Wednesday 16th October 2019

08.00 – 18.00  REGISTRATION DESK OPEN AT THE DITF & FESTHALLE DENKENDORF

08.00 – 08.30  WELCOME COFFEE & NETWORKING

08.30 – 13.00  GUIDED TOUR OF RESEARCH LABORATORIES AND ROUNDTABLE DISCUSSIONS

13.00 – 13.30  BUS TRANSFER TO THE CONFERENCE LOCATION (FESTHALLE & HAUSMEISTER)

13.30 – 14.30  LUNCH & NETWORKING

13.30  OPENING OF THE POSTER SESSION & THE TABLETOP EXHIBITION

14.30 – 14.40  OPENING AND WELCOME ADDRESS BY PIERRE WIERTZ, GENERAL MANAGER OF EDANA


- Sustainability
- New Materials – Opportunities and challenges
- PLA, PBS, PHA, PHB, PCL

Behnam Pourdeyhimi, Associate Dean for Industry Research and Extension
William A. Klopman, Distinguished Professor, Executive Director, The Nonwovens Institute (United States)

SESSION 1: NONWOVENS TECHNOLOGY

MODERATOR

Martin Dauner, Head of Dept. for Filament and Nonwoven Technologies, DITF (Germany)
“MICRONEEDLING” – INTENSIVE NEEDLING THROUGH HIGHEST NEEDLE DENSITIES AND FINEST BARBS – FUTURE ALTERNATIVE TO WATER ENTANGLEMENT?

- Needling instead of water entanglement
- Crosslapped batt versus carded web
- MD: CD = 1 : 1
- No water consumption, low energy requirement
- Reduced investment

Johann Philipp Dilo, CEO, DiloGroup (Germany)

15.50 – 16.15

SELF-OPTIMIZING EFFICIENCY IN PNEUMATIC STAPLE FIBRE TRANSPORT BY DEVELOPMENT OF INNOVATIVE MEASUREMENT

- Pneumatic fibre transport in nonwoven production causes high energy consumption and is mostly operated at 100 %
- Research has been done to measure the transport quality using innovative measurement
- Based on transport quality, transport fan speed can be lowered to save at least 30 % of energy
- Industrial trials have been performed for validation

Christian Möbitz, Scientific Researcher, Institut für Textiltechnik der RWTH Aachen University (Germany)

16.15 – 17.00

COFFEE BREAK IN THE POSTER SESSION / TABLETOP EXHIBITION AREA

17.00 – 17.25

OPTIMIZATION OF THE CARDING PROCESS BASED ON BIG DATA ANALYTICS

- Multidimensional optimization problem in the nonwoven production (quality vs. production cost)
- Measurement system of quality data, machine settings and surrounding conditions during the process
- Modelling, simulation and optimization of the product quality and production cost

Frederik Cloppenburg, Head of Research Group Nonwoven Technology, Institut für Textiltechnik der RWTH Aachen University (Germany)
17.25 – 17.50

TACKLING THE FORMALDEHYDE CHALLENGE: NEW LATEX BINDER INNOVATION FOR TECHNICAL TEXTILES

- Why formaldehyde emission is critical and where it is coming from?
- Why crosslinking is necessary and what benefits it brings?
- Introduction of novel FA-free self-crosslinking platform for various chemistries
- Proof of concept using application examples
- Outline the advantages for the nonwovens industry

Mathias Renka, Technical Service Manager, Synthomer Deutschland (Germany)

17.50 – 18.15

NONWOVENs AS A TOOL TO SUSTAINABLE TOPICAL INNOVATIONS

- New materials and new applications from a sustainability perspective
- Clean chemistry for nonwovens
- Cellulose and other polysaccharides for nonwovens

Parikshit Goswami, Director of Technical Textile Research Centre, University of Huddersfield (United Kingdom)

18.15 – 19.00

NETWORKING IN THE POSTER SESSION / TABLETOP EXHIBITION AREA

19.00

BUS TRANSFER TO THE ALTES RATHAUS OF ESSLINGEN

19.30 – 21.30

EDANA Cocktail Party & the NIA Posters Contest Awards Ceremony at the Altes Rathaus

The ideal opportunity for relaxed networking.

