

The Fiber Society Spring Conference 2007

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23-25 May 2007**

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Wednesday, May 23

- 7:00 Registration and Continental Breakfast
 8:00 Welcoming Remarks, Business and Announcements *Michael Ellison, Conference Chair*
You-Lo Hsieh, President, Fiber Society
 8:30 **Plenary Talk: Dr. Albert Abbott, Coker Chair in Genetics, Clemson University**
Genetic Engineering for Design of Advanced Protein-Based Fibrous Materials

Morning Session

	Session 1A. Biology and Materials Florence Teulé, Session Chair	Session 1B. Modeling of Fiber Structures Chris Cox, Session Chair
9:30	<i>Synthetic Silk Proteins: Let's Stick Together and Make a Fiber! 2</i> Florence Teulé, <u>Alyssa Cooper</u> and Randolph Lewis, University of Wyoming	<i>Modelling of Self-Contact Pressures in Multi-ply Yarns 18</i> <u>C. D. Tran</u> ¹ , D. G. Phillips ¹ and G. H. M. van der Heijden ² , ¹ CSIRO Textile and Fibre Technology, ² Centre for Nonlinear Dynamics
10:00	<i>Effect of pH on the Electrospin Behavior of Regenerated Silk Fibroin Aqueous Solution 4</i> <u>Xuechao Hu</u> , Jingxin Zhu and Huili Shao, Donghua University	<i>Alternate Twist Ply (ATP) Yarn Technology—Process Modeling and Optimization 20</i> <u>Donia Elkhamy</u> ¹ , Peter Popper ² and Frank Ko ³ , ¹ Drexel University, ² Peacock Sales, ³ University of British Columbia, Vancouver
10:30	Break	Break
11:00	<i>Design and Preparation of Artificial Lotus Leaves Using Textile Fabrics ... 6</i> <u>Hoon Joo Lee</u> and Stephen Michielsen, North Carolina State University	
11:30	<i>Towards Advanced Green Composites</i> <u>Anil Netravali</u> , Cornell University 8	<i>The Use of an Integral RBFN Method to Identify the Spinning Balloon Shape 22</i> <u>C. D. Tran</u> and D. G. Phillips, CSIRO Textile and Fibre Technology
12:00– 1:30	Lunch — on your own Mount Posters and Prepare Table Tops	

Afternoon Session

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1:30	<i>Engineering Electrospun PET Vascular Graft: Speeding Up the Transport Through the Channel Design 9</i> Saif G. Pathan ¹ , Phil Brown, Konstantin Kornev and Matthew Phaneuf, Clemson University	<i>An Integrated Model of the Electrospinning Process: A Comparison of Computational Results to Experimental Observations 24</i> Yuki Imura, Leslie LaNieve, George Collins, Sheldon Wand and Michael Jaffe, New Jersey Institute of Technology
2:00	<i>Availability of biotin incorporated in electrospun PLA fibers for streptavidin binding 10</i> Margaret Frey ¹ , Dapeng Li ² and Antje Baeumner ¹ , ¹ Cornell University, ² University of Massachusetts Dartmouth	<i>On the Pressure Drop Prediction of Filter Media Composed of Fibers Having a Bimodal Fiber Diameter Distribution 26</i> S. Jaganathan ¹ , H. V. Tafreshi and B. Pourdeyhimi, North Carolina State University
2:30	<i>Atmospheric Pressure Plasma-aided Antimicrobial Finishing of Cellulose and Wool 12</i> Carrie Cornelius, Marian McCord and Mohamed Bourham, North Carolina State University	<i>Simulation of Nanoparticle Filtration via Nanofiber Media at Reduced Operating Pressures 27</i> B. Maze, H. V. Tafreshi and B. Pourdeyhimi, North Carolina State University

3:00	<i>Break</i>	<i>Break</i>
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3:30	<i>Nanofiber Bound Proteins and Enzymes 14</i> You-Lo Hsieh, University of California Davis	<i>Pressure Drop Simulation of Multifilament Woven Fabrics 28</i> Q. Wang, B. Maze, H. V. Tafreshi and B. Pourdeyhimi, North Carolina State University
4:00	<i>R-TEX[®], A Fiber-Based Nonwoven Panel System for Customized, Quality-Controlled, Energy-Efficient Residential and Commercial Construction 16</i> Michael Ellison, Keith Green and Chris Cox, Clemson University	<i>Geometrical Modeling of Fibrous Materials Under Compression29</i> B. Maze, H. V. Tafreshi and B. Pourdeyhimi, North Carolina State University
4:30		<i>Modeling Filtration Properties of Staple Nonwoven Media 30</i> Q. Wang, B. Maze, H. V. Tafreshi and B. Pourdeyhimi, North Carolina State University

