

We thank all our supporters /
Wir bedanken uns für die Unterstützung:



International Federation
of Associations of Textile
Chemists and Colourists



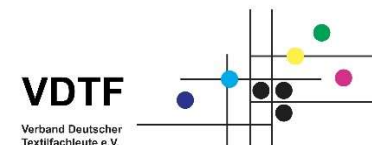
A Paradigm Shift in the Global Textile Industry:
Economy meets Ecology

XXVIth IFATCC International Congress

13. – 14.
October 2023

in Augsburg

PROGRAM – PROGRAMM



Greeting

Dear members of the VDTF and the IFATCC,

As you know, every 3 years the international meeting of the IFATCC (International Federation of Associations of Textile Chemists and Colourists) is held together with a national event.

This year the VDTF as the German association is hosting this meeting.

For this reason as President I would like to express my sincere thanks on behalf of the entire Board of the IFATCC for hosting the event. As a member and Ex-President of the VDTF I know what it means to organize such an event like this. As all the people involved do the work voluntarily and besides their official job, it deserves high appreciation.

Especially because we are all going through a difficult time after having survived a pandemic and we are now in an energy crisis with very high costs for the industry and for private life, it is thankful that voluntary work is being done. In our case I also count the association activities in the VDTF as part of this.

As we can all see from the program preview, renowned speakers from a wide variety of fields have been invited. I am sure that there is something here for everyone that he/she can use or implement in his/her daily work.

I would like to give you a short information about the IFATCC: IFATCC unites several national professional associations to promote worldwide cooperation between textile chemists, textile finishers and textile colourists.

The board of directors consists of five elected persons, who are elected by the delegates of the national associations:

President, 2 Vice-Presidents, Treasurer and Secretary.

The President and the Vice-Presidents change every 3 years. Thus, the President is the one who will host the next Congress. This can be the current president of the respective association or a representative of that association.

Since 2016, the IFATCC has been based in Milan (Italy).

The following countries are currently represented as members: Austria, Czech Republic, Denmark, France, Germany, Hungary, Italy and Spain.

All of them send delegates to the annual delegates' meeting once a year to be informed about the work of the IFATCC, with a corresponding right to vote on any decisions that may be made.

Without voting rights, the following countries are affiliated to us: Japan, Romania, Poland and the United Kingdom.

In this context, I would also like to refer to our homepage: www.ifatcc.org.

I wish us all a successful conference in Augsburg.

Reinhard Zander
President of the IFATCC

Grußwort

Liebe Mitglieder und Gäste des VDTF und des IFATCC,

bekanntermaßen findet alle 3 Jahre die internationale Tagung des IFATCC (International Federation of Associations of Textile Chemists and Colourists) gemeinsam mit einer nationalen Veranstaltung statt. In diesem Jahr richtet der VDTF als deutscher Verband diese Tagung aus.

Aus diesem Grunde möchte ich mich als Präsident im Namen des gesamten Vorstandes des IFATCC recht herzlich für die Ausrichtung bedanken. Als Mitglied und ehemaliger Präsident des VDTF weiß ich, was es bedeutet, eine solche Veranstaltung zu organisieren. Da alle beteiligten Personen die Arbeit freiwillig und neben dem offiziellen Job machen, verdient sie große Anerkennung.

Gerade auch, weil wir alle eine schwere Zeit durchmachen nachdem wir eine Pandemie überstanden haben und wir uns jetzt in einer Energiekrise mit sehr hohen Kosten für die Industrie und für das Privatleben befinden, ist es dankenswert, dass ehrenamtliche Arbeit geleistet wird. Hierzu zähle ich auch in unserem Fall die Verbandstätigkeit im VDTF.

Wie wir alle aus der Programmvorschau ersehen können, wurden namhafte Referenten aus unterschiedlichsten Bereichen eingeladen. Ich bin sicher, dass hier für jedermann etwas dabei ist, was er / sie in seiner / ihrer täglichen Arbeit nutzen bzw. umsetzen kann. Eine kurze Info zum IFATCC möchte ich Ihnen noch geben:

Im IFATCC sind einige nationale Fachverbände zusammengeschlossen um eine weltweite Zusammenarbeit der Textilchemiker, Textilveredler und Textilcoloristen zu fördern.

Personell setzt sich der Vorstand aus fünf Personen zusammen, welche von den Delegierten der nationalen Verbände gewählt wurden:

Präsident, 2 Vizepräsidenten, Schatzmeister und Geschäftsführer.

Der Präsident und die Vizepräsidenten wechseln alle 3 Jahre.

So ist jeweils derjenige Präsident, bei dem der nächste Kongress ausgerichtet wird. Dies kann dann der amtierende Präsident des jeweiligen Verbandes sein oder ein Repräsentant dessen.

Der Sitz des IFATCC ist seit 2016 in Mailand (Italien).

Derzeit sind folgende Länder als Mitglieder vertreten:

Österreich, Tschechische Republik, Dänemark, Frankreich, Deutschland, Ungarn, Italien und Spanien.

All diejenigen entsenden einmal jährlich Delegierte zur jährlichen Delegiertenversammlung, um über die Arbeit des IFATCC informiert zu werden, mit einem entsprechenden Stimmrecht bei evtl. anstehenden Entscheidungen.

*Ohne Stimmrecht sind folgende Länder uns angeschlossen:
Japan, Rumänien, Polen und das Vereinigte Königreich.*

*Ich möchte in diesem Zusammenhang auch auf unsere Homepage verweisen:
www.ifatcc.org*

Ich wünsche uns allen eine erfolgreiche Tagung in Augsburg.

Reinhard Zander
Präsident des IFATCC

Dear Ladies and Gentlemen,
Dear members of the VDTF,
Dear members of the IFATCC,

The IFATCC Congress 2023/ VDTF Textile Conference will take place in the historic city of Augsburg with the congress theme:

A paradigm shift in the global textile industry: Economy meets Ecology.

Augsburg has a very long textile tradition. Augsburg's water management system is a UNESCO World Heritage Site. Water as a natural energy source for the textile industry has been used in Augsburg since the Middle Ages. This represents a bridge to our days when we are increasingly looking to use renewable energy sources for the textile industry. 40 lectures and several poster presentations will inform you about the latest developments for resource-saving and sustainable textile production. In 2 lecture rooms you can participate in the lectures live or online. Many lectures will be in English, but we have also put together a lecture programme in German.

