research  
Institute,  
Bhopal, INDIA

### **Influence of Spinning Parameters and Recovered Fibers from Cotton Waste on the Uniformity and Hairiness of Rotor Spun Yarn**

*H. Taher, A. Bechir, B. Faouzi*  
Textile Research Unit of ISET, TUNISIA

### **Bleaching of Wool with Sodium Borohydride**

*D. Yilmazer, M. Kanik*  
University of Uludag  
Bursa, TURKEY

**Journal of Engineered Fibers and Fabrics**  
**Volume 4, Issue 4a – 2009**  
**Special Double Issue**

**Foreword**

Seshadri Ramkumar, Guest Editor

**Microwave Radiations for Heat-Setting of Polyester Fibers**

*N. Bhat, M. Kale, A. Gore*  
Bombay Textile Research Association  
Mumbai, INDIA

**Influence of D-Type Slot Compact System on Migration Properties of the Carded Compact Yarn**

*R. Loganathan, M. Mallyah, T. Ramachandran*  
Department of Textile Technology,  
P S G College of Technology,  
Coimbatore, INDIA

**Compression Properties of Polyester Needle-punched Fabric**

*S. Debnath*  
National Institute of Research on Jute & Allied  
Fiber Technology,  
Kolkata, INDIA  
*M. Madhusoothanan*  
Department of Textile Technology,  
Anna University,  
Chennai, INDIA

**Moisture Flow through Blended Fabrics–  
Effect of Hydrophilicity**

*B. Das, A. Das, V. Kothari, R. Fanguiero,  
M. Araujo*  
Indian Institute of Technology,  
New Delhi, INDIA

**Total Wear Comfort Index as an Objective  
Parameter for Characterization of Overall  
Wearability of Cotton Fabrics**

*S. Raj, S. Sreenivasan*  
Central Institute for Research on Cotton  
Technology, Matunga,  
Mumbai, INDIA

**Study of Inverse Creep in Textile Yarns**

*P.G. Patil*  
Ruia College, Matunga,  
Mumbai, INDIA  
*R.P. Nachane*  
Central Institute for Research on Cotton  
Technology,  
Mumbai, INDIA

**Journal of Engineered Fibers and Fabrics**  
**Volume 4, Issue 4b – 2009**

**Effect of Fibre Properties on Flocculation  
and Fractionation of Cellulosic Fibres in Dry  
State**

*J. Larkomaa, J. Niinimäki*  
University of Oulu, FINLAND  
*M. Honkanen, M. Hanif, P. Saarenrinne*  
Tampere University of Technology, FINLAND

**Influence of Hydration State on Permeation  
Testing and Vapor Transport Properties of  
Protective Clothing Layers**

*P. Gibson, H. Schreuder-Gibson*  
U.S. Army Natick Soldier Research,  
Development, and Engineering Center, USA

**Engineering of Glasses for Advanced Optical  
Fiber Applications**

*N. Carlie, L. Petit, K. Richardson*  
Clemson University School of Material Science  
and Engineering/COMSET, USA

**Influence of Elastane Consumption on Plated  
Plain Knitted Fabric Characteristics**

*S. Abdessalem, S. Mokhtar, S. Elmarzougui*  
Textile Research Unit of Technology High  
School of Ksar Hellal, Monastir, TUNISIA  
*Y. Abdelkader*  
National Engineering School of Monastir,  
TUNISIA

**Relationship of Fiber Properties to Vortex  
Yarn Quality via Partial Least Squares**

*C. Price*  
Federal Reserve Bank of Philadelphia  
Philadelphia, Pennsylvania, USA  
*H. Senter*  
Clemson University, South Carolina, USA  
*J. Foulk, G. Gamble*  
USDA-ARS Cotton Quality Research Station  
Clemson, South Carolina, USA  
*W. Meredith*  
USDA-ARS Crop Genetics and Production  
Research Unit, Clemson, South Carolina, USA

**Electrospun Jets Launched from Polymeric  
Bubbles**

*J.S. Varabhas, G.G. Chase*  
Department of Chemical and  
Biomolecular Engineering,  
The University of Akron, Akron, Ohio, USA  
*S. Tripatanasuwan, D.H. Reneker*  
Department of Polymer Science,  
The University of Akron, Akron, Ohio, USA

