

# **The Fiber Society Spring 2013 Technical Conference**

**Greelong, Australia  
22 - 24 May 2013**

**ISBN: 978-1-63266-646-8**

**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.**

Copyright© (2013) by The Fiber Society  
All rights reserved.

Printed by Curran Associates, Inc. (2014)

For permission requests, please contact The Fiber Society  
at the address below.

The Fiber Society  
North Carolina State University  
College of Textiles  
PO Box 8301  
Raleigh, NC, 27695-8301  
USA

Phone: (919) 513-0143  
Fax: (919) 515-3057

[admin@thefibersociety.org](mailto:admin@thefibersociety.org)

**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](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

## Wednesday, May 22

8:00 Registration; Coffee and Tea Service

9:00 Welcoming Remarks, Business, and Announcements

*Xungai Wang, Conference Chair*

*Rudolf Hufenus, President, Fiber Society*

*Professor Lee Astheimer, DVC(R), Deakin University*

### Morning Session

9:20– 10:00	<b>Keynote Speaker: Professor Gordon Wallace, University of Wollongong</b> <b><i>Highly Functional Fibres for Bionics</i></b> <b>(Room 1)</b>	
	<b>Room 1</b>	<b>Room 2</b>
	<b>Session: Functional Fibrous Materials</b> <b><i>Laurence Schacher, Chair</i></b>	<b>Session: High-Performance Fibres and Composites</b> <b><i>Greg Rutledge, Chair</i></b>
10:00	<i>Self-Healing Superamphiphobic Fabrics with Directional Fluid-Transport</i> <sup>5</sup> <i>Function</i> <u>Tong Lin</u> , Hua Zhou, and Hongxia Wang, Deakin University	<i>Biodegradable Fibers from Renewable Sources: Melt Spinning of Polyhydroxyalkanoates (PHAs)</i> <sup>75</sup> <u>Rudolf Hufenus</u> <sup>1</sup> , Felix A. Reifler <sup>1</sup> , Katharina Maniura-Weber <sup>1</sup> , Manfred Zinn <sup>2</sup> , Adriaan Spierings <sup>3</sup> , and Urs J. Hänggi <sup>4</sup> , <sup>1</sup> Empa, <sup>2</sup> University of Applied Sciences Western Switzerland, <sup>3</sup> irpd, institute for rapid product development, <sup>4</sup> Biomer
10:20	<i>Instrumented Manikin Evaluation System for Optimizing Protective Clothing Performance</i> <sup>7</sup> <u>Guowen Song</u> <sup>1,2</sup> , Mei Zhang <sup>2</sup> , Yehu Lu <sup>3</sup> , and Chunyan Wu <sup>2</sup> , <sup>1</sup> University of Alberta, <sup>2</sup> Jilin University, <sup>3</sup> Donghua University	<i>Structure/Properties Relationship in a Single Para-Aramid Fibre</i> <sup>77</sup> <u>Judith Wollbrett-Blitz</u> <sup>1,2</sup> , Alba Marcellan <sup>1</sup> , Sébastien Joannès <sup>2</sup> , and Anthony Bunsell <sup>2</sup> , <sup>1</sup> PPMD, ESPCI, UPMC, <sup>2</sup> Centre des Matériaux P-M Fourt, ENSMP
10:40	<b>Break</b>	
11:00	<i>Functional Fabric Design for Improvement of Garment Ventilation</i> <sup>9</sup> <u>Chao Sun</u> <sup>1</sup> , Joe Sau-chuen Au <sup>1</sup> , Jintu Fan <sup>1,2</sup> , and Rong Zheng <sup>3</sup> , <sup>1</sup> Hong Kong Polytechnic University, <sup>2</sup> Cornell University, <sup>3</sup> Beijing Institute of Fashion Technology	<i>Toward the Development of a High Strain Rate Testing Standard for Advanced Fibers</i> <sup>79</sup> <u>Gale A. Holmes</u> , Jae-Hyun Kim, N. Alan Heckert, Walter G. McDonough, Stefan D. Leigh, and Kirk D. Rice, National Institute of Standards and Technology
11:20	<i>Biomechanically Compliant Polymeric Structures for Cardiovascular Implant Applications</i> <sup>8</sup> <u>Charanpreet Singh</u> <sup>1</sup> , Yosry Morsi <sup>2</sup> , and Xungai Wang <sup>1</sup> , <sup>1</sup> Deakin University, <sup>2</sup> Swinburne University of Technology	<i>Surface and Bulk Crystallinity of Polypropylene Filaments</i> <sup>7</sup> <u>Ali Kilic</u> <sup>1</sup> , Eunkyong Shim <sup>2</sup> , and Behnam Pourdeyhimi <sup>2</sup> , <sup>1</sup> Istanbul Technical University, <sup>2</sup> North Carolina State University
11:40	<i>Thermal Insulation Properties of Silkworm Cocoons</i> <sup>33</sup> <u>Jin Zhang</u> <sup>1</sup> , Rangam Rajkhowa <sup>2</sup> , Jingliang Li <sup>1</sup> , Ziangyang Liu <sup>2</sup> , Xungai Wang <sup>1,3</sup> , <sup>1</sup> Deakin University, <sup>2</sup> National University of Singapore, <sup>3</sup> Wuhan Textile University	<i>Effect of Electrolytic Oxidation and Sizing on the Mechanical Performance of Carbon Fibre Composites</i> <sup>83</sup> <u>Claudia Creighton</u> , Abdullah Kafi, and Bronwyn Fox, Deakin University