The Board of the Verband Deutscher Textilfachleute e.V. welcomes you to the IFATCC Congress 2023 and VDTF Textile Conference. On behalf of the VDTF Board, I would like to thank the organizing team for their preparatory work.

Prof. Dr. Michael Rauch
President VDTF e.V.

*Sehr geehrte Damen und Herren,
Liebe Mitglieder des VDTF,
Liebe Mitglieder des IFATCC,*

der Vorstand des Verbands Deutscher Textilfachleute e.V. begrüßt Sie zum IFATCC Kongress 2023/VDTF-Textilfachtagung in der geschichtsträchtigen Stadt Augsburg mit dem Kongressthema:

A paradigm shift in the global textile industry: Economy meets Ecology.

Augsburg hat eine sehr lange textile Tradition. Das Augsburger Wassermanagementsystem ist UNESCO Weltkulturerbe. Wasser als natürliche Energiequelle für die Textilindustrie wurde seit dem Mittelalter in Augsburg genutzt. Dies stellt einen Brückenschlag in unsere Tage dar, in denen wir uns verstärkt um die Nutzung erneuerbarer Energiequellen für die Textilindustrie bemühen. 30 Vorträge und einige Posterpräsentationen werden Sie über die neuesten Entwicklungen für eine ressourcenschonende und nachhaltige Textilproduktion informieren. In 2 Vortragsräumen können Sie live oder online an den Vorträgen teilnehmen. Viele Vorträge erfolgen in Englisch, aber wir haben auch ein Vortragsprogramm in Deutsch zusammengestellt.

Im Namen des VDTF-Vorstandes bedanke ich mich beim Organisationsteams für die Vorbereitungsarbeit.

Prof. Dr. Michael Rauch
Präsident VDTF e.V.

Room Baramundi

10:00 – 12:00 VDTF General Meeting /
VDTF Mitgliederversammlung

12:00 – 13:00 Lunch / *Mittagsimbiss*

Moderation: Prof. Dr. Michael Rauch

13:00 – 13:45 Greetings / Grußworte
Representatives City Augsburg / VDTF / IFATCC

13:45 – 14:00 Poster Introductions Students

14:00 – 14:30 Ready to transform ...?
Textile on the way towards circular economy
Jan Marek,
InoTEX spol.S.r.o. / Czech Republic

14:30 - 15:00 Challenges in the Textile Value Chain
Robert van de Kerkhof,
Lenzing AG / Austria

15:00 – 15:30 *Break / Pause*

Room Mercedes Benz

08:30 – 09:30 VDTF Board Meeting / *VDTF Vorstandssitzung*

12:00 – 13:00 Lunch / *Mittagsimbiss*

Room Baramundi

Moderation: Harald Bäumlé

15:30 – 16:00 #Sandlerpuzzle
Nonwovens based on renewable and recycled materials
Ralf Bayer,
Sandler AG / Germany

16:00 – 16:30 Toray's Sustainability Vision
Keisuke Honda,
Toray Industries Inc. / Japan

16:30 – 17:00 Optimized textile processing based on Artificial intelligence and virtual simulation
Andreas Troscheit,
Brückner Textile Technologies GmbH & Co.KG / Germany

Room Mercedes Benz

German speaking lectures / Deutschsprachige Vorträge:

Moderation: Frau Dr. Yvette Dietzel

15:30 – 16:00 Neue Wege wagen: Bauprojekt „Green Factory“ in Deutschland – Chancen und Herausforderungen am Beispiel der P.A.C. Green Factory in Schweinfurt
Lukas Weimann,
P.A.C. GmbH / Germany

16:00 – 16:30 Neue Prüfmethode zur Bestimmung der potenziellen Umweltauswirkungen des Faserabriebs beim Waschen – DIN SPEC 4872
Juliane Alberts,
Hohenstein Laboratories GmbH & Co.KG / Germany

16:30 – 17:00 Innovative Veredelungsprozesse und effektives Chemikalienmanagement für eine sichere und nachhaltige Textilindustrie – Beispiele aus dem internationalen Projekt EnaTex
Evelyn Lempa,
Hochschule Niederrhein Fachbereich Textil- und Bekleidungstechnik,
University of Applied Sciences / Germany

Room Baramundi

Moderation: Paresh H. Patel

- 09:00 – 09:30** Development of innovative supercritical fluid technology from scouring, dyeing and functionalization of various kinds of textiles
*Teruo HORI,
University of Fukui / Japan*
- 09:30 – 10:00** Structural Coloration of Fiber Material
*Kazumasa HIROGAKI, Isao TABATA, Teruo HORI,
University of Fukui / Japan*
- 10:00 – 10:30** An ecologic alternative in discontinuous dyeing - THEN Smartflow!
*Bertram Stetter,
FONG'S EUROPE GMBH /
Germany*
- 10:30 – 11:00** Environmentally friendly sol-gel based finishing to improve flame retardant performance of cotton fabrics
*Giuseppe Rosace,
University of Bergamo / Italy*
- 11:00 – 11:30** Break / Pause

Room Mercedes Benz

German speaking lectures / Deutschsprachige Vorträge:

Moderation: Peter Schomakers

- 09:00 – 09:30** *Textilien mit katalytischen Eigenschaften*
*Dr. Klaus Opwis,
Deutsches Textilforschungszentrum Nord-West gGmbH /
Germany*
- 09:30 – 10:00** Nachhaltiges Ausrüsten mit Hilfe einer kontinuierlichen Schmalwarenveredlungsanlage
*Julia Ullrich,
TITV e.V. Textilforschungsinstitut
Thüringen-Vogtland e.V. / Germany*
- 10:00 – 10:30** Schicksal und Auswirkungen von Farbstoffen beim Faser-zu-Faser-Recycling – Polyamid 66 (PA 66) durch selektive Auflösung in Calciumchlorid-Ethanol-Wasser (CEW)
*Dr. Avinash P. Manian,
Universität Innsbruck,
Research Institute of Textile Chemistry/Physics / Austria*
- 10:30 – 11:00** TANADYE Concept von TANATEX – unsere Lösung für die Färberei von heute, die im Einklang mit Natur und Umwelt ist
*Darius Naroska,
TANATEX Chemicals B.V., The Netherlands*
- 11:00 – 11:30** Break / Pause