Evening Session

5:00– 7:00	Poster Presentations and Table Top Exhibits <i>Reception</i>
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Dinner on Your Own

Thursday, May 24

7:30 Registration and Continental Breakfast

Morning Session

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8:30	<i>Enhancement of Surface Filtration for Improving Performance of Industrial Bag Filters 32</i> <u>A. Mukhopadhyay</u> and R. A. Manavalan, India National Institute of Technology	<i>Morphological study of the cotton by specifying the breakage of a single fiber 55</i> Benzina Houda, <u>Harzallah Omar</u> and Jean Yves Drean, ENSISA
9:00	<i>Impact of Inclined Water Jets on Mechanical Performance of Pie Segmented Nonwoven Fabrics 34</i> <u>Mbwana Suleiman Ndaru</u> and Yu Chongwen, Donghua University	<i>On-line Study of Structure Development During High-speed Melt Spinning of Polypropylene by X-ray Diffraction and Raman Spectroscopy 60</i> <u>Haifeng Shan</u> , Gary Lickfield and Kate Stevens, Clemson University
9:30	<i>Multi-Component Flame Retardant Systems for Polypropylene Fiber Blends 36</i> <u>Gerald Keep</u> and William Haile, Missing Octave Insights, Inc.	<i>Engineering Cotton Fiber for Enhanced Breathability—A New Approach 61</i> P. Arvind ¹ , K. D. Hake ² , D. D. McAlister III ³ and S. S. Ramkumar ¹ , <u>Donald Theeuwes</u> ² , Texas Tech University, ² Delta and Pine Land Company, ³ Uster Technologies, Inc.
10:00	Break	Break
10:30	<i>Reinforcement Effects of PET Aramid and Novoloid Fibers on Exothermic Temperature Distribution of PMMA Cements 38</i> <u>Y. Ulcay</u> ¹ , I. Mutlay ¹ , S. Altun ¹ and R. Gemci ² , ¹ University of Uludag, ² Imam University	<i>Dry-Jet-Wet Spun Polyurethane/Clay Nanocomposite Filaments 63</i> <u>G. V. Raghunath Reddy</u> , B. L. Deopura and Mangala Joshi, Indian Institute of Technology
11:00	<i>Effect of chitosan treatment on the properties of turmeric dyed cotton yarns 42</i> T. Kavitha, R. Padmashwini, V. R. Giri Dev and <u>M. Madhusootheran</u> , Anna University	<i>Spinning Carbon Fiber Precursors From 1-Butyl-3-Methylimidazolium Chloride Cellulose Solutions 65</i> <u>R. J. Sammons</u> ¹ , J. R. Collier ² , S. Petrovan ¹ and B. J. Collier ² , ¹ University of Tennessee, ² Florida State University
11:30	Special Presentation <i>Managing Intellectual Property in a Competitive Marketplace N/A</i> Deborah Lickfield, Lickfield Consulting, LLC	
12:00–2:00	Lunch — on your own	