Dress code: business casual
Thursday 17th October 2019

08.30 – 17.00
REGISTRATION DESK OPEN AT THE FESTHALLE & HAUSMEISTER

08.30 – 09.00
WELCOME COFFEE & VISIT OF THE POSTER SESSION / TABLETOP EXHIBITION

SESSION 2: MATERIALS & RECYCLING

MODERATOR

Stephen Russell, Professor of Textile Materials & Technology, University of Leeds (United Kingdom)

09.00 – 09.25
BAST/ BASALT FIBRE HYBRID STRUCTURES AS REINFORCEMENT IN POLYMERS TO IMPROVE THE MECHANICAL PERFORMANCE PROFILE OF NATURAL FIBRE REINFORCED COMPOSITES

• Thermoset and thermoplastic composites with bast and basalt fibres
• Manufacturing
• Tensile, flexural and energy absorption properties analysis

Anjum Saleem, Scientific Researcher, Hochschule Kaiserslautern (Germany)

09.25 – 09.50
SIZING? NO, THANKS. COMPENSATING THE PROCESS OF RESIZING RECYCLED CARBON FIBRES

• Using recycled carbon fibres as high performance material
• Modified matrix materials for recycled carbon fibres without sizing
• Ways to compensate the sizing of carbon fibres
• Production of rCF-nonwovens and sheets
• Outlook into the future of rCF

Jonas Broening, Scientific Researcher, ITA RWTH Aachen (Institut für Textiltechnik der RWTH Aachen University) (Germany)

This programme may be subject to last-minute changes and cancellations. All presentations & moderated sessions will be held in English

#EdanaNonwovens
#NonwovensInnovation
09.50 – 10.15
CHEMICAL RECYCLING OF TEXTILE WASTE AND NONWOVEN BY DEPOLYMERIZATION THROUGH GLYCOLYSIS

- Production waste was successfully depolymerized with high yield using an inorganic catalyst
- Carbon black pigments and other contaminations could be separated from the monomer in the process
- Analyses show high purity of the obtained white monomer
- Re-polymerization results in PET suitable for melt spinning of new polyester fibres

Karin Lindqvist, Researcher, RISE Research Institutes of Sweden (Sweden)

10.15 – 10.45
COFFEE BREAK IN THE POSTER SESSION / TABLETOP EXHIBITION AREA

SESSION 3: SPINNING TECHNOLOGY
MODERATOR

Behnam Pourdeyhimi, Associate Dean for Industry Research and Extension
William A. Klopmann, Distinguished Professor, Executive Director, The Nonwovens Institute (United States)

10.45 – 11.10
HIGH TEMPERATURE WEBS GO TO FINEST FIBRES

- Meltblow webs of PPS and PEEK with new exxon type die concept to reduce fibre size within increasing polymer throughput
- New nozzle concept with single die quenching compared to meltblow
- Impact of water entangling vs. calendaring regarding advantages for different applications

Ingo Windschiegl, Research Associate, DITF (Germany)

11.10 – 11.35
MODELING AND SIMULATION OF MELTBLOWN PROCESSES FOR FINE FIBRE NONWOVENS

- Breakthrough in physical modeling and simulation of spinning processes for meltblown nonwovens
- Deep understanding of upper uniaxial drawing and additional stochastic stretching by coupling with turbulent air flow
- Analysis concerning resulting fibre diameter distribution and laydown behavior
- Optimization potential concerning designated mean and spread in fibre diameter distribution

Dietmar Hietel, Head of Department Transport Processes, Fraunhofer Institute for Industrial Mathematics ITWM (Germany)

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11.35 – 12.00

**SOLUTION BLOWN: THE NOVEL VERSATILE TECHNIQUE FOR CROSSLINKING HYDROXYPROPYL CELLULOSE (HPC) HYDROGEL NONWOVEN AND MICROCAPSULES CELLULOSE NONWOVEN**

- HPC nonwoven and crosslinked HPC hydrogel nonwoven
  - Preparation of the HPC hydrogel nonwoven
  - Characterization and analysis of the microstructures of fibres of hydrogel nonwoven, swelling and wetting behaviour

- Microcapsules cellulose nonwoven
  - Candidate solution blown nonwoven systems for introducing microcapsules in the cellulose-based nonwoven
  - Introducing model and active substances encapsulated microcapsules in nonwoven fibres

*Ting Yang Nilsson*, Senior Scientist Textiles, RISE Research Institutes of Sweden (Sweden)