## Fiber Society Awards

Awards given at the 2009 Fiber Society Fall Conference are listed below:

### The Fiber Society Student Paper Competition



*Fiber Society President Gajanan Bhat and Student Paper Chair Xungai Wang present awards and certificates to student paper participants (left to right): Vijoya Sa, Daria Monaenkova, and Tracie Owens.*

**Best Research Paper: Vijoya Sa**  
Clemson University, Konstantin Kornev, Advisor  
***Wet Spinning of Fibers Containing High Concentration of Single Walled Carbon Nanotubes***

**Competition Finalist: Tracie Owens**  
Georgia Tech, Haskell Beckham, Advisor  
***Validation of a New Wicking Technique Through the Evaluation of Wicking with Organic Liquids in Polyester Fabrics***

**Competition Finalist: Daria Monaenkova**  
Clemson University  
Konstantin Kornev, Advisor  
***Stress Transfer Through Fibrous Materials in Wicking Experiments***



**Distinguished Achievement Award**  
Dr. Weilin Xu  
Wuhan University of Science and Engineering  
P.R. China

**Honorary Membership Award**  
Dr. Pronoy Chatterjee, Retired  
Dr. Darrell Reneker, University of Akron, Ohio

**Emeritus Membership Award**  
Dr. Perry Grady, Retired  
Dr. Steven Spivak, Retired

## Upcoming Meetings

Fiber Society conferences are run on a volunteer basis by organizations and individuals. We are always seeking interested companies, other organizations, and individuals, for sponsorship, arranging special interest topic sessions, meeting chairs, and joint meetings with other professional societies. Please contact The Fiber Society Secretary if you are interested in helping out with future meetings.

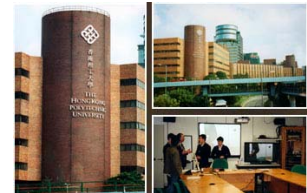
**2010 Spring, May 12-14**  
Bursa, Turkey  
Hosted by BUTEKOM in collaboration with Uludag Exporters Union of Turkey



**2010 Fall, October 20-22**  
Snowbird Resort, Utah  
Hosted by University of Utah



**2011 Spring**  
Tentative: May 25-27,  
Hong Kong  
Polytechnic University



**2011 Fall Conference**  
Tentative: October, 2011  
Clemson University  
Location: Charleston, SC



**2012 Spring Conference**  
May 23-25, 2012  
EMPA  
St. Gallen, Switzerland



**2012 Fall Conference**  
Boston area possible in conjunction with IFAI



Information and Calls for Papers are available on our web site ([www.thefibersociety.org](http://www.thefibersociety.org)) as plans for each meeting are finalized.

## Past Meetings of The Fiber Society

*Note – many of the recent meetings include online abstracts and programs archived on The Fiber Society web site [www.thefibersociety.org](http://www.thefibersociety.org)*

2009 Fall Meeting (October 28-30)  
University of Georgia  
Athens, Georgia, USA

2009 Spring Meeting (May 27-29, 2009),  
Donghua University, Shanghai, China

2008 Fall Meeting (October 1-3, 2008)  
Industrial Materials Institute, Boucherville,  
Quebec, Canada

2008 Spring Meeting (May 14-16, 2008)  
University of Haute-Alsace, Mulhouse, France

2007 Fall Conference (October 9-11, 2007)  
Davis, California, USA

2007 Spring Meeting (May 23-25, 2007)  
*Advanced Polymer Fiber Materials Science and  
Applications in Novel Engineered Products*  
Greenville, South Carolina, USA

2006 Fall Conference (October 10-12, 2006)  
Knoxville, Tennessee, USA

2006 Spring Meeting (May 30 - June 2, 2006)  
*Extreme Textiles: Functionality, Performance,  
and Industrial Aspects*  
Joint Conference with the Korean Fiber Society  
in Seoul, Korea

2005 Fall Conference (October 17-19, 2005)  
*Fiber Science – The Next Generation*  
New Jersey Institute of Technology,  
Newark, New Jersey, USA