12:00	<i>The Mechanism of Needle Penetration Through a Woven Aramid Fabric</i> ""35 <u>Christopher Hurren</u> , Qing Li, Alessandra Sutti, and Xungai Wang, Deakin University	<i>Multifunctional Carbon Nanotube Yarns — Production, Properties, and Applications</i> ""85 <u>Menghe Miao</u> , CSIRO Materials Science and Engineering Division
12:20	<i>Vibration Isolation Properties of Weft-Knitted Spacer Fabrics</i> ""37 <u>Hong Hu</u> , Fuxing Chen, and Lai Xu, Hong Kong Polytechnic University	<i>Transverse Modulus of Carbon Fibres</i> ""87 <u>Linda Hillbrick</u> , Jamieson Kaiser, Mickey Huson, and Geoff Naylor, CSIRO Materials Science and Engineering
12:40	<b>Lunch at Mercure Hotel</b>	

### *Afternoon Session*

2:00–2:40	<b>Keynote Speaker: Professor Lei Jiang, Chinese Academy of Sciences</b> <i>Bioinspired, Smart, Multiscale Interfacial Materials</i> (Room 1, via Skype)	
	<b>Room 1</b>	<b>Room 2</b>
	<b>Session: Functional Fibrous Materials cont'd</b> <i>Stephen Michielsen, Chair</i>	<b>Session: Natural Fibres</b> <i>Janice R. Gerde, Chair</i>
2:40	<i>Detecting Free Radicals in Fibrous Materials Exposed to Light</i> ""39 <u>Keith R Millington</u> <sup>1</sup> and Siti Farhana Zakaria <sup>2</sup> , <sup>1</sup> CSIRO Materials Science and Engineering, <sup>2</sup> Universiti Teknologi MARA	<i>Biomimetic Melanin Dyestuffs for Wool Fabric In Situ Coloration</i> ""; 5 <u>John H. Xin</u> , Vicky L. L. So, and Liang He, Hong Kong Polytechnic University
3:00	<i>A Novel Conducting Polymer-Carbon Nanotube Composite Yarn</i> ""3; <u>J. Foroughi</u> <sup>1</sup> , G. M. Spinks <sup>1</sup> , G. G. Wallace <sup>1</sup> , and R. H. Baughman <sup>2</sup> , <sup>1</sup> University of Wollongong, <sup>2</sup> University of Texas at Dallas	<i>Mohair Fibre Quality and Production as Related to Animal Size</i> ""; 7 <u>Bruce A. McGregor</u> <sup>1</sup> and Kym Butler <sup>2</sup> , <sup>1</sup> Deakin University, <sup>2</sup> Department of Primary Industries
3:20	<i>Photoreduction of Graphene / Photocatalyst Nanostructured Fabric for Recycled Pollutant Removal</i> ""43 <u>Jinfeng Wang</u> <sup>1</sup> , Takuya Tsuzuki <sup>1,3</sup> , Lu Sun <sup>1</sup> , and Xungai Wang <sup>1,2</sup> , <sup>1</sup> Deakin University, <sup>2</sup> Wuhan Textile University, <sup>3</sup> Australian National University	<i>Chemical Treatments on Hemp Fibre Composites</i> ""; 9 <u>Hao Wang</u> <sup>1</sup> , Mazed Kabir <sup>1</sup> , and K. T. Lau <sup>2</sup> , <sup>1</sup> University of Southern Queensland, <sup>2</sup> Hong Kong Polytechnic University
3:40	<b>Break</b>	
4:00	<i>Effect of Softener on Flame Retardant Finish of Cotton Fabrics</i> ""45 <u>K. P. Tang</u> <sup>1</sup> , C. W. Kan <sup>1</sup> , J. T. Fan <sup>1,2</sup> , S. L. Tso <sup>1</sup> , <sup>1</sup> Hong Kong Polytechnic University, <sup>2</sup> Cornell University	<i>Water and Soil Resistant Bamboo Fabric by Sol-Gel Nano-Coating</i> ""; ; <u>Awais Khatri</u> , Zahir Ahmed, Saiqa Agha, Saqib Munawar, Shahwaiz Khanzada, and Saif-ur-Rehman, Mehran University of Engineering and Technology
4:20	<i>Robust, Electro-Conductive, Self-Healable, Superamphiphobic Fabrics from PEDOT/FD-POSS/FAS Coating</i> ""47 <u>Hongxia Wang</u> , Hua Zhou, and Tong Lin, Deakin University	<i>Silk Cocoon Structure and Its Protective Roles</i> ""323 <u>Jasjeet Kaur</u> <sup>1</sup> , Rangam Rajkhowa <sup>1</sup> , Takuya Tsuzuki <sup>1</sup> , Keith Millington <sup>2</sup> , and Xungai Wang <sup>1</sup> , <sup>1</sup> Deakin University, <sup>2</sup> CSIRO Materials Science and Engineering