End of the German lectures / Ende der deutschsprachigen Vorträge

Room Baramundi

Moderation: Lothar Hentz

11:30 – 12:00 The big change in the textile chemistry
*Windson Lau,
Lefatex Chemie GmbH / Germany*

12:00 – 12:30 Ecological and Economical Pretreatment and Dyeing of Cotton with reactive dyes – Still a challenge?
*Jörg Schad,
Pulcra Chemicals GmbH / Germany*

12:30 – 13:00 Sustainability in pretreatment and dyeing – our way to a better future
*Sophie Kraus,
Rudolf GmbH / Germany*

13:00 – 14:00 Lunch / Mittagsimbiss

Room Mercedes Benz

Moderation: Meritxell Matri

11:30 – 12:00 How digital dyeing and finishing technology will change the world
*Henry Rolt,
Alchemie Technology Ltd. / UK*

12:00 – 12:30 How to increase sustainability and flexibility by using innovative new spray technology in the textile production
*Ellinor Niit,
IMOGO / Sweden*

12:30 – 13:00 Sustainable Spray Finishing & Dyeing concepts
*Mr Jayanta Sanyal,
Weitmann & Konrad GmbH & Co.KG (WEKO) /
Germany*

13:00 – 14:00 Lunch / Mittagsimbiss

Room Baramundi

Moderation: Andreas Troscheit

- 14:00 – 14:30** **Circularity inspired product solutions for a more sustainable textile world**
*Robert Zyschka,
CHT Germany GmbH / Germany*
- 14:30 – 15:00** **Oil and water repellent finishes without PFAS – Quo vadis? Latest developments and limitations**
*Bernd Jakob,
Archroma International (Germany) GmbH / Germany*
- 15:00 – 15:30** **Bio-based products and sustainable process – Urea replacement in inkjet printing**
*Thomas Ruchser,
TANATEX Chemicals B.V. / The Netherlands*
- 15:30 – 16:00** **Biofunctional polyamide textile with essential oil nanocapsules: In vitro release kinetics, antibacterial activity and skin penetration**
*Meritxell Martí,
Textiles and Cosmetic Innovations,
Institute of Advanced Chemistry of Catalunya
(IQAC-CSIC) / Spain*
- 16:00** **Closing words and outlook next IFATCC Congress**

Room Mercedes Benz

Moderation: Renate Haupt-Stephan

- 14:00 – 14:30** **Ultrasonic Solutions for Textile Industry**
*Kushtrim Daci,
Weber Ultrasonics AG / Germany*
- 14:30 – 15:00** **Transformation process of an industry towards sustainable products - challenges and solution approaches for textile floor coverings**
*Dirk Hanuschik,
TFI – Institut für Bodensysteme an der RWTH Aachen,
Aachen / Germany*
- 15:00 – 15:30** **Circular Economy in the Hosiery Industry**
*Zsófia Antalóczy,
TOMCSANYI Amazon Ltd / Hungary,*
- 15:30 – 16:00** **Keeping Textile wastes in circulation together with mycelium in order to reuse them**
*Dóra Márfoldi,
Budapest Metropolitan University / Hungary*

Carolin Günther, Hochschule Reutlingen / Germany

Poster title:

Establishing electroluminescent coatings on film and fabric by using simple screen-printing processes

Anna Maric, Hochschule Reutlingen / Germany

Poster title:

Analyse von recycelten Carbonfasern für faserkeramische Verbundstrukturen

Beatrice Steck, Hochschule Reutlingen / Germany

Poster title:

Determination of the dispersing parameters of cotton fibers for use in wetlaid nonwoven

Ermittlung der Dispergierparameter von Baumwollfasern für den Einsatz in der Nassvliesetechnik

Nadine Bullerdiek, Hochschule Niederrhein-Aachen / Germany

Poster title:

Dyeing of Poly(lactic acid) Fibres for Circular Textile Products
Färben von PLA-Fasern

Jaydip Kapadiya, Hochschule Niederrhein-Aachen / Germany

Poster title:

Analysis of the Efficacy of Fluorinated and Non-Fluorinated Coatings Applied on Nonwoven Substrate Intended for Filtration Applications

**Dr. Katharina Monczak,
Institut f. Materialwissenschaften,
Hochschule für Angewandte Wissenschaften Hof / Germany**

Poster title:

Thermotransfer printing on natural Fibers coated with Chitosan from Fungi

Ondrej Ctibor, INOTEX / CZ

Poster title:

Self-cleaning m-aramid fabrics based on functional NIR absorbing colorants

Lenka Martinková, INOTEX / CZ

Poster title:

Development of a novel finishing of textile surfaces with active ingredients of graviola plant extract

Ivana Vojtová, Pleas Havlickuv Brod / CZ

Poster title:

The issue of recycling used dye baths after dyeing cotton with reactive dyes

**Ahmed Mezheri,
Laboratoire de Physique et Mécanique Textiles
(LMPT) – UHA CEDEX / France**

Poster title:

Development of a new biodegradable and recyclable binder

Ready to transform ...?

Textile on the way towards circular economy

Jan Marek,

InoTEX spol. S.r.o. / Czech Republic

Currently, the textile industry, as a producer of fashion products for the consumer market and of growing volumes of technical textiles for new areas of application – often replacing conventional materials used so far – ranks among the sectors that contribute significantly to the generation of waste – after the end of the life of products. In addition, a reponderance of imported textiles, especially those destined for the consumer market, are entering the European market.

The steady trend of growth in global textile consumption (by about 3% per year with a total production volume of over 100mil t/year) cannot be covered by the one-off use of raw materials from new sources (with a linear model of the production and product cycle). The average European consumes 26kg of textile products per year. Of this, up to 15 kg ends up in waste, which is further used only in very limited quantities – “fiber to fiber” recycling today does not exceed 1%.

As textile consumption increases, one of the key ways to revitalize the European resilient TC, readiness to return recycles to the beginning of the textile product (and technological) chain as a valuable raw material plays a significant role. The system "what is at home it counts" to avoid the problem of scarcity of raw materials that can complicate the revitalization of sustainable TC in Europe needs to be respected. Only way is to change the linear mode of the TC and attempt for its change towards circular economy. With regard to the traditions and position of the TC in Europe, multiplied by the consequences of the COVID 19 crisis, the EC decided on the need to revitalize this sector.

