The Fiber Society Fall Meeting and Technical Conference 2008

Boucherville, Canada
1 - 3 October 2008

ISBN: 978-1-5108-2132-3

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571

Some format issues inherent in the e-media version may also appear in this print version.

Printed by Curran Associates, Inc. (2016)

The Fiber Society
P.O. Box 40565
Raleigh, NC, 27629-0565
USA

Phone: (919) 515-6568
Fax: (919) 515-3733

pam.fibersociety@gmail.com

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

Wednesday, October 1

7:00 Registration and Continental Breakfast

8:15 Welcoming Remarks, Business and Announcements — *Abdellah Ajji, Chair*; *Blaise Champagne, Director General, IMI-NRC*; *Young Chung, President, Fiber Society*

8:30 **Plenary Talk: Dr. Darrell H. Reneker**
The University of Akron, Akron, Ohio
Hierarchical Fiber Structures Made by Electrospinning

Morning Session

	Session 1A: Electrospun Nanofibers for Various Applications ***Young Chung, Chair***		**Session 1B: Functional Fibers** ***Michael Ellison, Chair***
9:30–10:00	*Production and Characterization of Electrospun PET/MWCNT Nanocomposite Nanofiber Mat* Saeedeh Mazinani[1], Charles Dubois[1] and Abdellah Ajji[2], [1]Ecole Polytechnique of Montréal, [2]Industrial Materials Institute	9:30–10:00	*Optical Effects by Fiber Surface Microstructuring* Marcel Halbeisen[1], Peter Zolliker[1], Wenjing Shi[1,2] and Rudolf Hufenus[1], [1]Empa, [2]Ensait
10:00–10:45	*Molecular Orientation in Macroscopically Aligned Electrospun Polymer Nanofibers: Hypothesis or Reality* John F. Rabolt, University of Delaware	10:00–10:30	*Fabrication of Tunable Submicro- or Nano Polyethylene Fibers* Dong Wang[1], Gang Sun[1] and Bor-Sen Chiou[2], [1]University of California Davis, [2]USDA/WRRC/ARS

10:30–11:00	***Break***

11:00–11:45	*Electrospinning of Recombinant Spider Silk* Frank Ko[1], Yuqin Wan[1] and Costas Karatzas[2], [1]University of British Columbia, [2]Nexia Biotechnologies	11:00–11:45	*Fabrication of 1D Photonic Crystals Based on Hollow/Solid-Core All-Polymer Optic Fibers* Charles Dubois, Maksim Skorobogatiy, Abdellah Ajji, and Karen Stoeffler, Ecole Polytechnique de Montréal
11:45–12:15	*Sheath/Core Piezoelectric Composite Nanofiber by Electrospinning* Muhamad Nasir and Masaya Kotaki, Kyoto Institute of Technology	11:45–12:15	*Flocked Gas Diffusion Layer for PEMFC* Chetan Hire and Qinguo Fan, University of Massachusetts Dartmouth

12:15–1:30	***Lunch—on your own*** ***Poster Presentation Setup***

Afternoon Session

1:30–2:30	**Student Paper Competition** ***Dominique Adolphe, Chair***		
	Session 2A: Electrospun Nanofibers—Filters, Hydrophobic and Functional ***Frank Ko, Chair***		**Session 2B: Nonwoven Fibers and Biofibers** ***You-Lo Hsieh, Chair***

