

NART 2016

NANOFIBERS, APPLICATIONS AND RELATED TECHNOLOGIES

NART 2016
Tuesday, September 13, 2016

Registration & Continental Breakfast
Welcome & Introduction – NWI & INDA and Liberec
Opening Session – Keynotes

7:00 AM 8:30 AM
8:45 AM 9:00 AM

Keynote: Worldwide Outlook and Issues for the Nonwovens Industry
D. Rousse, INDA, USA

9:00 AM 10:30 AM
Keynote: Nanofibers, Past, Present and Future
TBD

Keynote: Opportunities For Nanofibers In Water Treatment
H. Buisson, Veolia Water, USA

10:30 AM 11:00 AM

Break

Concurrent Session: Process Technologies I
Session Chair: Stanislav Petrik

Electrospinning with Modified of Electrostatic Fields

G. Chase, University of Akron, USA

11:00 AM 12:00 PM
Industrial-Scale Solution Blowing of Soy Protein And Fish Sarcoplactic Protein Nanofibers
A. Yarin, University of Illinois at Chicago, USA

Concurrent Session: Energy I
Session Chair: Xiangwu Zhang

Electrochemical Performance Of Carbon-Coated Tin Sulfide Nanofibers As Anodes For Lithium Ion Batteries

Wan-jin Lee, Chonnam National University, Korea

11:00 AM 12:00 PM
Porous Polyacrylonitrile/Graphene Oxide Nanofiber Membrane Used As A Novel Separator For Achieving High-Performance Lithium-Sulfur Batteries
X. Zhang, NC State University, USA

12:00 PM 1:00 PM

Lunch

Concurrent Session: Process Technologies II
Session Chair: Stanislav Petrik

Centrifugal Spinning of Fine PVP/TA Fibers for Adsorption Media

Tom O'Haire, University of Leeds, UK

Reicofil® Meltblown - Improved Production Technologies for Future Filter Demands

M. Wuscht, Reicofil, Germany

1:00 PM 3:00 PM
Engineered Nanocellulose Gel Fiber Production for Textile Finishing
S. Sharma, University of Georgia, USA

Cellulose Acetate Nanofibers from Philippine Indigenous Fibers

J. Caya, Philippine Textile Research Institute, Philippines

Concurrent Session: Energy II
Session Chair: Xiangwu Zhang

Electrospun Particle/Polymer Fiber Mats as Fuel Cell and Battery Electrodes

P. N. Pintauro, Vanderbilt University

High-Performance Cobalt-Based Heterogeneous Electrocatalysts

Yue-E Miao, Donghua University, Shanghai 201620, P. R. China

1:00 PM 3:00 PM
Nanowire Devices for Electrochemical Energy Storage
L. Mai, Wuhan University of Technology, Wuhan, 430070, China
Optimization of Electrodes For Energy Storage Of Supercapacitors From Electrospun ACNFs
K. S. Yang, Korea Institute of Science and Technology, Korea

3:00 PM 3:30 PM

Break

Concurrent Session: Process Technologies III
Session Chair: Stanislav Petrik

Development of Structure and Morphology in Meltblown Nanofiber Nonwovens

G. Bhat, University of Tennessee, USA

Electrospun Carbon Nanofibers and Their Composite Membranes for Energy Storage

T. Liu, Donghua University, China

3:30 PM 5:30 PM
Liquid - Solid Transition During Dry Fiber Spinning

D. Lukas, Technical University of Liberec, Czech Republic

Turning Nanofibers into Products - Electrospinning from a Manufacturer's Perspective

Lain Hosie, RevolutionFibres, New Zealand

Concurrent Session: Energy III
Session Chair: Peter Fedkiw

Forcespinning of Nanofibers for Energy Storage and Food Science

M. Alcoutlabi, University of Texas-Pan American, USA

Safety-reinforced Poly(propylene carbonate)-based all-solid-state Polymer Electrolyte for Ambient-temperature Solid Lithium Batteries