4:40	<i>In Situ Electrochemical Polymerization of Pyrrole onto Textiles: Influence of Add-On and Surface Roughness</i> ""49 <u>Kushal Sen</u> , Dipayan Das, and Syamal Maiti, Indian Institute of Technology	<i>Wrinkle Resistant Finishing of Cotton Fabric Using HDAS on the Crosslinking Agent</i> ""325 <u>Jianwei Xing</u> , Chengshu Xu, Yan Ren, Wenzhao Shi, and Jinshu Liu, Xi'an Polytechnic University
5:00	<i>Design of Smart Functional Apparel Products for Moxa Moxibustion</i> ""& <u>Li Li</u> , Wai-man Au, Feng Ding, and Kwok-shing Wong, Hong Kong Polytechnic University	<i>Cottonscope Determination of Cotton Fiber Maturity and Fineness Using Small Samples</i> ""327 <u>G. R. S. Naylor</u> <sup>1</sup> and J.E. Rodgers <sup>2</sup> , <sup>1</sup> CSIRO Materials Science and Engineering, <sup>2</sup> USDA-ARS-Southern Regional Research Center
5:20	<i>Dynamic Plantar Pressure Monitoring of Diabetic Patients Using Intelligent Footwear System Based on Fabric Sensor During Daily Activities</i> ""53 <u>Kaiyang Mai</u> <sup>1</sup> , Lin Shu <sup>1</sup> , Xiaoming Tao <sup>1</sup> , Wingcheung Wong <sup>2</sup> , Kafai Lee <sup>2</sup> , Siuleung Yip <sup>2</sup> , Anthony Waihung Shum <sup>2</sup> , Wailam Chan <sup>2</sup> , Chipang Yuen <sup>2</sup> , Ying Li <sup>1</sup> , <sup>1</sup> Hong Kong Polytechnic University, <sup>2</sup> Kwong Wah Hospital	<i>Ionic Liquids: Solvents for Protein Polymer Processing</i> ""329 <u>Nolene Byrne</u> and Xungai Wang, Deakin University
5:40	<i>Wearable Sensors for the Prophylaxis of Lower Limb Pathologies</i> ""55 <u>M. J. Abreu</u> <sup>1</sup> , A. Catarino <sup>1</sup> , A. M. Rocha <sup>1</sup> , F. Derogarian <sup>2,3</sup> , R. Dias <sup>2</sup> , J. M. da Silva <sup>2,3</sup> , J. C. Ferreira <sup>2,3</sup> , V. G. Tavares <sup>2,3</sup> , and M. V. Correia <sup>2,3</sup> , <sup>1</sup> Universidade do Minho, <sup>2</sup> Inesc Tec, <sup>3</sup> Universidade do Porto	<i>Eri Silk: Cocoon, Fibre, and Proteins</i> ""32; <u>Rangam Rajkhowa</u> <sup>1</sup> , Ravindeer Rawat <sup>2</sup> , Suradip Das <sup>2</sup> , Jasjeet Kaur <sup>1</sup> , Ben J. Allardyce <sup>1</sup> , Utpal Bora <sup>2</sup> , and Xungai Wang <sup>1</sup> , <sup>1</sup> Deakin University, <sup>2</sup> Indian Institute of Technology