2005 Spring Meeting (May 25-27, 2005)  
*Fiber-Based Product Design for Performance*  
ETH/EMPA, St. Gallen, Switzerland

2004 Fall Conference (October 11-13, 2004)  
*A Symposium on Advanced Materials and  
Processes*  
Cornell University, Ithaca, New York, USA

## Fiber Society Contacts

For most correspondence, please contact the Secretary of The Fiber Society:



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and Engineering,  
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Fiber Society administrative  
questions may be addressed to  
Pam Gabriel:  
[Pam.Gabriel@ncsu.edu](mailto:Pam.Gabriel@ncsu.edu),  
phone (919) 513-0143

Please also feel free to contact any of our  
officers or Governing Council members with  
suggestions or concerns:



**President,**  
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Université de Haute Alsace  
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**Vice-President,**  
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**Treasurer,**  
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**Past-President (2009),**  
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## Governing Council Members

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- **Rudolf Hufenus**  
EMPA  
[rudolf.hufenus@empa.ch](mailto:rudolf.hufenus@empa.ch)



- **Jack Zhou**  
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[jzhou@ethus.jnj.com](mailto:jzhou@ethus.jnj.com)



- **Janice Gerde**  
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- **Gang Sun**  
University of California-Davis  
[gysun@ucdavis.edu](mailto:gysun@ucdavis.edu)



- **JEFF Editor**  
(Permanent Member)  
Michael Jaffe  
New Jersey Institute of Technology  
[jaffe@admin.njit.edu](mailto:jaffe@admin.njit.edu)



Two new Governing Council members were elected to the board during the Fall 2009 Fiber Society Annual Member Meeting:

**Janice R. Gerde** is a Research Analyst for the U.S. Customs and Border Protection (CBP), Laboratories and Scientific Services (LSS), Springfield Laboratory. Dr. Gerde joined the then-U.S. Customs Service in May 1997, serving three years at the Savannah Laboratory before transferring to Springfield in July 2000. Her duties include analysis and projects to support trade issues as well as serving as national coordinator for the CBP Laboratory Methods Program, representative to the Textile Working Group for High Risk Textile Trade, and Radiation Duty Officer supporting LSS's Radiation Technical Assistance Program. Dr. Gerde earned an interdisciplinary doctorate in fiber science and textile evaluation with an emphasis on computer-aided imaging from the University of Maryland, College Park. Professional affiliations include The Fiber Society, American Association of Textile Chemists and Colorists (AATCC), ASTM International, American Chemical Society, and Microscopy Society of America.

**Gang Sun** is a professor in the Division of Textile and Clothing at the University of California at Davis. Professor Sun joined the UC faculty in 1995. Gang earned a B.S. in polymer fibers in 1982 and an M.S. in textile chemical engineering in 1984, both from China Textile Univ. (Shanghai), and a Ph.D. in organic/polymer chemistry from Auburn in 1994. His research interests include synthesis and functional modification of polymers, functional chemical processing of textiles, and utilization of agricultural and environmental wastes.

## Fiber Society Dues Reminder

Have you paid your Fiber Society dues for 2010? Dues for 2010 remain at \$60.00.

You can check the status of your membership by logging onto the account information section of The Fiber Society website:

<https://www.thefibersociety.org/personalinfo.php>

**Call for Papers**  
The Fiber Society Spring 2010  
International Conference on  
Fibrous Materials  
Merinos Congress Center  
Bursa, Turkey  
May 12–14, 2010

The Fiber Society's Spring 2010 Conference is being organized by BUTEKOM, Bursa Textile and Confection (Home Textiles and Furnishings) Research and Development Center, in collaboration with Uludag Exporters Union and The Fiber Society. The conference takes place in Bursa, the textile center of Turkey, May 12–14, 2010.

Papers on fundamental research related to the science and engineering of fibers and fibrous materials are being solicited.

Submissions of original work related to the following major themes, as well as any aspects on the frontier of fibers and fibrous materials, are welcomed:

- Fiber and polymer science and nanotechnology
- Textile processing technology
- Dyeing, finishing, and biotechnology
- Textile testing
- Industrial textiles
- Functional textiles
- Fiber-reinforced composites
- Smart textiles
- Fashion design, costume history, and aesthetics
- Nonwovens
- Textile recycling, "green" technologies, and sustainable manufacturing
- Technical textiles (medical, protection, transportation, etc.)