G. Cui, Chinese Academy of Sciences, China

3:30 PM 5:30 PM
Tailoring Porous Scaffold of Thermoplastic PVA-co-PE Nanofibers Based Membranes for High Efficient Energy Conversion

D. Wang, Wuhan Textile University, China

Fabrication, of Ultrastretchable and Conductive Fibers

M. Dickey, NC State University, USA

5:30 PM 7:00 PM

Reception

NART 2016
Wednesday September 14, 2016

7:00 AM 8:30 AM

Registration & Continental Breakfast

Concurrent Session: Medical I
Session Chair: Stephen Russell

Bioactive Nanofibres Enriched With Self-Assembling Peptides For Tissue Repair

R. Gharaei, University of Leeds, UK

Electrospun Membranes based on Natural Hydrocolloids for Bioremediation and Antibacterial Application

8:30 AM 10:30 AM *M. Cernik, Technical University of Liberec, Czech Republic*

Customisable Collagen Networks For Advanced Wound Care

G. Tronci, University of Leeds, UK

Hybrid Fiber-Optic/Nanofiber Sensors for Chemical and Biomedical Applications- A Proof-of-Concept Study

S. Petrik, Technical University of Liberec, Czech Republic

Concurrent Session: Air Filtration I
Session Chair: George Chase

Direct Formation of Hybrid Absorbent Nanofibers: Ultra-Fast Degradation of Chemical Warfare Agents using Metal-Organic Frameworks Grown Directly on Nanofibers

G. Parsons, NC State University, USA

Electrospun Mats with Orthogonal Fibers for Aerosol Filtration and/or Water Repellency Applications: A Computational Study

8:30 AM 10:30 AM *H. V. Tafreshi, Virginia Commonwealth University, USA*

Filtration Properties and Functionalization of PA6 Nanofiber/woven Fabric Composite

E. Shim, NC State University, USA

Nanofibers for High Efficiency Filtration: Performance and Cost Savings

J. Manasco, Elmarco, USA

10:30 AM 11:00 AM

Break

Concurrent Session: Modeling & Simulation I
Session Chair: Melissa Pasquinelli

Modeling Water Droplet Equilibrium Shape on Fibers with Trilobal Cross-Sections

11:00 AM 12:00 PM *H. V. Tafreshi, Virginia Commonwealth University, USA*

Numerical Prediction of the Meltblowing laydown

A. Yarin, University of Illinois at Chicago, USA

Concurrent Session: Air Filtration II
Session Chair: George Chase

Visualization And Measuring Of The Local Filtration Efficiency of a Nanofibrous Filter

11:00 AM 12:00 PM *P. Bilek, Technical University of Liberec, Czech Republic*

Modeling Filtration Performance of Nanofiber Media

H. V. Tafreshi, Virginia Commonwealth University, USA

12:00 PM 1:00 PM

Lunch

Concurrent Session: Modeling & Simulation II
Session Chair: Hooman Tafreshi

PA6/PANI Composite Nanofibers for Ammonia Sensors: A Combined Experimental and Simulation Approach

Z. Pang, NC State University, USA

Structural Simulation of Nanofibrous Materials with Different Fiber Rigidities

1:00 PM 3:00 PM *H. V. Tafreshi, Virginia Commonwealth University, USA*

Tuning the Interfacial Characteristics of Fibrous Materials via Nanoscale Simulations

M. A. Pasquinelli, NC State University, USA

Pore Structure Analysis Through 3D Imaging

B. Maze, NC State University, USA

Concurrent Session: Liquid Filtration
Session Chair: Herve Bussion

Ion Exchange Microfiber Nonwovens

E. Shim, NC State University, USA

Removal of Heavy Metals and Toxins from Contaminated Waters

J. Genzer, NC State University, USA

1:00 PM 3:00 PM **Seed Strategies on the Functionality of Mineralized Nanofibers for Environmental Remediation**