2:30–3:15	*Nanofiber Technology for Water Purification* Benjamin Chu and Benjamin S. Hsiao, Stony Brook University	2:30–3:15	*Oriented Fiber Filter Media* G. G. Chase,[1] S. Chokdeepanich,[2] A. Patel[3] and R. Bharadwaj[1], [1]The University of Akron, [2]SCG Chemical Company,[3] Mann+Hummel
3:15–3:45	*Hydrolytic Degradation of Electrospun Poly(lactic acid)/Cellulose-Nanocrystals Nanocomposite Fibers* Chunhui Xiang and Margaret W. Frey, Cornell University	3:15–3:45	*Comparison of Compression Behaviour of PU Foam and 3D Nonwoven* Nicole Njeugna[1], Dominique C. Adolphe[1], Laurence Schacher[1], Raphaël L. Dupuis[1], Evelyne Aubry[1], Jean-Baptiste Schaffhauser[2] and Patrick Strehle[2], [1]ENSISA, [2]N. Schlumberger
3:45–4:30	*Wetting Behavior of Electrospun Nanofiber Fabrics* Akihiko Tanioka, Tokyo Institute of Technology	3:45–4:15	*Annealing Studies on Thermotropic Liquid Crystalline Polyester Meltblown Fabric* Hasan B. Kocer[1], Roy M. Broughton, Jr.[1], Chris Eash[2] and Larry Wadsworth[2], [1]Auburn University, [2]University of Tennessee

4:15–4:45	***Break***

4:45–5:30	*Superhydrophic Electrospun Nonwovens* Gregory C. Rutledge and Minglin Ma, Massachusetts Institute of Technology	4:45–5:15	*Microbial Medium Chainlength Poly[(R)-3-Hydroxyalkanoate] Elastomer Behaviour* R. H. Marchessault[1], Hongyan Dou[1] and Juliana Ramsay[2], [1]McGill University, Queen's University
5:30–6:00	*Ferroic Nanofiber Yarns: Field-Induced Instabilities and Their Nanofluidic Applications* Konstantin G. Kornev, Taras Andrukh, Eric Dudley, Alexander Tokarev, Igor Luzinov, George Chumanov and John Ballato, Clemson University	5:15–5:45	*Four Types of Protein Fibers: Similarity and Difference* John W. S. Hearle, University of Manchester

Evening Session

6:00–7:30	**Poster Presentations and Table Top Exhibits—refreshments provided**

Thursday, October 2

7:30 Registration and Continental Breakfast

8:30 **Plenary Talk: Dr. Younan Xia**
Washington University, St. Louis, Missouri
Electrospinning: An Enabling Technique for Nanostructured Materials and Neural/Tissue Engineering

Morning Session

	Session 3A: Electrospun Composites or Functional Nanofibers ***Lucie Robitaille, Chair***		**Session 3B: Biofibers** ***Marie-Claude Heuzey, Chair***
9:30–10:15	*Control of Nanoparticle Location via Confined Assembly in Electrospun Block Copolymer Nanofibers* Vibha Kalra[1], Jung Hun Lee[1], Manuel Marquez[2], Ulrich Wiesner[1] and Yong Lak Joo[1], [1]Cornell University, [2] INEST Group-Philip Morris USA	9:30–10:00	*Wholly Polysacchardic Functional Fibers* You-Lo Hsieh, Jian Du and Bin Ding, University of California Davis

10:00–10:30	***Break***

10:30–11:00	*Nanofiber Composites in Chemical and Biological Applications*: Fundamentals of Composite Design Veli Kalayci, Kristine Graham, Andrew Dallas and Doug Crofoot, Donaldson Company, Inc.	10:30–11:00	*Extraction and Characterization of Bamboo Nanocrystal* Yuqin Wan and Frank K. Ko , University of British Columbia
11:00–11:30	*Strategies for the Fabrication of Conductive Fibers Using Electrospinning and Meltspinning Techniques* Alexis Laforgue, Lucie Robitaille and Abdellah Ajji, Industrial Materials Institute	11:00–11:30	*Fiber Implants in Catfish for Controlled Release of Ovulation-Inducing Hormone* Fatma Kilinc-Balci[1], Amina Zuberi [2], Rex Dunham[3], Christopher J. Ward[3], Edward W. Davis[3], and Roy M. Broughton, Jr.[3] , [1]DuPont Personal Protection, [2]Department of Fisheries, Government of Punjab, [3]Auburn University
11:30–12:00	*Fabrication and Characeterization of Functional Composite Nanofibers by Electrospinning* Heejae Yang, Nicole Lee, Masoumeh Baynat and Frank Ko, University of British Columbia	11:30–12:00	*Laboratory Assessment of the Claims for "Bamboo" Fibers* Ian R. Hardin, Renuka Dhandapani and Susan S. Wilson, University of Georgia