Textiles – especially the protective, health-care and rescue and also the military products demonstrated their strategic position.

As a key documents - the recovery plan “EU Strategy for Sustainable and Circular Textiles” published in March 2022(COM/2022/141 final) followed by significantly upgraded Strategic Research and Innovation Agenda (SRIA) for the EU TC sector prepared by ETP FTC (04/2022) clearly establish a way to the fully competitive position on the global market on which the research and innovation activities (supported by dedicated EU

co-funding) have been defined. Structure of these action documents will be presented consequently to number of concrete examples of prioritized running activities with a special attention to the innovation themes supporting the unavoidable transition to the durable, reusable materials including biomaterials and bioprocesses. We must respect an urgent question of relocation of vast majority of textiles from waste back to the use, end of dependence on fossil resources by utilization on renewable (organic) carbon sources as well as nowadays urgently needed reduction of water and energy consumption as the response on extremely increased costs of textile companies inputs and potential risk of water scarcity also in Europe caused by irreversible climate changes. “Go green - go fast” within the whole textile chain activities, including the customer’s understanding, overtakes the crucial role on the way to the TC sustainability and profitability.

Challenges in the Textile Value Chain

Robert van de Kerckhof,

Lenzing AG / Austria

The fiber industry is a growth industry, which is the good news. The bad news is that it is one of the most polluting industries. This raises the question: is growth good news. I will present which aspects have to be considered to make the fiber industry a good growth industry, from a people, profit and certainly a planet perspective.

**#Sandlerpuzzle
Nonwovens based on renewable and recycled materials**

*Dr. Ulrich Hornfeck,
Sandler AG / Germany*

Finding answers to sustainability is never an easy task. But finding the right answer for your products, and your customers can be even more complicated. Sandler AG, a nonwoven producer, active in worldwide markets and market segments from Hygiene to Automotive, will give a vivid example how “puzzling” can be an answer for a divers sustainability strategy.

Today's Sustainability Vision

*Keisuke Honda,
Toray Industries Inc. / Japan*

Toray states that "We will contribute to solving global issues by providing innovative technologies and advanced materials," and under our Toray's Sustainability Vision, we aim for four worlds toward 2050. In the textile business, we are making every effort to realize one of them, "a world where resources are managed in a sustainable manner." In 2011, Toray succeeded in prototyping the world's first 100% plant-based PET fiber in research and development. And in 2013, Toray launched the industry's first gym clothes using partially plant-based PET fiber from customers. In addition, our developing 100% plant-based PET fiber is beginning to be adopted by our business partners as the world's most advanced environmentally conscious products*. And we are also considering the use of "&+" brand which is using recycled polyester fibers made from discarded PET bottles. We are working to realize our Toray's Sustainability Vision through these environmentally conscious products.

Optimized textile processing based on artificial intelligence and virtual simulation

*Andreas Troscheit,
Brückner Textile Technologies GmbH & Co. KG / Germany*

Sustainability, ecology and economy are key factors not just in our textile world. High productivity and reduction of resources are important measures for this. Optimized processing saves energy and cost. Brückner developed an intelligent simulation and optimization tool. To achieve this, a digital twin of the real machine is generated and can be used for process simulation. Necessary data like fabric specifications and used chemicals including their required parameters are included in the data base to be considered for the simulation. The optimization tool checks and recommends optimized settings. The customer can analyze and compare several key figures of the process like e.g. energy consumption, cost and CO₂ footprint.

Development of innovative supercritical fluid technology from scouring, dyeing and functionalization of various kinds of textiles

Teruo HORI,

University of Fukui / Japan

Dyeing using supercritical carbon dioxide as a medium has been put into practical use in several Asian countries, but the target is only dyeing of polyester knit. Replacing only the dyeing process with supercritical CO₂ is not sufficient considering the total reduction of environmental load, CO₂ emission and water consumption. In this study, we will introduce the development of technology that uses supercritical CO₂ as a medium for the entire process of scouring, dyeing, and various functional processing. The first is the development of sizing agents that dissolve in supercritical CO₂ and the scouring methods using supercritical CO₂, the second is the development of various types of dyestuffs and dyeing methods that can be used with supercritical CO₂ for all fabrics such as polyester, polypropylene, nylon, cotton and so on, and the third is the development of functional chemical agents such as water repellent, flameproof, and antibacterial, and the development of functional processing methods using these agents in supercritical CO₂ medium.

Structural Coloration of Fiber Material

Kazumasa HIROGAKI, Isao TABATA, Teruo HORI

University of Fukui / Japan

Textile materials such as clothing have been colored with dyes and pigments to add beauty. The pursuit of beauty has reached its limit in our long history. To further pursue the aesthetics of textile materials, we have focused to apply structural colors to textile materials. Peacock feathers have a colloidal crystal (CC) structure in which melanin granules of several hundred nanometers are regularly arranged in a crystalline form. From this structure, light with a specific wavelength is diffracted and colored by Bragg's law and Snell's law. Peacock feathers are also known to have CC-structured barbules curved into a crescent shape to reduce the angle dependence of color development. The higher-order structure of the CC formed on the fiber via coating of colloidal suspension was controlled by the bending of the fiber due to the crossing of the warp and weft of the fabric. This has made it possible to add structural colors to the fabric with controlled angular dependence like peacock feathers.

The wings of jewel beetles, which exhibit structural colors, have a structure in which cholesteric liquid crystals (CLC) are fixed. CLC selectively diffracts light of a specific wavelength and develops structural color. The mesogen that exhibits CLC properties under room conditions were synthesized by appropriately esterifying the hydroxyl groups of hydroxypropyl cellulose with propionic acid to suppress intermolecular hydrogen bonding and to use the small amount of water that the remaining hydroxyl groups adsorb as a plasticizer. Structural colored fibers like jewel beetles were realized via wet-spinning of this mesogen. The blue sky is colored by blue light scattered by the air via Rayleigh scattering. To artificially achieve this phenomenon and apply it to fiber materials, polymer aerogel fibers were prepared as a nano-porous material. A gel fiber was wet-spun from the para-aramid micro fibril dispersion and then it was dried with supercritical fluid drying to fabricate an aerogel fiber. When the size of the scatterer is much smaller than the wavelength of light, Rayleigh scattering occurs. Blue-colored fibers were obtained successfully by controlling the size of aerogel pores and skeleton to actively induce Rayleigh scattering.

