The Fiber Society 2023 Fall Meeting and Technical Conference

Sustainability, Scalability, and Society: Advanced Fibers and Textiles

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Wednesday, October 25

7:00 Registration, Behrakis Hall Center
7:00 Continental Breakfast, Behrakis Hall Center

8:00 Welcoming Remarks and Announcements (Behrakis North) *Paul Jensen, Nina Henderson Provost*
Sharon Walker, Dean, College of Engineering
Caroline Schauer, President, The Fiber Society and Conference Chair

8:15 **Plenary Lecture:** Jessica Schiffman, University of Massachusetts Amherst
Polyelectrolyte–containing Nanofibers and Membranes

9:15 **Break: Behrakis Center**

Morning Sessions

	Behrakis North	**Behrakis South**
	Session: Fiber Manufacturing ***Chair: Takeshi Kikutani***	**Session: Sustainable Polymer Materials** ***Chair: Floriane Leclinche***
9:30	*Assessing the Wettability of Individual Basalt Fibers and the Effects of the Desizing Method on Their Properties* 2 Susana Garcia-Mayo, KU Leuven	*Crosslinked Poly(vinyl alcohol) and Polygalacturonic Acid Nanofibers* 17 Angeles Farrán-Morales, Drexel University
9:45	*Fabrication of Partially Wrinkled Helical Fibers Using Side–by–Side Electrospinning* 3 Ninad Khadse, University of Massachusetts Lowell	*Open*
10:00	*Bio-inspired and Conductive Nanofibers for Healthcare Applications* 4 Prerana Rathore, University of Massachusetts Amherst	*Effect of Solvent on the Productions of PHBHHX Nanoyarns* 18 Divya Kamireddi, Drexel University
10:15	***Break, Behrakis Center***	
10:30	*Visualization of Polymer Fiber Microstructures by AIEgens* 5 Yanhua Cheng, Donghua University	*Manufacturing Nonwoven Textiles from Recycled Polyester Fabric* 19 Hira Durrani, University of Minnesota Duluth
10:45	*Investigation of Some Properties of Polymethylpentene (PMP) Multifilament Yarn* 6 Sedat Kumartaşli, Polyteks Tekstil Research and Development Centre	*Fabrication of Electrospun Nanofilament Staple Yarns for Biomedical Applications* 20 Adaugo Enuka, Rowan University
11:00	*Effect of Yarn Twisting Parameters on the Static and Dynamic Mechanical Properties of Cotton Yarns* 7 Wafa Mahjoub, ENSISA	*Cutin–like Materials for Packaging Applications* 21 Eesha Bhattacharjee, University of South Florida
11:15	*Preparation of Flexible Ceramic Fiber Materials by Solution Blow Spinning* 8 Chao Jia, Donghua University	*Plant–based Meat Fiber Spinning and Whole Cut Meat Composite Assembly: Manufacturing and Texture Profile Analysis* 22 Rohit Jagtap, University of Massachusetts Lowell
11:30	*Comparative Investigation of Electrospun and Centrifugal Spun Polylactic Acid for Filtration Performance and Reusability* 9 Dhanya Venkataraman, University of Massachusetts Lowell	*Nature–inspired Fabrics for Thermal and Moisture Management* 23 Jintu Fan, Hong Kong Polytechnic University (for Dahua Shou)
11:45–12:45	***Lunch, Behrakis Center***	

Afternoon Sessions

	Behrakis North
12:45–2:00	**Student Paper Competition** **Chair: Ian Hardin** • Gurneet Kaur, IIT Delhi, *Stretchable Piezoelectric PU-PVDF Composite Nanofibers for Energy Harvesting and Multimodal Sensors for E–textiles* • Katherine Le, University of British Columbia, *Stretchable, Functional, Self–healing, and Biocompatible Ionogel for Continuous Strain and Physiological Monitoring* • Siying Wu, University of British Columbia, *Cesium Lead Halide Perovskite Decorated Polyvinylidene Fluoride Nanofibers for Wearable Piezoelectric Nanogenerator Yarns*