**6:30 p.m. Dinner at Wharf Shed Café (walking distance; shuttles available)**

## Thursday, May 23

8:00 Coffee and Tea Service

### Morning Session

9:00–9:40	<b>Keynote Speaker: Dr. Gregory Rutledge, MIT</b> <i>Applications of Electrospun Nonwoven Fiber Membranes for Sensing and Separations</i> (Room 1)	
	<b>Room 1</b>	<b>Room 2</b>
	<b>Session: Nanofibres</b> <b>Tong Lin, Chair</b>	<b>Session: Functional Fibrous Materials</b> <b>John Xin and Rangam Rajkhowa, Chairs</b>
9:40	<i>Super-Crystalline Cellulose Nanofibers by Self-Assembling</i> ""34; <u>You-Lo Hsieh</u> , University of California at Davis	<i>Characterization of Thermal Comfort of Weft-Knit Ballistic Nylon/Wool Fabric</i> ""57 <u>Rana Mahbub</u> , Lyndon Arnold, and Lijing Wang, RMIT University
10:00	<i>Mechanical-to-Electrical Energy Conversion of Needleless Electrospun Poly(vinylidene fluoride) Nanofiber Webs</i> ""353 <u>Jian Fang</u> , Haitao Niu, Hongxia Wang, Xungai Wang, and Tong Lin, Deakin University	<i>Optimization of Fibre Composition in Nonwoven Air Filter Media</i> ""59 <u>R. Chattopadhyay</u> , Dipayan Das, and Arun Kumar Pradhan, Indian Institute of Technology

10:20	<i>Electrospun Nanofiber Mats with Controlled Microstructures for Nanoparticle Filtration</i> ""355 <u>Negar Ghochaghi</u> , Adetoun Tawio, and Gary Tepper, Virginia Commonwealth University	<i>Graft Co-Polymerization of Acrylic Acid on Nylon 6 Knitted Fabric Using Redox Systems</i> ""5; <u>Farzad Mohaddes</u> , Stanley Fergusson, and Lijing Wang, RMIT
10:40	<b>Break</b>	
11:00	<i>Induced Negative Viscosity as a Degree of Freedom in the Electrospinning of Polymeric Solutions</i> ""357 <u>Juan P. Hinestroza</u> , Lina M. Sanchez-Botero, and Alejandro Garcia, Cornell University	<i>Multifunctional Cotton Fabric Using TiO<sub>2</sub>/SiO<sub>2</sub> Nanocomposite</i> ""63 <u>Esfandiar Pakdel</u> <sup>1</sup> , Walid A. Daoud <sup>2</sup> , and Xungai Wang <sup>1</sup> , <sup>1</sup> Deakin University, <sup>2</sup> City University of Hong Kong
11:20	<i>Characterization of Electrospun Mat Composed of Polymer and Mesoporous Silica Nanoparticles</i> ""359 <u>Laurence Schacher</u> <sup>1</sup> , Slimane Almuhammed <sup>1</sup> , Nabyl Khenoussi <sup>1</sup> , Magali Bonne <sup>2</sup> , Bénédicte Lebeau <sup>2</sup> , Dominique C. Adolphe <sup>1</sup> , and Jocelyne Brendle <sup>2</sup> , <sup>1</sup> ENSISA, <sup>2</sup> Institut de Science des Matériaux de Mulhouse	<i>Measurement and Evaluation of Magnetic Fabric</i> ""65 <u>Yan Chen</u> , Gao Jie Yu, and Fei Fei Wu, Soochow University
11:40	<i>Encapsulation of Active Agents in Electrospun Nanofibers/Nanowebs</i> ""35; <u>Tamer Uyar</u> , Fatma Kayaci, Zeynep Aytac, and Asli Celebioglu, Bilkent University	<i>A Novel Super Absorbent Polyester Fabric Functionalized by a Biodegradable Poly (γ-glutamic acid) Hydrogel</i> ""67 <u>Zheng Li</u> , JianFei Zhang, JianJun Yan, JiXian Gong, and JingXin Wang, Tianjin Polytechnic University
12:00	<i>ZnO Nanorod-Based Solar Textiles for Smart Clothing</i> ""363 <u>Youngjin Chae</u> and Eunae Kim, Yonsei University	<i>Enhancing Thermal Conductivity of Cotton Fabrics with Nanocomposite Coatings</i> ""69 <u>Yan Zhao</u> , Amir Abbas, Xungai Wang, and Tong Lin, Deakin University
12:20	<i>Nanocrystal TiO<sub>2</sub> as Scattering Layer for Dye-Sensitized Solar Cells</i> ""365 <u>Xueyang Liu</u> <sup>1</sup> , Jian Fang <sup>1</sup> , Mei Gao <sup>2</sup> , and Tong Lin <sup>1</sup> , <sup>1</sup> Deakin University, <sup>2</sup> CSIRO	<i>Study on Parameters Affecting the Performance of Piezo-Resistive Conductive Fabric</i> ""6; <u>Weijing Yi</u> <sup>1,2</sup> , Xiaoming Tao <sup>2</sup> , Yangyon Wang <sup>3</sup> , Guangfeng Wang <sup>3</sup> , and Rong Zheng <sup>1</sup> , <sup>1</sup> Beijing Institute of Fashion Technology, <sup>2</sup> Hong Kong Polytechnic University, <sup>3</sup> AdvanPro Limited
12:40	<b>Lunch at Mercure Hotel</b>	