E. Ford, NC State University, USA

Nanofiber Membranes for Membrane Distillation

T. Jiricek, Technical University of Liberec, Czech Republic

3:00 PM 5:30 PM

Break & Poster Session & Networking

NART 2016

Thursday September 15, 2016

7:00 AM 8:30 AM

Continental Breakfast

Concurrent Session: Medical II

Session Chair: Saad Khan

Cellulose Nanofiber Environments Tailored For Microorganisms And Mammalian Cells

J. D. Schiffman, UMass Amherst, USA

Ab initio Design of Nanofiber-Coated Surfaces for Mitigation of Microbial Fouling

B. Behkam, Virginia Tech, USA

1:00 PM 3:00 PM

Functional Nanofibers to Tailor Drug Release

Saad Khan, NC State University, USA

Nanofibers for Drug Delivery

A. Yarin, UIIC

Concurrent Session: Nanoscale Functionalization

Session Chair: Eunkyong Shim

Generation of Functional Coatings on Hydrophobic Surfaces Through Deposition of Denatured Proteins Followed by a Grafting From Polymerization

Jan Genzer, NC State University, USA

Surface treatment of nanofiber media for improved hydrophobicity and oleophobicity

Fred Humiston, Sigma Labs, USA

8:30 AM 10:30 AM

Antimicrobial Three Dimensional Woven Filters Containing Silver Nanoparticle Doped Nanofibers in a Membrane Bioreactor for Wastewater Treatment

Y. Qiu, Donghua University, China

Supramolecular Nonwovens: Designing Nanofibrous Constructs from the Ground-Up

R. Spontak, NC State University, USA

10:30 AM 11:00 AM

Break

Concurrent Session: Medical III

Session Chair: Saad Khan

Applicability of Silica Nanofibres in Medicine and Biotechnology

I. L. Štamborová, Technical University of Liberec, Czech Republic

11:00 AM 12:00 PM

Nanofibers as a Dry Form of Drug-loaded Nanoparticles for Long-term Storage

Shani L. Levit, Virginia Commonwealth University, USA

Concurrent Session: Electrospinning

Session Chair: Eunkyong Shim

Advances in Electrospun Nanofiber Forming Technology in China

Yanbo Liu, Wuhan Textile University, China

11:00 AM 12:00 PM

Piezoelectricity In Electrospun Polymer Nanofibers - Fundamental Phenomena And Applications

Luana Persano, Istituto Nanoscienze-CNR, Italy

12:00 PM 1:00 PM

Lunch

Concurrent Session: Analytical & Characterization of Nano Materials

Session Chair: Jacob Jones

Visualizing interfacial phenomena in bio-derived fiber reinforced composites

C. S. Davis, National Institute of Standards and Technology, USA

Measuring Temperature at the Mesoscale with Optical Approaches

Laura Clarke, NC State University, USA

Single Cell Mechanobiological Studies Using Aligned Fiber Networks

A. S Nain, Virginia Tech, USA

1:00 PM 3:30 PM

Time-of-Flight Secondary Ion Mass Spectrometry (ToF-SIMS) Analysis; from Fibers to Forensics

Chuanzhen Zhou, NC State University, USA

Application of X-ray Diffraction Methods to Textile Materials

C. C. Chung, NC State University, USA

Mechanical Measurements And Microscopy As Characterization Tools For Nanofibrous Webs

R. Gorga, NC State University, USA

Concurrent Session: Novel Applications

Session Chair: Benoit Maze

Long-term evaluation of selected SPME fibres - implications for Polychlorinated biphenyls analysis

V. Antos, Technical University of Liberec, Czech Republic

Fighting Infections via Engineered Nanofibers

M. Mohiti, NC State University, USA

PHBV Fibers for Replacement Tendons and Ligaments

O'Haire, Dalgarno, University of Leeds, UK

1:00 PM 3:30 PM

Nanofiber-based Colorimetric Biosensing

C. Tang, Virginia Commonwealth University, USA

Electrospray/Electrospinning of 3D Si/C Fiber Paper Electrodes

C. Wang, University of Maryland, USA

Large-Scale Production of Polymer Nanofiber Nonwovens for Applications in Li

Haoqing Hou, Jiangxi Normal University, China

3:30 PM 5:30 PM

Optional Tour of the Pilot Facilities at the Nonwovens Institute