12.00 – 13.00

**LUNCH BREAK & VISIT OF THE POSTER SESSION / TABLETOP EXHIBITION**

**SESSION 4: MEDICAL**

**MODERATOR**

*Mårten Alkhagen*, Manager Textiles, RISE Research Institutes of Sweden

13.00 – 13.25

**NONWOVEN-HYDROGEL MEMBRANE TECHNOLOGIES FOR SPINAL CORD AND ORTHOPAEDIC TISSUE REGENERATION**

- Clinically led development of nonwoven electrospun membranes
- Tuning of fibre alignment to drive neurite extension and inclusion of neural cells into a hydrogel for spinal cord applications
- Development of a barrier membrane, with random fibre alignment allowing for spontaneous mesenchymal stem cell alignment for surgical treatment of critical size bone defects

*Heather Owston*, Research Fellow, Clothworkers Centre for Textile Materials Innovation for Healthcare - University of Leeds (United Kingdom)
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DESIGNING NONWOVENS IMPLANTS

- Nonwoven implants define space, host tissue or forming a cell barrier.
- Accordingly pore size, porosity, drape-ability are more important than strength.
- The implications of the unconventional needs will be presented based on a current development.
- The production technology is miniaturized but versatile and in first line easy to clean.

Martin Dauner, Head of Dept. for Filament and Nonwoven Technologies, DITF (Germany)

SESSION 5: APPLICATIONS

MODERATOR

Parikshit Goswami, Director of Technical Textile Research Centre, University of Huddersfield (United Kingdom)

SUSTAINABLE DRONES – DRONE-WING PRODUCTION FROM BIO- THERMOPLASTIC COMPOSITES BASED ON 3D NEEDLEPUNCHING FABRIC

- Drones
- Thermoplastic bio composites
- Nonwoven
- Composite manufacturing

Raphael Geiger, Assistant Professor, University of Southern Denmark (Denmark)

DURABLE HYDROENTANGLED NONWOVEN FABRIC FOR CLOTHING APPLICATIONS

- Active role of advanced techniques of nonwoven fabrics in apparel applications
- Comparison of hydroentangled apparel fabrics with conventional woven fabrics
- Applications of developed hydroentangled fabrics in clothing industries

Muhammad Cheema, Business Manager, U S Apparel (United Kingdom)

COFFEE BREAK IN THE POSTER SESSION / TABLETOP EXHIBITION AREA
15.10 – 15.35

STRUCTURED FIBRES FOR POROUS NONWOVEN ABSORBER

- Basics about acoustic, absorption
- Necessity and aptitude of nonwovens
- Computation of the acoustic parameters
- Influence of the fibre parameters (diameter, section, surface etc.) on the sound absorption coefficient

Patrick Engel, Scientific Researcher, STFI (Sächsisches Textilforschungsinstitut) (Germany)

15.35 – 16.00

CARBON NANOTUBE SENSORS FOR STRUCTURAL HEALTH MONITORING OF NONWOVEN MATERIALS

- Ensembles of carbon nanotubes (CNTs) decorated on the glass fibre based nonwoven materials were prepared and optimized using a vacuum filtration process
- Real-time in situ monitoring of damage evolution in nonwoven materials using network of carbon nanotubes
- Sensing the evolution of various types of nonwoven damages (horizontal cut, inclined cut, vertical cut) by network of carbon nanotubes

Dr. Amit Rawal, Professor, Indian Institute of Technology Delhi (India)

16.00 – 16.25

DEVELOPMENT OF BIOMIMETIC SIMULATION-BASED TEXTILE STRUCTURES FOR NOVEL SOLUTIONS FOR MOISTURE EVAPORATION, SEPARATION AND SUPPLY OF PLANTS IN GREENHOUSE

- Biomimetic
- Solar collector, water evaporation, condensation, water storage, capillary forces, greenhouse, water circle

Dr. Thomas Stegmaier, Head of Technical textiles, Surface Technology, Environmental Technology, Bionics, DITF (Germany)

16.25 – 16.30

CLOSING WORDS

17.00

BUS TO STUTTGART AIRPORT AND TRAIN STATION

EDANA would like to thank the Deutsche Institute für Textile+FaserForschung (DITF) for hosting the NIA 2019 as well as the members of the EDANA Support for Innovation and R&D Working Group.

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