2:00 ***Break, Behrakis Center***

	Behrakis North	**Behrakis South**
	Session: Fiber Manufacturing, cont'd ***Chair: Emilie Dreán***	**Session: Novel Fashion Developments** ***Chair: Xiaomeng Fang***
2:15	*Verification of Physical Deterioration of Recycled PP Through Online Measurement of High–speed Melt Spinning Behavior* 10 Takeshi Kikutani, Tokyo Institute of Technology	*2D and 3D Electrospinning of Nanofibrous Structures with Predetermined Fiber Alignments* 25 Jintu Fan, Hong Kong Polytechnic University
2:45	*Effect of Size on the Tensile Strength of Fibers* 11 Dumbari Kabari, Rochester Institute of Technology	*Impact of Consumer Awareness on Fast Fashion* Gurinder Kaur, Thomas Jefferson University 26
3:00	*Surface Modification of Electrospun Glass Nanofibers and Their Use for High–performance Epoxy Nanocomposites* 12 Lifeng Zhang, North Carolina A&T State University	*Challenges and Opportunities Facing a Circular Economy for Textiles* 27 Amanda Forster, National Institute of Standards and Technology
3:15	*Intra– vs Inter–fiber Variability in Mechanical Properties of High–performance Fibers* 13 Atik Faisal, Rochester Institute of Technology	*Textile Sorting via Spectroscopic Analysis: Effect of Fiber Type(s), Dyes, and Finishes* 28 Katarina Goodge, National Institute of Standards and Technology
3:30	*Post–modification of Electrospun Chitosan Fibers* Emma Snelling, Drexel University 14	*In–situ Growth of UiO–66 on PET for Detoxification* Seokhee Chang, Seoul National University 29
3:45	*Rate Effects of Mechanical Properties of Aged and Unaged High–strength Fibers* 15 Walter Adamy, Rochester Institute of Technology	*Evaluation of the Self-cleaning and Thermophysiological Comfort Properties of ZnO Grown Fabrics* 30 Muhammad Zaman Khan, Technical University of Liberec

4:00–5:30	**Poster Session and Reception** **Behrakis Center**

Thursday, October 26

7:00 Continental Breakfast

8:00 **Plenary Lecture (Behrakis North):** Ronalds Gonzalez, North Carolina State University
Alternative Fibers for Hygiene Consumer Goods

9:00 **Plenary Lecture (Behrakis North):** Genevieve Dion, Drexel University
The Center for Functional Fabrics: 16 Years of Functional Fabrics Research at Drexel University

10:00 **Break: Behrakis Center**

Morning Sessions

	Behrakis North	**Behrakis South**
	Session: Smart Fibers and Textiles ***Chair: Jay Park***	**Session: Product Modification and Development** ***Chair: David Breen***
10:15	*Self–detoxifying and Sensing Materials for Improved Personal Protection and Safety* 32 Gang Sun, University of California Davis	*Relating Extensional Rheology to the Spinnability of Melt Spun Fibers* 47 Nicolas Alvarez, Drexel University
10:45	*Chiroptical Strain Sensors from Electrospun Cadmium Sulfide Quantum–dot Fibers* 33 Hansadi Jayamaha, Cornell University	*Classification of Fabric End–use and Quality Based on Machine Learning Approaches* Jonathan Chen, University of Texas Austin 48
11:00	*Fabrication of Poly(vinylidene fluoride) Nanocomposite Fibers Containing Zinc Oxide and Silver Nanowire and Their Application in Textile Sensors for Motion Detection and Monitoring* 34 Hyukjoo Yang, Yonsei University	*Highly Efficient Antimicrobial Coatings for Textiles* Vladimir Reukov, University of Georgia 49
11:15	*High–performance Flexible Yarn–like Piezoelectric and Triboelectric Nanogenerators* Suraj Sharma, University of Georgia 35	*Chemically–treated Jute Bags as an Alternative to Poly(propylene) Bags* 52 Lal Mohan Baral, Ahsanullah University of Science and Technology
11:30	*Fabrication Strategies Toward MXene–based Fibers* Ken Aldren Usman, Deakin University 36	*Development and Optimization of Physio–Mechanical Properties of Enset Fiber–reinforced Composite Material* 53 Gurumurthy Ramaiah, Federal TVT Institute (for Daniel Asfaw)
11:45	*High–loaded Electrode Filaments for 3D–printed Structural Batteries* 37 Soyeon Park, University of Delaware	*Floating Photocatalytic Fabric for Water Treatment* Jaeseon Yoo, Seoul National University 56
12:00–1:30	***Lunch, Outside Restaurants/Food Trucks***	

Afternoon Sessions

	Behrakis North	**Behrakis South**
	Session: Smart Fibers and Textiles cont'd ***Chair: Xiangwu Zhang***	**Session: Product Modification and Development cont'd** ***Chair: Jintu Fan***
1:30	*Spinning of Nanofibers for Well–organized Cell Culture 3D Scaffolds* 38 Sergiy Minko, University of Georgia	*Topological, Integrity, and Stability Analysis of Weft–knitted Textiles* 57 David Breen, Drexel University
2:00	*Highly–loaded Metal Organic Framework (MOF)–Nanofiber Web Composite for Chemical Warfare Agent Protection via Air–controlled Electrospin/Spray* 39 Taiyo Yamaguchi, University of Massachusetts Lowell	*Designing 3D Braided Composites* Tiffany Liao, Thomas Jefferson University 58
2:15	*Systematic Study of Process Parameters for Electrospinning of Polycaprolactone Nanofibers* 40 Muhammad Khubaib, ENSISA	*Textile–based Soft Actuators for Compliant and Wearable Artificial Muscles* 59 Xiaomeng Fang, North Carolina State University
2:30	*Development of Bacteria–laden Polymeric Fiber (BioFiber) for Self-healing Application in Quasi–brittle Materials* 41 Mohammad Houshmand, Drexel University	*Flow Characteristics of Electrospun Nanofiber Mats: Influence of Alignment and Density on Fluid Transport* 60 Varsha Prahaladan, Rowan University
2:45	**Panel Discussion** **Barakis North** *Sustainable Recycling of U.S. Banknote Waste* 68 Xin Fei and Steven Carlo, U.S. Bureau of Engraving and Printing	