An ecologic alternative in discontinuous dyeing - THEN Smartflow!

Bertram Stetter,

FONG'S EUROPE GMBH / Germany

A round shape hydraulic machine with advantages and new ways in textile processing. The machine got no winch, so no need to adjust winch and fabric speed to reduce friction marks.

We use a different plaiting system, to use the space in the machine more efficient. This is supported by an adjustable variable chamber. Last but not least the used floor space is compared to machines in the market up to 17% less.

Environmentally friendly sol-gel based finishing to improve flame retardant performance of cotton fabrics

Giuseppe Rosace,

University of Bergamo / Italy

In this paper, the sol-gel technique was used to design hybrid phosphorus-doped silica structures for improving the thermal stability and flame retardancy of cotton fabrics.

To this aim, diethylphosphatoethyltriethoxysilane (DPTS) was employed as phosphate alkoxysilane in a multistep procedure that involved multiple layers (from 1 to 6) depositions. The multi-layer coatings were applied by padding using sols containing appropriate molar ratios of the precursor, anhydrous ethanol, catalyst, and hydrochloric acid. The creation of the silica skeleton on the cotton surface and the interactions between the cellulosic fibres and the doped layer have both been examined using FT-IR ATR spectroscopy. Moreover, thermal and thermooxidative stability, flammability properties, and combustion behavior of the sol-gel treated cotton fabrics have also been studied, proving the effectiveness of the sol-gel coating in the fire protection of the cellulosic substrate.

**Abstracts of the presentations / Kurzfassungen der Vorträge –
Saturday / Samstag, 14. October 2023**

The big change in the textile chemistry

*Windson Lau,
Lefatex Chemie GmbH / Germany*

The textile industry is an important part of the global value chain. To further improve the sustainability of the industry, we need to take it into account in the finishing chemistry. By better linking production, recycling and innovative products we can significantly reduce the environmental impact. At the same time, we can improve the competitiveness of the textile industry by achieving energy and cost savings.

Selected products:

- Recyclable products
- Products on renewable basis
- Compostable products
- Energy saving products

Ecological and Economical Pretreatment and Dyeing of Cotton with reactive dyes – Still a challenge?

*Jörg Schad,
Pulcra Chemicals GmbH / Germany*

Pretreatment and dyeing of cotton with reactive dyes usually consists of a higher number of treatment steps thus consuming a lot of water, time and energy. Seeking for more sustainable processes pretreatment and dyeing of cotton with reactive dyes is definitely a topic that should be eyed in terms of optimizations. The challenge is therefore to develop a process combining both pretreatment and dyeing in one bath. Resulting from intense R&D work Pulcra are proud to present their “One Step Process “. The “One Step Process” is specially designed for medium to dark shades as pale and brilliant ones still require a separate bleaching step. The key to success is the employment of a special “multipurpose product” providing wetting, dispersing, chelating and emulsifying properties. The “One Step Process” is finally not only covering pretreatment and dyeing but also the aftertreatment meaning rinsing and aftersoaping. A new polymer does not only enable to perform the aftersoaping step at low temperatures but also reduces the total numbers of rinsing baths and their temperatures. Further details of the “One Step Process” will be discussed in the presentation.

**Abstracts of the presentations / Kurzfassungen der Vorträge –
Saturday / Samstag, 14. October 2023**

Sustainability in pretreatment and dyeing – our way to a better future

*Sophie Kraus,
Rudolf GmbH / Germany*

Different possibilities how sustainability can be included in the textile pretreatment and dyeing processes

- Shorten the processes to decrease the usage of steam, gas, water, CO²-emissions
- Use raw materials of a high biobased content
- Try to use recycled materials
- Produce products of a high active content and less water

How digital dyeing and finishing technology will change the world

*Henry Rolt,
Alchemie Technology Ltd. / UK*

If nothing changes, CO₂ emissions from textile dyeing is set to reach 2.5 Gigatonnes by 2050, making it one of the most polluting industries on the planet. It's already the 2nd largest cause of global industrial water pollution. This session explains:

- How Alchemie's disruptive technologies will enable the transformation of the textile industry.
- The digital dyeing and finishing solutions that will enable the textile and fashion industry to use 95% less water, 85% less energy and halve their consumption of polluting chemicals.
- The compelling productivity, profit and onshoring benefits of accelerating the transition to sustainable dyeing and finishing.

**How to increase sustainability and flexibility by using innovative
new spray technology in the textile production**

*Ellinor Niit,
IMOGO / Sweden*

Textile dyeing is a huge consumer of water, energy, and chemicals. With a growing environmental conscience, the impact associated to the dyeing process of textiles is too high. Large brands put a lot of pressure on the textile mills to adopt environmentally friendly processes and with increased costs for resources and material there is an urgent need for actions to justify remaining on the market.

The concept was defined at the Swedish School of Textiles in 2016. A team started testing the spray application and in 2018 IMOGO was founded to realize the idea. IMOGO has developed a technology based on a unique combination of precision nozzles and patented high-frequency valves, that dramatically reduces the water consumption in the wet processing. By spraying on the textile, exact amount of liquid that is needed to carry the dyestuff or chemistry exactly where it is needed the discharge almost eliminates from the process.

Due to market potential, fastest implementation, and most beneficial environmental savings focus has initially been cellulosic dyeing but working together with selected partners IMOGO have seen an increasing need for the technology also into other wet processes in the industry. Practically all steps where some exclusive dye, chemical or functionality must be applied the IMOGO revolutionary spray technology can be implemented to achieve better flexibility, reproducibility, and savings for the manufacturer, and at same time reducing the environmental impact dramatically.

Sustainable Spray Finishing & Dyeing concepts

*Mr Jayanta Sanyal,
Weitmann & Konrad GmbH & Co.KG (WEKO) / Germany*

High reductions in energy, fresh/waste water, chemical and raw material use are key factors in the textile industry of today. On the other side textile mills must control and minimize the processing costs to be in a competitive market successful. WEKO will introduce ideas which could combine both – cost reduction and higher sustainability. By showcasing new processing methods due to spray application in finishing and continuous dyeing which generating combinations of reduced pick-up and intelligent drying/fixing solutions which could be driven purely by renewable electrical power source.