### *Afternoon Session*

2:00– 2:40	<b>Keynote Speaker: Professor Zhengzhong Shao, Fudan University</b> <i>Structure and Property Relationships of Animal Silks</i> <b>(Room 1)</b>	
	<b>Room 1</b>	<b>Room 2</b>
	<b>Session: Natural Fibres cont'd</b> <i>Cheryl Gomes, Chair</i>	<b>Session: High-Performance Fibres and Composites</b> <i>Bronwyn Fox, Chair</i>

2:40	<p><i>An Assessment of Alternative Cotton Fiber Quality Attributes and Their Influence on Yarn Strength</i>""333  <u>Robert L. Long</u><sup>1</sup>, Michael P. Bange<sup>2</sup>, Christopher D. Delhom<sup>3</sup>, Jeffrey S. Church<sup>1</sup>, and Greg A. Constable<sup>2</sup>,  <sup>1</sup>CSIRO Materials Science and Engineering, <sup>2</sup>CSIRO Plant Industry, <sup>3</sup>USDA-ARS Southern Regional Research Center</p>	<p><i>Water Effects on Natural Fibers and Its Implications to Shape Memory Polymer Composite Fiber</i>""89  <u>Jinlian Hu</u>, Jing Lu, and Jianping Han, Hong Kong Polytechnic University</p>
3:00	<p><i>Photostability of Chemically Modified Silk</i>""334  <u>Weiguo Chen</u><sup>1,3</sup>, Zongqian Wang<sup>1</sup>, Donghui Pan<sup>1</sup>, Zhihua Cui<sup>1</sup>, Keith Millington<sup>2</sup>, and Xungai Wang<sup>3</sup>,  <sup>1</sup>Zhejiang Sci-Tech University, <sup>2</sup>CSIRO Materials Science and Engineering, <sup>3</sup>Deakin University</p>	Open
3:20	Open	<p><i>Deformation of Dispersed Phase During PS/PP Melt Spinning</i>""8;  <u>Long Chen</u>, Houkang He, Shanshan Sun, Yu Zhang, and Zongyi Qin, Donghua University</p>
3:40	<b>Break</b>	
4:00	<p><i>Assessing Yarns to Predict the Comfort Properties of Fabrics</i>""336  <u>Maryam Naebe</u><sup>1</sup>, Bruce A. McGregor<sup>1</sup>, David Tester<sup>2</sup>, and Xungai Wang<sup>1</sup>,  <sup>1</sup>Deakin University, <sup>2</sup>CRC for Sheep Industry Innovation Ltd.</p>	<p><i>Characterisation of Composite Honeycomb Sandwich Structures Cured Using the Quickstep Process</i>""93  <u>M. Jennings</u><sup>1</sup>, M. de Souza<sup>1</sup>, C. Creighton<sup>1</sup>, S. Agius<sup>1</sup>, T. Pierlot<sup>2</sup>, and B. Fox<sup>1</sup>, <sup>1</sup>Deakin University, <sup>2</sup>CSIRO Materials Science and Engineering</p>
4:20	<p><i>Sock Fabrics: Measuring the Coefficient of Static and Dynamic Friction to Prevent Blisters</i>""338  <u>Rebecca Van Amber</u>, Raechel Laing, Cheryl Wilson, Bronwyn Lowe, and Brian Niven, University of Otago</p>	<p><i>Interfacial Improvement of Carbon Fiber/Epoxy Composites by Using Electro Spray Carbon Nanotube Deposition</i>""95  <u>Quanxiang Li</u><sup>1</sup>, Jeffrey Church<sup>2</sup>, Abdullah Kafi<sup>1</sup>, Mino Naebe<sup>1</sup>, and Bronwyn Fox<sup>1</sup>,  <sup>1</sup>Deakin University, <sup>2</sup>CSIRO Materials Science and Engineering</p>
4:40	<p><i>Comparative Study of Wool, Cotton, and Ramie Bundle Fibers' Dynamic Mechanical Properties</i>""33:  <u>Zhigang Xia</u>, Weilu Xu, Weigang Cui, JingJing Huang, Wuhan Textile University</p>	<p><i>Force Shield Textile Composite with Microcapsule System</i>""97  <u>Xing Liu</u><sup>1,2</sup>, Rui Wang<sup>1,2</sup>, Fangli Pang<sup>1,2</sup>, Mengxuan Li<sup>1,2</sup>, Jiao Huang<sup>1,2</sup>, and Zhili Zhong<sup>1,2</sup>, <sup>1</sup>Tianjin Polytechnic University, <sup>2</sup>Key Laboratory of Advanced Textile Composite Materials</p>
5:00	<p><i>The Weft-Knitted Plant-Structured Fabric for Polo Shirt</i>""342  <u>Qing Chen</u><sup>1</sup> and Jintu Fan<sup>2</sup>, <sup>1</sup>Hong Kong Polytechnic University, <sup>2</sup>Cornell University</p>	<p><i>Study on Preparation and Properties of Modified Polypropylene Fibers Used in Engineering</i>""98  <u>Yiren Chen</u><sup>1</sup>, Li He<sup>1</sup>, and Zhiqiang Fan<sup>2</sup>,  <sup>1</sup>Wuhan Textile University, <sup>2</sup>Changjiang Water Resources Commission</p>