Access the Fiber Society website at [www.thefibersociety.org](http://www.thefibersociety.org) and follow the link to register and upload your abstract. A template will be provided for all submissions. Abstracts will be no more than 2 pages in length in the prescribed format that includes abstract title, author(s), and affiliation(s). Abstracts will be in MS Word (NO pdfs, please), Times New Roman, 11-point font.

**Submission deadline is March 12.**

Notification of acceptance into the program will be no later than April 12. For those who must acquire travel visas, early submission is highly recommended.

In conjunction with the conference, Clemson University's Center for Advanced Engineering Fibers and Films will present its Advanced Fiber Process Development Workshop, May 11. The one-day course will provide background on the key elements in a fiber-spinning process and the state-of-the-art in modeling those elements. It will also offer information on polymer characterization, including on-line measurements that can be made to verify model predictions. Registration and other details will be forthcoming and available on the Fiber Society website.

Finally, table top exhibitors will attend, demonstrating the latest in testing and analytical instruments, software, and materials and material conversion technologies. Registration details will be available on the Fiber Society website. For inquiries, contact Pam Gabriel at [pam\\_gabriel@ncsu.edu](mailto:pam_gabriel@ncsu.edu), or the conference chair, Dr. Yusuf Ulcay, at [ulcay@uludag.edu.tr](mailto:ulcay@uludag.edu.tr).

Authors are also encouraged to submit full-length papers to the Journal of Engineered Fibers and Fabrics (JEFF) for review and publication ([www.jeffjournal.org/](http://www.jeffjournal.org/)).

**The Fiber Society Spring 2010  
International Conference on Fibrous Materials**

May 1941 to May 2010, 69 years devoted to Fiber Science

**Leaders of the  
world textile sector  
meet at Bursa!**

**12 - 14 May 2010 - Bursa  
Merinos Atatürk Cultural & Convention Center**

**First time in Türkiye!**

Organized by BUTEKOM,  
Bursa Textile and Confection Research and  
Development Center, in collaboration with  
Uludag Exporters' Association and  
The Fiber Society.

ULUDAĞ TEXTILE EXPORTERS' ASSOCIATION  
Organize Sanayi Bölgesi II. Gelişim Sahası  
Kahverengi Cd. No:8 Nilüfer / BURSA / TÜRKİYE  
Tel: 0090 - 224 - 219 00 00 Ext.1450/1614  
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Participation fee and for more information:  
[www.uib.org.tr](http://www.uib.org.tr)  
[www.butekom.org.tr](http://www.butekom.org.tr)  
[www.thefibersociety.org](http://www.thefibersociety.org)  
The lecture is English.



# NATO Advanced Study Institute (ASI) Defense Related Intelligent Textiles and Clothing for Ballistic and NBC (Nuclear, Biological, Chemical) Protection