12:00–1:30	***Lunch—on your own***

Afternoon Session

	Session 4A: New Frontiers in Fibers and Nanofibers Development ***Stephen Michielsen, Chair***		**Session 4B: Textiles and Fibers for Various Applications** ***Jean Dumas, Chair***
1:30–2:00	*Self-Cleaning Textile Surfaces* Hoon Joo Lee, Stephen Michielsen and Jinmei Du, North Carolina State University	1:30–2:00	*Mass Transport from Textiles Through Skin: Transdermal Drug Permeation* Malcolm M. Q. Xing[1,4], Xiaoying Hui[2], Wen Zhong[3], Ning Pan[1], Frank Yaghmaie[4], and H. I. Maibach[2], [1]University of California Davis, [2]University of California San Francisco, [3]University of Manitoba, [4]Northern California Nanofabrication Center

2:00–2:30	*Facile Synthesis of Multifunctional Materials by Microwave-Promoted Addition of Organosiloxanes to Hydroxylic Substrates* Jeffery Owens[1], Ryan Hayn[2], Rashelle McDonald[2] and Stephanie Boyer[3], [1]Air Force Research Laboratory, [2]Applied Research Associates, [3]US Air Force Academy	2:00–2:30	*The Effects of Pre-Wetting on Liquid Penetration Performance of Surgical Gowns* Wei Cao[1] and Rinn M. Cloud[2] [1]California State University Northridge, [2]Florida State University
2:30–3:15	*Electrohydrodynamics of Free Liquid Surface in a Circular Cleft: An Application to Electrospinning* Nikita Bhutani[1], Mahesh Ahlawat[1], Arindam Sarkar[2], Petr Mikes[2], Jiri Chvojka[2], Pavel Pokorny[2] and Katerina Vodsedalkova[2], David Lukas[2], [1]Indian Institute of Technology, [2]Technical University of Liberec	2:30–3:00	*Influence of Absorbed Moisture on Anti-Felting Property of Wool Treated with Atmospheric Pressure Plasma* Helan Xu[1], Chunxia Wang[2], Weihua Teng[1] and Yiping Qiu[1], [1]Donghua University, [2]Yancheng Institute of Technology

3:00–3:30	***Break***

3:30-4:15	*Continuous Nanofiber: Reinforced Structural Nanocomposites* Yuris Dzenis, University of Nebraska-Lincoln	3:30–4:00	*Sock-Foot Skin Contact: An Approach of a Friction Model* Églantine Baussan[1], Marie-Ange Bueno[1], Siegfried Derler[2] and René Rossi[2], [1]University of Mulhouse, [2]Empa
4:15–4:45	*Raman Spectromicroscopy and ATR Infrared Spectroscopy: Two Efficient Techniques to Study the Conformation and Orientation of Proteins in Silkworm and Spider Silk Fibers* Thierry Lefèvre[1], Maxime Boulet-Audet[1], Thierry Buffeteau[2], Sarah Bédard[1], Marie-Eve Rousseau[1] and Michel Pézolet[1], [1]Université Laval, [2]Université de Bordeaux	4:00–4:30	*The Design and Formation of Warp Knit Auxetic Fabrics* Samuel C. Ugbolue[1], Olena Kyzymchuk[2],Yong K. Kim[1], Qinguo Fan[1] and Yani Feng[1] [1]University of Massachusetts Dartmouth, [2]Kyiv National University of Technologies and Design
4:45–5:15	*Electrospinning and Characterization of the Self-Assembled Orthorhombic Poly(ethylene oxide)-Urea β Complex* Christian Pellerin, Yang Liu and Hélène Antaya, Université de Montréal	4:30–5:00	*The Effect of Temperature onTextile Thermal Resistance* Jose Gonzalez, Guowen Song and Lidan Song, University of Alberta
5:15–6:00	*Open*	5:00–5:30	*Fatigue Behaviour of Glass Fiber Reinforced Marine Composites* S. Doganay, Y. Ulcay and S. Altun, University of Uludag