5:20	<i>Silk Films as Promising Materials for the Repair of Chronic Perforations of the Tympanic Membrane</i> '''344 <u>Ben Allardyce</u> <sup>1</sup> , Bing Mei Teh <sup>2,3</sup> , Rangam Rajkhowa <sup>1</sup> , Robert Marano <sup>2,3</sup> , Sharon Redmond <sup>2,3</sup> , Yi Shen <sup>2,3,4</sup> , Marcus Atlas <sup>2,3</sup> , Rodney Dilley <sup>2,3</sup> , and Xungai Wang <sup>1</sup> , <sup>1</sup> Deakin University; <sup>2</sup> Ear Science Institute Australia, <sup>3</sup> University of Western Australia, <sup>4</sup> Ningbo Medical Centre	<i>Methacrylate/Hydroxyethyl Methacrylate Fiber for Organic Compounds Absorbents</i> '''9: <u>Yan Feng</u> <sup>1,2</sup> , Xiuyang Hao <sup>1</sup> , and Jian Chen <sup>1</sup> , <sup>1</sup> Tianjin Polytechnic University, <sup>2</sup> Key Laboratory of Advanced Textile Composite Materials of Ministry of Education
5:40	<i>Enhanced Moisture Management Properties of Denim Fabrics</i> '''346 <u>Sung Hoon Jeong</u> <sup>1</sup> , Muhammad Bilal Qadir <sup>1</sup> , Uzair Hussain <sup>2</sup> , <sup>1</sup> Hanyang University, <sup>2</sup> National Textile University	<i>Characterization and Preparation of Polyamide 66/OV-POSS Nanocomposite Fibre</i> '''2 <u>Yimin Wang</u> , Lin Xiaoxia, Shao Qun, and Kiptanui Koech Jacob, Donghua University

**6:00 p.m. Reception at Mercure**

**7:00 p.m. Banquet**

**David Tournier, Wathaurong Aboriginal Co-operative, Plants for Weaving**  
**Norm Stanley, Wathaurong Aboriginal Co-operative, Didgeridoo Player**

## Friday, May 24

9:00 Coffee and Tea Service

10:00–10:40	<b>Keynote Speaker: Associate Prof. Bronwyn Fox, Deakin University</b> <b>Developments in Carbon Fibre Research in Australia (Room 1)</b>
-------------	--