Split / Croatia  
April 6-16, 2010

## Co-directors :

**Prof. Paul KIEKENS**, Ghent University,  
Department of Textiles, Belgium

**Dr. René ROSSI**, EMPA,  
Laboratory for Protection and Physiology,  
Switzerland

## Local organiser :

**Prof. Ana Marija GRANCARIC**,  
University of Zagreb,

Faculty of Textile Technology, Croatia

## Tentative programme

- **Welcome + Introduction**, *Prof. P. Kiekens*, Ghent University, Department of Textiles, Belgium
- **Importance of NATO for Croatia**, Croatian authorities (government, University of Zagreb, ...)
- **Overview of chemical biological protective clothing**, *Dr. E. Wilusz*, Natick Soldier RDE Center, USA
- **Methods to assess physical protection in an operational context**, *Dr. W. Lotens*, TNO Defence and Safety, The Netherlands
- **Biodefence : how to protect the citizens**, *Dr. H.A. Mayer*, Abeil, France
- **Intelligent textiles for protection against electromagnetic radiation and security**, *Prof. I. Prlc*, Institute for Medical Research and Occupational Health, Croatia
- **Activated natural zeolites on textiles - ability to protect from radioactive contamination**, *Prof. A.M. Grancaric*, University of Zagreb, Faculty of Textile Technology, Croatia
- **Heat strain alleviation in protective clothing**, *Prof. H.A.M. Daanen*, TNO Defence and Safety, The Netherlands
- **Fibre sensors for personal protection**, *Prof. A. Lobnik*, University of Maribor, Slovenia
- **Smart and electronic textiles for safety and rescue**, *Prof. L. Van Langenhove*, Ghent University, Department of Textiles, Belgium
- **The engineering design of intelligent protective textiles and clothing**, *Prof. S. Jayaraman*, Georgia Institute of Technology, USA
- **Numerical modeling of ballistic impact on fibre composites**, *Dr. H. van der Werff*, DSM Dyneema, The Netherlands
- **Rapid methods for identification of biological weapons**, *Prof. J. Freney*, University of Lyon, Institut des Sciences Pharmaceutiques et Biologiques, France
- **Developments in decontamination of military soldiers and equipment using fibrous materials**, *Prof. S.S. Ramkumar*, Texas Tech University, USA
- **Assessment of heat and mass transfer through protective clothing with thermal manikins: opportunities and limitations**, *Dr. René ROSSI*, EMPA, Department of Protection and Physiology, Switzerland
- **Nuclear threats, physiological effects, and countermeasures**, *Dr. R. DeMeo*, Radiation Shield Technologies, USA
- **Nanofunctionalised textiles and clothing for multiple personal protection**, *Prof. P. Kiekens*, Ghent University, Department of Textiles, Belgium
- **Intelligent textiles for chemical biological protective clothing**, *Dr. E. Wilusz*, Natick Soldier RDE Center, USA
- **Advancements in intelligent textiles: The next generation of protective clothing**, *Prof. S. Jayaraman*, Georgia Institute of Technology, USA
- **Defining the limits of human thermo tolerance while wearing protective clothing**, *Dr. T. McLellan*, DRDC Toronto, Canada
- **Fit issues in protective clothing**, *Prof. H.A.M. Daanen*, TNO Defence and Safety, The Netherlands
- **Natural fibres for soft ballistic protection and test methods related**, *Prof. M. Pirlot*, Royal Military Academy (RMA), Department of Weapon Systems & Ballistics, Belgium
- **Innovative 3D textile structure for soft body armour protection**, *Prof. F. Boussu*, ENSAIT, GEMTEX Laboratory, France
- **Performance of Dyneema® at elevated temperatures, extreme for body armour**, *Mr. H. Meulman*, DSM Dyneema, The Netherlands
- **Optical wearable sensors for NBC detection**, *Prof. A. Lobnik*, University of Maribor, Slovenia
- **Equipment, effectiveness & survivability of networked soldiers**, *Dr. W. Lotens*, TNO Defence and Safety, The Netherlands
- **Options for managing thermal strain while wearing protective clothing**, *Dr. T. McLellan*, DRDC Toronto, Canada
- **Influence of water on heat protection and analysis of steam burn formation in heat protective clothing**, *Dr. René ROSSI*, EMPA, Department of Protection and Physiology, Switzerland
- **Nanomaterials for personal protection**, *Prof. S.S. Ramkumar*, Texas Tech University, USA
- **Facile Synthesis of Multifunctional Materials by Microwave-Promoted Addition of Organosiloxanes to Select Substrates**, *Dr. J. Owens*, Tyndall Air Force Base, USA
- **Round Table Conference : Development of roadmap on Intelligent Textiles and Clothing for Ballistic and NBC Protection**

## Objectives

Create a high level forum in which scientists and engineers from all over the world can discuss the most advanced developments in defense-related intelligent textiles and clothing, aimed at an effective protection against Ballistic and NBC (Nuclear, Biological, Chemical) hazards. Assess the actual directions of research and innovation towards future developments about physical or personal protection in line with the strategy written down in the research roadmap developed during the ARW on Intelligent Textiles for Personal Protection and Safety in Zadar, Croatia, 2005.

In general, the aim is to stimulate global research collaboration among universities/institutes and industry about safety and protection from multiple hazards.

## Information and participation

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*This activity  
is supported by:*

The NATO Science for Peace  
and Security Programme