Circularity inspired product solutions for a more sustainable textile world

*Robert Zyschka,
CHT Germany GmbH / Germany*

Textiles and clothing are a fundamental part of our everyday life and an important sector in the global economy. The current system „make - use - waste“ operates in an almost completely linear way. This system leaves economic opportunities untapped, put pressure on resources and pollutes and degrades ecosystems.

The concept of a circular economy is based on principles like:

- design out waste and pollution
- keep products in use and
- regenerate natural systems.

The basic idea of the circular economy is to reduce the use of fossil primary raw materials as much as possible. This goal can be achieved by processing secondary raw materials and by using materials from renewable sources. The system of circular economy is often visualized as a so-called „butterfly diagram“, where the two wings illustrate the technical and the biological cycle.

The technical cycle recovers and restores products, components and materials through strategies like:

- reuse
- repair
- re-manufacture or
- recycle.

The biological cycle feedback food and biobased materials into the system by composting and biodegradation. The cycle regenerates living systems.

Two CHT products based on a chemical recycling process of secondary raw materials will be presented.

TUBINGAL RISE is a high-quality textile softener which is produced out of „end-of-life“ silicone rubber waste by a chemically recycling process. The process prevent waste from landfill and reduce CO2 emissions. ARRISTAN rAIR is a functionalizing agent for synthetic fibers produced from shredded PET bottles. ARRISTAN rAIR thus extends the useful life of existing plastics and helps to save primary fossil resources. In addition, chemical recycling contributes to waste reduction. The product improves the wearing comfort by optimizing moisture management properties of textiles while reducing electrostatic charge. Another positive effect is the improved soil release effect of hydrophobic stains in household laundry.

The biological cycle is based on renewable raw materials. Oleochemistry in particular makes an important contribution here.

The chemistry of "fats, oils and waxes" is well known for many years and not new, but is becoming more and more important due to the climate neutrality and good degradability of the manufactured products.

Softeners and lubricants are used for example in the finishing of textiles in order to give them the desired feel and haptics. Natural substances with long hydrocarbon-chains are also playing an increasingly important role in the synthesis and formulation of fluorine-free products for water repellency treatment.

TUBINGAL 7023 will be presented as an example for a product from the biological cycle which is used for textile softening. The product is largely based on renewable raw materials and is readily biodegradable.

Oil and water repellent finishes without PFAS – Quo vadis? Latest developments and limitations

*Bernd Jakob,
Archroma International (Germany) GmbH / Germany*

“PFOA, PFOS, PFHx, PFAS – abbreviations for chemical substances widely used in the textile value chain. These abbreviations are often mixed, but the common denominator of those abbreviations is the Fluorine-carbon chemistry, a chemistry which provides unique technical features but has caused in the last 20 years huge environmental concerns. For this reason some substances are already eliminated, some are restricted, but the future is a comprehensive regulation of the Fluorine-carbon chemistry.

The lecture will provide some clarity about current and upcoming regulations and derogations, which are constantly updated. It will describe possible alternatives to the Fluorine-chemistry including their limitations.”

Bio-based products and sustainable process – Urea replacement in inkjet printing

*Thomas Ruchser, Sylvia Hane,
TANATEX Chemicals B.V. / The Netherlands*

Within the last decade, digital inkjet printing has become an excellent alternative to traditional printing. Digital inkjet printing delivers a variety of benefits such as greater production flexibility, limitless design possibilities and significant reduction in water and energy consumption. However, there is a downside. It requires a higher amount of chemicals in its fabric preparation compared to traditional printing. One of those chemicals is urea. When discharged, a high load of nitrogen is present in the effluent.

Urea, which consists of 47% nitrogen, can be stripped from effluent using sophisticated, water filtration systems, however, these are costly and vulnerable to failure or accidental discharges. A better, more sustainable, solution is to reduce the amount of urea in your production processes, and ideally removing it altogether.

The answer: TANAJET™ Bio

The TANAJET™ Bio products are free of urea. We've replaced this 'key substance' with bio-based materials while still being able to achieve the market's required results as well as complying to all ecological requirements. Our new range of TANAJET™ Bio products are a gamechanger for the textile industry due to its ability to create and manufacture greener textiles by transforming towards a more sustainable production process.

Biofunctional polyamide textile with essential oil nanocapsules: In vitro release kinetics, antibacterial activity and skin penetration

*Meritxell Martí,
Textiles and Cosmetic Innovations,
Institute of Advanced Chemistry of Catalunya (IQAC-CSIC) / Spain*

Oregano essential oil was encapsulated in poly-ε-caprolactone nanoparticles by a nanoprecipitation method and applied onto polyamide fabrics. The efficacy of treatment was verified through SEM and ATR-FTIR. Carvacrol was used as oregano essential oil trace to quantify the application and drug delivery study. Drug release in physio-logical serum was carried out with treated fabrics submerged into a thermostated vessel at semi-infinite bath conditions. The carvacrol release kinetics to the saline medium showed good fitting with the first order kinetics. The diffusional exponent value, n , in the Korsmeyer-Peppas model, demonstrates that the release mechanism followed the non-Fickian type of release (anomalous transport). Additionally, the nanocapsules and the treated polyamide fabric were screened for their antimicrobial properties in vitro. Results showed that the nanocapsules impregnated polyamide fabric exhibited excellent antimicrobial activities against the Gram-positive bacterium of *Staphylococcus aureus*. Furthermore, the penetration profile of carvacrol into the relevant layers of the porcine skin was performed with the in vitro Franz diffusion cells and the controlled release in porcine skin layers was achieved with a high penetration in the deepest skin layers. Thus, this present work highlighted the potential of the oregano nanocapsules impregnated polyamide textile as a potent delivery system for effective treatment of skin infections.

Keywords: *Origanum vulgare* L. nanocapsules, *Staphylococcus aureus*, antibacterial fabric, carvacrol delivery, kinetic models, bifunctional textile.

Ultrasonic Solutions for Textile Industry

*Kushtrim Daci,
Weber Ultrasonics AG / Germany*

Ultrasonic Solutions for Textile Industry. Especially in Textile Finishing. Reducing chemicals, water and energy through mechanical effect due to cavitation. Innovative ultrasonic systems for the pre-treating and finishing of web materials.