Afternoon Session

	Session 2A. Fibrous Assemblies I Ian Hardin, Session Chair	Session 2B. Fiber Sciences Anil Netravali, Session Chair
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2:30	<i>Does Sight Influence Fabric Tactile Evaluation 44</i> <u>Sourour Ben Said</u> , Laurence Schacher and Dominique Adolphe, Laboratoire de Physique et Mécanique Textiles	<i>Production and Comparison of Solution and Melt Electrospun Thermoplastic Polyurethane Nanofibers 68</i> M. Dasedmir ¹ , Gün Sazak Kozanoglu ² , M. Topalbekiroglu ¹ and <u>Ali Demir</u> ³ , ¹ Gaziantep University, ² TSE Quality Campus, ³ Istanbul Technical University
3:00	<i>Investigation of Textiles Behavior Under Pendulum Impact Loading 47</i> Loreta Valatkienė, <u>Eugenija Strazdienė</u> and Matas Gutauskas, Kaunas University of Technology	<i>Determination of Molecular Orientation in Electrospun Nonwoven Fibers by Infrared Dichroism 70</i> <u>Kevin M. Kit</u> , University of Tennessee
3:30	<i>Break</i>	<i>Break</i>
4:00	<i>pH Responsive Fibers Derived from Ionic Copolymers with Controlled Architecture 50</i> <u>Anasuya Sahoo</u> , Manjeet Jassal and Ashwini Agrawal, Indian Institute of Technology	<i>An Overview of Polydiacetylene Optical Strain Sensors 72</i> <u>Jennifer Kauffman</u> ¹ , Chris Pollock ¹ , Michael Ellison ¹ , William Pennington ¹ , Timothy Hanks ² , ¹ Clemson University, ² Furman University
4:30	<i>Novel Nanocomposite Antimicrobial Additives Enabling Straight-forward Functionality for Technical Textiles . 52</i> <u>Murray Height</u> , HeiQ Materials Ltd.	<i>Surface Functionaliation of Polymeric Substrates 73</i> <u>Igor Luzinov</u> , Viktor Klep, Bogdan Zdyrko, Ramaratnam Karthik and Olexandr Burtovyy, Clemson University

6:00–7:00

Reception

7:00–9:00

Banquet Speaker: Dr. Eugenija Strazdienė, Kaunas University of Technology
Lithuania: The Land, Her People, and Their Science

Friday, May 25

7:00 Registration and Continental Breakfast
 7:30–8:00 **Breakfast Speaker: Mr. Mark Kent, Kent Manufacturing**
Business Success and Survival Require Innovation

	Session 3A. Fibrous Assemblies II Janice Gerde, Session Chair	Session 3B. Polymer Science David Salem, Session Chair
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8:30	<i>Effect of Crystallization in Meltblowing Thermoplastic Elastomers 77</i> <u>Asli Begenir</u> , Stephen Michielsen and Behnam Pourdeyhimi, North Carolina State University	<i>Nonlinear Behavior and its Characterization Model for the Drastic Oxidative Thermal Degradation of Six Kinds of Nylon-6 Homologues Under Oxygen Atmosphere 85</i> <u>Masatomo Minagawa</u> ¹ , Takayuki Katoh ¹ and Yuko Nishimoto ² , ¹ Yamagata University, ² Kanagawa University
9:00	<i>Effect of Process Parameters & Layering on the Properties of Needle-punched Fabric Filters 78</i> <u>Vinay Midha</u> , National Institute of Technology (India)	<i>Functionalization of Crystal Colloidal Arrays Through Click Chemistry 86</i> Shane Hayes ¹ , David Evanhoff, Jr. ¹ , Yurong Ying ¹ , Goo Hwan Shim ¹ , Justin Lawrence ² , Joseph Carroll ¹ , <u>Ryan Roeder</u> ¹ , Michael Houchins ¹ and Stephen Foulger ¹ , ¹ Clemson University, ² University of Wales
9:30		<i>Conducting Polymer Colloids for Electrochromic Devices 88</i> <u>Goo Hwan Shim</u> and Stephen Foulger, Clemson University
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10:30	<i>Hydrodynamic Properties of Polyester Capillary-Channeled Polymer (C-CP) Films 81</i> <u>Amber Everett</u> , Kenneth Marcus, Phil Brown, Kenneth Christensen and Kostantin Kornev, Clemson University	<i>Surface Modification of Fibers and Nonwovens with Melt Additives 90</i> <u>Vasantha Datla</u> , Eunkyong Shim and Behnam Pourdeyhimi, North Carolina State University
11:00		<i>Eco-Friendly Pet Fibers Through P-N Synergism in Fireproofing and Non-toxic Polyester Using Natural Colorants in Dyeing</i> <u>H. T. Deo</u> , University of Mumbai 92
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TOUR of Clemson's School of Materials Science and Engineering, the Center for Advanced Engineering Fibers and Films (CAEFF), and the Advanced Materials Research Laboratory (AMRL). Vans will depart from the hotel at 1:00 PM.

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Effect of Nanoclay Reinforcement on Polymer Structure and Properties 98

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Chung-Hee Park, Presenter

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Sudhak Jaganathan, Presenter

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Alexandra Foguth, Presenter