3:15	***Break, Bahrakis Center***	
3:30	*3D Printing of Interleaved Nonwoven Glass Fiber Composites: A Study of the Effect of Mat Properties, Resin Formulation, and Interleaf Size* 42 Ahmed Ibrahim, Drexel University	*Application of Bamboo Activated Charcoal (BAC) in the Treatment of Reactive Dye Effluent and Evaluation of Its Ecological Performance* 61 Gurumurthy Ramaiah, Federal TVT Institute
3:45	*Solution Blow Spinning of Polymer Nanocomposite Fibers for Personal Protective Equipment* 43 Zois Tsinas, National Institute of Standards and Technology	*Scalable 3D–printed CO_2 Filter* 64 Sen Zhang, North Carolina State University
4:00	*Scalable Fabrication of Soft MXene–coated Fiber Microelectrodes for Bio Interfacing* 44 Lingyi Bi, Drexel University	*Comparing Color Strength Results Through Analysis of Rinse Water Between Wool Dyed with Onion Skins and Mordants and Synthetic Dye* 65 Abigail Clarke-Sather, University of Minnesota Duluth
4:15	*Aligned Nanonets Influence Mitotic and Apoptotic Responses* 45 Atharva Agashe, Virginia Tech	*A Novel sc–CO_2 Dyeing Strategy for Superior Coloration of UHMWPE Fiber* 66 Yao Zhou, Drexel University
4:30	**Introduction to Fiber Society Student Chapter-Drexel University, Behrakis North**	
5:00–5:45	**Fiber Society Annual Business Meeting: *Open to Fiber Society Members Only* Behrakis North**	

6:00–6:15 **Reception: Sky View Lounge, MacAllister Hall, Sixth Floor, Next to Behrakis Hall**
6:15 **Banquet: Sky View Lounge**
Speaker: Dr. Scott Cooper, Academy of Natural Sciences of Drexel University
Patience and the Mulberry Leaf

Friday, October 27

7:00 Continental Breakfast

8:15 **Plenary Lecture (Behrakis North):** Tamer Uyar, Cornell University
Cyclodextrin Functional Nanofibrous Materials and Their Potential Applications

9:15 **Plenary Lecture (Behrakis North):** Marcia Weiss, Thomas Jefferson University
Artisanal Textiles in Central Asia and West Africa

10:15 **Break: Behrakis Center**

Morning Sessions

	Behrakis North	**Behrakis South**
	Session: Biomedical Applications ***Chair: Caroline Schauer***	**Session: Textile Development** ***Chair: Gang Sun***
10:30	*Microplastics Collection from Recycled Synthetic Textiles* 70 Paolo Alves, University of Minnesota Duluth	*Effect of Laser Zone Drawing on the Mechanical Properties and Morphology of Preloaded Electrospun Polylactic Acid (PLA) Nanofibers* 73 Mohamad Keblawi, Rowan University
10:45	*Core–shell Structured, Porous, and Flexible Carbon Nanofibers Incorporated by SnO_2 Nanoparticles for Efficient CO_2 Capture* 71 Nadir Ali, Mehran University of Engineering and Technology	*Self–assembly of Carbon Fibers for Additive Manufacturing* 74 Thamires Lima, Drexel University

11:00	**Panel Discussion**	***Session Chair: Kelly Cobb, University of Delaware***
	ReSpool: Scaling a Circular System for Textile Recycling and Sustainable Textile Innovation 76 *ReSpool is a transdisciplinary partnership among academia, government, industry, and nonprofit entities to develop and demonstrate a transferable, regional model for the recycling of post-consumer fashion waste into new textile products.* **Panel Members:** *University of Delaware*: Kedron Thomas; Huantian Cao; Stephanie Raible; Amy Slocum *University of Minnesota Duluth*: Abigail Clarke-Sather	

12:00 ***Conference Closes***

Poster Session

Wednesday, October 25, 4:00–5:30, Behrakis Center **Session Chair: Caroline Schauer**

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Vijay Mohakar	*Aligned Polyhydroxybutyrate (PHB) Nanofiber Scaffolds via Novel Touchspinning Method* 78
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C. Hernandez-Padilla	*Thyroid Cancer and Aging: The Fole of Aligned Non–electrospun Fibrous Environments in Durotactic Migration* 88
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