	Room 1	Room 2
	<b>Session: High-Performance Fibres and Composites</b> <i>Stuart Lucas, Chair</i>	<b>Session: Nanofibres</b> <i>Rudolf Hufenus, Chair</i>
10:40	<i>Graphene Fibers: A Promising Multifunctional Material</i> '''4 <u>Chao Gao</u> , Zhen Xu, and Xiaozhen Hu, Zhejiang University	<i>Process Control of High-Throughput Core-Sheath Electrospinning from a Slit Surface</i> '''367 <u>Toby Freyman</u> , Xuri Yan, Quynh Pham, John Marini, and Robert Mulligan, Arsenal Medical, Inc.
11:00	<i>Structure and Property Change of Pre-Drawn Aromatic Copolysulfonamide Fiber During Heat-Drawing Process</i> '''6 <u>Yumei Zhang</u> <sup>1</sup> , Jinchao Yu <sup>1</sup> , Rui Wang <sup>1</sup> , Shenghui Chen <sup>2</sup> , Xiaofeng Wang <sup>2</sup> , and Huaping Wang <sup>1</sup> , <sup>1</sup> Donghua University, <sup>2</sup> Shanghai Tanlon Fiber Co.	<i>Structure and Properties of Melt Blown Submicron Fiber Nonwoven</i> '''369 <u>Gajanan Bhat</u> <sup>1</sup> and Wanli Han <sup>2</sup> , <sup>1</sup> University of Tennessee at Knoxville, <sup>2</sup> Donghua University
11:20	<i>Thermal Properties of Poly(ethylene terephthalate) / Nanoclay Nanocomposites Fibers</i> '''8 <u>Yusuf Ulcay</u> and Rustam, Uludağ University	<i>Electrospun Nanofibers for Blood Vessel Tissue Engineering</i> '''36; <u>Xiumei Mo</u> , Anlin Yin, and Chen Huang, Donghua University



11:40	<i>Molecular Orientation Development in Highly Uni- and Bi-axially Stretched ePTFE Filaments</i> : Kyung-Ju Choi, Clean & Science Co.	<i>Discretized Modeling of Whipping Motion During Electrospinning Process</i> '''373 Yong Lak Joo and An-Cheng Ruo, Cornell University
12:00–2:00	<b>Excursion to Deakin University, Waurn Ponds Campus, for Lunch, Poster Setup, and Lab Tour</b>	
2:00–4:00	<b>Poster Presentations Tour (in separate groups) of Australian Future Fibres Research &amp; Innovation Centre (AFFRIC), Institute for Frontier Materials (IFM), Deakin University</b>	
4:00–4:30	<b>Poster Awards Close of Conference</b>	

\*\*\*\*\*

## Poster Presentations

### Session Chair: You-Lo Hsieh

- Guoqiang Chen      *Performance of Flame Retardancy Silk Modified with Water Soluble Vinyl Phosphoamide*'''377
- Ai Xin      *The Preparation of Semi-Aromatic Polyamide Fibers*'''379
- Linden Servinis      *Functionalisation of Carbon Fiber Toward Enhanced Fiber-Matrix Adhesion*'''37;
- Pengfei Li      *Defect Detection Method on Printed Fabrics*'''383
- Na Han      *Effects of Feeding Modes on the Melt Processability of Acrylonitrile-Methyl Acrylate Copolymers and Fibers*'''385
- Xiangrong Wang      *Dyeing and UV Protection Properties of Chrysophanol on Polylactic Acid Fiber*'''387
- Youngjoo Chae      *Verification of Color Prediction Models for Yarn-Dyed Woven Fabrics*'''389
- Lin Xiaoxia      *Rheological of OV-POSS / PA66 Nanocomposites*'''38;
- Chuanxiang Qin      *Preparation and Photoluminescence of LaBO<sub>3</sub>: Eu<sup>3+</sup> Nanofibres*'''393
- Baijun Xi      *The Study of Compatible Performance Between  $\beta$ -Cyclodextrin / Lavender Spices and regenerated Cellulose*'''395
- Wenbin Li      *Preparation and Mechanical Properties of Thermoplastic Films from Superfine Down Powder*'''397
- Xin Liu      *Mechanical Properties of Polypropylene Composites Reinforced with Down Feather Whisker*'''399
- Haihua Zhan      *Study of a New Type of Hot-Melting Polyester Sea-Island*'''39;
- Yunli Wang      *Research on Mechanical Properties of 100% Cotton Anti-Creasing Yarns*'''3: 3
- Bin Tang      *Coloration of Silk Fibers with Gold Nanoparticles*'''3: 5
- Xiangling Chen      *Hydrophilicity of the Hydrophilic Copolyester*'''3: 7
- Huaping Wang      *Understanding the Interactions in Acrylic Copolymer / 1-Butyl-3-Methylimidazolium Chloride from Solution Rheology*'''3: 9