Ultrasonic Component Producer with individual customized products to reach homogeneous and long-term sonication for widths up to 3,2 m and more.

Transformation process of an industry towards sustainable products - challenges and solution approaches for textile floor coverings

*Dirk Hanuschik,
TFI -Institut f. Bodensysteme an der RWTH Aachen e.V. / Germany*

The transformation process of the textile floor covering industry towards sustainable products is a complex and difficult journey, with many challenges and obstacles. The presentation will address the following topics: the current trends driving the industry to explore new sustainable options, the challenges and risks associated with the transformation process, and the solutions and approaches to overcome these challenges. The current trends that are driving the industry to explore new sustainable options include increasing consumer demand for eco-friendly products, increasing pressure from governments, and the emergence of new technologies. However, the transformation process towards sustainable products is not without its challenges and risks. These include the introduction of new materials, the resistance to change from the industry, and the challenge of maintaining profitability. As a supporter for the textile flooring industry for nearly 60 years, TFI will show some solutions and approaches that can be taken to ensure a successful transformation process in order to overcome these challenges. These include the extension of service life, design for recycling comprising new material constructions with view to monomaterial products or separation layers, associated new manufacturing processes, recycling concepts and new business models. These approaches are presented by giving examples covering the lab, pilot and pre-production scale.

Circular Economy in the Hosiery Industry

*Zsófia Antalóczy,
TOMCSANYI Amazon Ltd./ Hungary*

As a product designer and engineer I can come up with new ideas and innovations but 'Design OF the future' is not the same as 'Design FOR the future'. I have to think about that, and that's responsible design.

We examined a hosiery factory in Hungary called Amazon Ltd., where hosiery waste is generated during production. We were looking for a solution for the reuse of stocking waste. As this waste can not be burned, I wondered as a product designer - 'What can I make of this, that can give a new value to an environmentally harmful waste and at the same time encourage education on the subject?'

So I designed a product collection, which has primarily been conceived as part of community spaces, using the hosiery waste as an eye-catching filling. I also examined an authentic hungarian clothing brand-TOMCSANYI -where the textile waste is processed and used again, as stuffing for puffy scarves and bags.

While the linear economy in the textile industry follows the principle of: make, take, waste, my example creates an inspiring and functional product made of 100 % recyclable materials, and a way to give new value to constantly generated textile waste.

Keeping Textile wastes in circulation together with mycelium in order to reuse them

Dóra Márfoldi,

Budapest Metropolitan University / Hungary

The textile industry ranks second among large industries in terms of pollution. In addition to the production of raw materials, textile waste is a significant contributor to the segment's ecological footprint.

By bringing sustainable design to the fore, we can provide a valid response to many of the environmental challenges associated with the industry. Among the bio-based materials that can be grown, mycelium offers the possibility to recycle organic, cellulose-based textile waste. A range of material grades with stable properties can be grown from different qualities of textile and other waste of plant origin. Different fungal strains can be used to grow various material characters, depending on the purpose for which they are to be used. Tinder-bound mycelia can be used to grow composite materials with high strength, dense structure but low weight. This gives them good thermal and sound insulation properties. This, together with its self-extinguishing properties, makes it well suited for interior applications. In my research, I will investigate the properties of the material and its potential for interior design, in addition to its insulating properties.

**Abstracts of the lectures / Kurzfassungen der Vorträge –
Friday / Freitag, 13. October 2023**

**Neue Wege wagen: Bauprojekt „Green Factory“ in Deutschland –
Chancen und Herausforderungen am Beispiel der P.A.C. Green
Factory in Schweinfurt**

*Lukas Weimann,
P.A.C. GmbH / Germany*

Gründe und ökonomische Abwägung für einen innovativen Neubau
Textilmanufaktur mit nachhaltigen Ansprüchen.

Standortwahl & Made in Germany: eine schwere Entscheidung?

- Gründe und Vorteile der Standorttreue
- Fördergelder? – rein für Bau im EU-Ausland
- Rolle der Lieferkettenkrise
- Synergieeffekte & Kooperationen

Planung nach nachhaltigen Gesichtspunkten

- Innovative Gebäude- und Produktionsplanung
- Energieautarkie? Vorteile Photovoltaik-Anlage
- Digitalisierung und Nachhaltigkeit im Produktionsprozess:
Beispiele
- Ressourcensparende Produktion & Materialeinsatz: Insights aus der
Praxis

Implementierung nachhaltiger Aspekte im laufenden Betrieb

- CSR - soziale und regionale Verantwortung als Arbeitgeber von über
80 Mitarbeitenden
- Ökologische & soziale Nachhaltigkeit leben
- Zusammenarbeit mit der LEBENSHILFE
- Ausbildung in neun Berufen; Teamspirit fördern
- Ökologisches Engagement
- soziale Projekte
- Positive Auswirkung auf Fachkräfte-Bindung - Praxisbeispiele "

**Abstracts of the lectures / Kurzfassungen der Vorträge –
Friday / Freitag, 13. October 2023**

**Neue Prüfmethode zur Bestimmung der potenziellen Umwelt-
auswirkungen des Faserabriebs beim Waschen – DIN SPEC 4872**

*Juliane Alberts,
Hohenstein Laboratories GmbH & Co.KG / Germany*

Während die Existenz von Mikroplastik heutzutage als bestätigt gilt, gibt es
keine ausreichenden Erkenntnisse, inwieweit dieses sich auf die Umwelt
auswirkt. Studien haben gezeigt, dass beim Waschen von Textilien
Mikrofragmente freigesetzt werden, die von Kläranlagen nicht gänzlich
zurückgehalten werden können.

Vor diesem Hintergrund wurde mit der neuen DIN SPEC 4872 von
Hohenstein ein standardisiertes Prüfverfahren zur Ermittlung und
Klassifizierung der Umweltbelastung von Textilien beim Waschen
geschaffen. Dabei werden die Textilien mit Hilfe eines geeigneten
Analysesystems hinsichtlich der Faserabgabe während des
Waschprozesses klassifiziert. Darüber hinaus wird die biologische
Abbaubarkeit von Faserfragmenten in Abwasser geprüft, indem der Grad
des Abbaus innerhalb einer definierten Zeitspanne bestimmt wird.
Schließlich wird ein geeigneter Ökotoxizitätstest durchgeführt, um die
Toxizität der Rückstände nach dem biologischen Abbauprozess zu
bestimmen.