5:30 General Body Meeting: ***Open to Fiber Society Members Only***
7:30 Reception and Banquet: Joanna Berzovska, Speaker
It is Time for Social Networking to Move Back Onto the Body

Friday, October 3

7:30 Registration and Continental Breakfast

	Session 5A: Nanofibers and Fibers in Biomedical Applications ***Martin Bureau, Chair***		**Session 5B: Fiber Spinning, Fiber Structures, and Applications** ***Christian Bélanger, Chair***
8:30–9:15	*Applications of Electrospinning in Medicine* Gary E. Wnek, Case Western Reserve University	8:30–9:00	*Fibers Network for an Application as Core Material for Sandwich Structures* Laurent Mezeix, Christophe Bouvet and Dominique Poquillon, University of Toulouse
9:15–9:45	*Investigation of Electrospinning Parameters that Determine Fiber Diameter Distribution* Xuri Yan and Michael Gevelber, Boston University	9:00–9:30	*Carbon Fiber Production from a Kraft Hardwood Lignin* D. A. Baker, N. C. Gallego and F. S. Baker, Oak Ridge National Laboratory
9:45–10:15	*Preparation of Stereoblock Copolymer Containing Isotactic Acrylonitrile -(CH2-CH(CN))n- and a-Chloroacrylonitrile -(CH2-CCl(CN))m- Components in Its Copolymer Backbone by γ-Irradiation Postpolymerization* Masatomo Minagawa, Ryo Umehara, Toshiki Taira, Nobuhiro Sato and Tomochika Matsuyama, University of Yamagata	9:30–10:00	*Effect of Processing Temperature on the Antimicrobial Properties of Polypropylene/Montmorillonite Nanocomposites* Qinquo Fan, Lalit Toshniwal, Frank J. Scarano and Samuel C Ugbolue, University of Massachusetts Dartmouth

10:00–10:30	***Break***

10:30-11:00	*Melt Electrospun Nanofibers: Modeling and Experiments* Eduard Zhmayev[1], Cheol Soo Yoon[2], Young Jun Cho[2], Sung Eun Hong[2] and Yong Lak Joo[1], [1]Cornell University, [2]Hyosung R&DB Laboratories	10:30–11:00	*Experimental Investigation on the Consolidation of Polypropylene-Clay Nanocomposites* David Trudel-Boucher, Abdellah Ajji and Johanne Denault, Industrial Materials Institute
11:00–11:30	*Structure and Properties of Electrospun PHBV and PHBV/CNT Fibers* Kok Ho Kent Chan[1], Siew Yee Wong[2], Wuiwui Chauhari Tiju[2], Xu Li[2], Masaya Kotaki[1] and Chao Bin He[2], [1]Kyoto Institute of Technology, [1]Institute of Materials Research and Engineering	11:00–11:30	*A Micromechanical and Geometrical Model of Tensile–Deformation Behavior of Plain Weave Fabric in Principal Direction* Mehdi Kamali Dolatabadi and Radko Kovar, Technical University of Liberec
11:30–12:00	*Electrospinning: Where Do We Go From Here?* Debra Wilfong, Doug Crofoot, Dmitry Luzhansky and H. Young Chung, Donaldson Company, Inc.	11:30–12:00	*Phenomenological Multifilament Model of PET Melt Spinning* Chaosheng Wang, Ruihui Zhao and Huaping Wang (presented by Yiping Qiu), Donghua University

12:00	**Close of Conference**

Poster Presentations