Yusuf Ulcay	<i>Reducing Noise Level in Vehicles by Spunbonded Nonwovens Made from Bicomponent Filaments</i> '''3; ;
Sung Hoon Jeong	<i>Optimizing Spindle Speed of Ring Spun Yarn</i> '''3; 3
Maria José Abreu	<i>Thermal Properties of Mattress Protectors for the Prevention of Pressure Ulcers</i> '''3; 5
Yao Yu	<i>Factors Affecting UV Protection of Textiles at the Fiber Level</i> '''3; 7
Mingwen Zhang	<i>Preparation of SiO<sub>2</sub>/ TiO<sub>2</sub> with Eliminated Photocatalytic Activity</i> '''3; 9
Xuming Li	<i>Influence of He / O<sub>2</sub> Atmospheric Pressure Plasma Jet Treatment on Desizing of Starch Phosphate and Poly(vinyl alcohol)</i> '''3; ;
Eunae Kim	<i>Heat and Moisture Transfer Through Hydrophilic and Hydrophobic Multilayered Fabric System</i> '''423
Yumin Xia	<i>Intuitional and Quantitative Evaluation Technique of Polyvinyl Alcohol(PVA) Fiber Dispersion in Concrete via X-ray Imaging</i> '''425
Yurong Yan	<i>Emulsion Electrospinning of Sodium Alginate and Polylactic Acid Fiber with Skin-Core Structure</i> '''427
John Xin	<i>Smart Fibrous Materials for Water Harvesting</i> '''429
Li-Chu Wang	<i>Evaluation of Two Cooling Systems Under a Fire Fighter Coverall</i> '''42;
Jianwu Li	<i>Preparation of a Novel Hydrophilic Copolyester</i> '''433
Daniela Agnello	<i>Ambulatory Monitoring of ECG Signals Using Textile Electrodes</i> '''435
Chaosheng Wang	<i>Non-Isothermal Crystallization Kinetic of Bio-Based Polyester</i> '''437
Kiran Patil	<i>Biosorption of Phenol by Cashmere Guard Hair Powder</i> '''439
Rasike De Silva	<i>Tri-Component Bio-Composite Materials from 'Green Processing'</i> '''43;
Ken Ri Kim	<i>Creative Shading Effect in Digital Jacquard Textiles</i> '''443
Genyang Cao	<i>Structure and Composition Research of Lotus Petiole Fiber and Ramie Fiber</i> '''445
Hu Zhang	<i>A Comparative Study on UV-Absorbing Titanium Dioxide Sol Gel Treatments for Wool</i> '''447
Shangmei Wu	<i>Study on the Clothing Pressure of Elastic Weft Knitted Fabrics</i> '''448
Zhiqiang Chen	<i>Coating of Carbon Fibres Using a Novel Three-Step Plasma Treatment</i> '''44:
Hongjie Zhang	<i>The Feasibility Study on the Grill Application of Basalt Continuous Filament</i> '''452
Abdullah Kafi	<i>A Multiscale Approach to Quantify Friction Properties of Carbon Fibres</i> '''454
Jixian Gong	<i>Evolutionary Engineering of Bacillus Strain for Biofunctionalization of PET Fabric</i> '''456
Muhammad Shuakat	<i>Electrospinning of Nanofibre Yarns Using a Novel Ring Collector</i> '''457
Jing Wang	<i>Thermo-Responsive PNIPAM Hydrogel Nanofibres Photocrosslinked by Azido-POSS</i> '''459
Wai Ting Lo	<i>The Effect of Composites Thickness on the Performance of Footwear Insole Used for Diabetic Patients</i> '''45;
Simon Moulton	<i>Multifunctional Conducting Polymer Fibres for Drug Delivery Applications</i> '''463

- Rhys Cornock *Precision Wet-Spinning of Cell-Impregnated Alginate Fibres for Tissue Engineering*""465
- Rouhollah Jalili *Wet-Spinning of Multifunctional Graphene Fibers Using Graphene Oxide Liquid Crystals*""467
- Dorna Esrafilzadeh *Combined Wet-Spinning and Electrospinning: Novel and Facile Method to Fabricate Micro-Nano Scale Conducting Fibres*""469
- Anita Quigley *Living Fibres: 3D Hydrogel Fibres for Tissue Engineering*""46;
- Mehdi Kazemimostaghim *Production of Silk Nanoparticles*""473

### Keynote Speakers

*Applications of Electrospun Nonwoven Fiber Membranes for Sensing and Separations* 255  
Gregory C. Rutledge

*Highly Functional Fibres for Bionics* 256  
Gordon G. Wallace