Diese neue Norm ermöglicht es Unternehmen erstmals, ihre textilen
Produktentwicklungen hinsichtlich der Faserfreisetzung beim Waschen
und der Umweltauswirkungen dieser Faserfreisetzung zu testen, zu
bewerten und zu vergleichen. Es kann nach der Prüfung und
Klassifizierung eine Optimierung des Produktportfolios und gleichzeitig
eine gezieltere Produktentwicklung erfolgen, wodurch die potenziellen
Umweltbelastungen aktiv und bewusst gesteuert werden können.

**Innovative Veredelungsprozesse und effektives Chemikalienmanagement für eine sichere und nachhaltige Textilindustrie –
Beispiele aus dem internationalen Projekt EnaTex**

*Evelyn Lempa,
Hochschule Niederrhein Fachbereich Textil- und Bekleidungstechnik
University of Applied Sciences / Germany*

Die Textil- und Bekleidungsproduktion ist sehr ressourcenintensiv und hat große Auswirkungen auf die Umwelt und die menschliche Gesundheit. Studien zeigen, dass über die Analyse von Umwelteinflüssen wie Abfall und Abwasser hinaus der Untersuchungsumfang des Chemikalienmanagements eine detaillierte Berücksichtigung des Arbeitsschutzes beinhalten muss. Gerade bei arbeitsintensiven Produktionsschritten bei der Veredelung von Textilien mit Chemikalien sind die Mitarbeiter Schadstoffen ausgesetzt, die sich vor allem durch unsichere Produktionsprozesse und mangelndes Bewusstsein für mögliche Folgen negativ auswirken.

Mit dem neuen Lieferkettengesetz und der Chemikalienstrategie für Nachhaltigkeit des EU Green Deals steht nun vor der Herausforderung, Transparenz über eingesetzte chemische Stoffe zu schaffen, da die Verlagerung der Textilproduktion in den globalen Süden auch die Chemikalienproblematik in Länder außerhalb dieser rechtlichen Rahmenbedingungen verlagert hat. Die europäische Richtlinie zur Erfüllung der unternehmerischen Sorgfaltspflichten bildet den europäischen Rahmen für die Lieferkettengesetze der einzelnen EU-Staaten.

In dem vom Bundesministerium für Bildung und Forschung geförderten Forschungsprojekt EnaTex will eine Kooperation zwischen deutschen und indonesischen Partnern aus Wissenschaft und Industrie eine ökologische, soziale und ökonomische Transformation hin zu einer nachhaltigen Textilindustrie bewirken.

Forschungsschwerpunkt sind zwei innovative Verfahren in der Veredelung:

1. Minimalauftrag von Chemikalien (MA) auf Textilien mit dem Ziel, den Chemikalienverbrauch ganz allgemein sowie den Feuchtigkeitsgehalt zu reduzieren, um den Energiebedarf für die Trocknung des Gewebes zu minimieren. MA mit Kiss-Roller- oder Rotationsspray-Technologie kann den Chemikalienverbrauch im Vergleich zum herkömmlichen Foulard-Auftrag um 50 % reduzieren, da die Substanzen nur auf einer Seite des Materials aufgetragen werden. Die Restfeuchte kann so von +/- 80 % auf nur 20 % oder sogar 10 % minimiert werden. Dadurch können bis zu 60 % Energie während des Trocknungsprozesses eingespart werden.

2. Einsatz der Ultraschalltechnologie (US) während der Abwaschprozesse, um den Wasser- und Chemikalienverbrauch sowie die Energie für das Aufheizen von Waschbädern zu reduzieren und die Abwassermengen zu minimieren. US beim Waschen nach Vorbehandlung oder Färbung kann die Anzahl oder Größe der Waschboxen reduzieren, wodurch das Abwasser um bis zu 50 % reduziert und/oder die Temperatur von üblicherweise 98 °C gesenkt wird. US kann auch zum Auftragen von Flüssigkeit in Färbeprozessen tief in die Faser verwendet werden und erfordert daher weniger Farbstoffe sowie weniger Abwaschverfahren.

Diese innovativen Verfahren werden bei zwei Industriepartnern auch im Hinblick auf Arbeitssicherheit, sicheren Umgang mit Chemikalien und damit Klimaschutz untersucht. Im Fokus steht ein integrativer Ansatz zu ökologischen Innovationen mit Arbeitssicherheit und Gesundheitsschutz sowie dem sicheren Umgang und Einsatz von Chemikalien im Hinblick auf Umwelt und Mensch.

Textilien mit katalytischen Eigenschaften

Dr. Klaus Opwis,

Deutsches Textilforschungszentrum Nord-West gGmbH / Germany

Das DTNW hat in den vergangenen Jahren unterschiedliche Methoden zur Immobilisierung von Katalysatoren an textilen Materialien entwickelt. Aktuell nutzen wir Textilien als Träger für drei unterschiedliche Klassen von Katalysatoren:

1. Enzyme mit den Anwendungsbeispielen Bleichung von Molke und Schönung von Wein, also der hauptsächlichlichen Verwendung in der Lebensmittelindustrie,
2. Organische Katalysatoren für sogenannte enantioselektive Synthesen von Feinchemikalien und Pharmazeutika,
3. Anorganische Katalysatoren für Feinstaubfilter, die neben der mechanischen Abreinigung von Stäuben auch Schadgase abbauen können.

Nachhaltiges Ausrüsten mit Hilfe einer kontinuierlichen Schmalwarenveredlungsanlage

Julia Ullrich

TITV e.V. Textilforschungsinstitut Thüringen-Vogtland e.V. / Germany

Der Zweig der Textilveredlung ist einer der größten und komplexesten in der Textilindustrie und nicht für eine hohe Ressourceneffizienz bekannt. In solch herausfordernden Zeiten muss aktiv daran gearbeitet werden, die Nachhaltigkeit in den Vordergrund zu rücken und damit den Klimawandel aktiv zu verlangsamen.

Eine Möglichkeit besteht darin, Färbungen, die bisher nur im diskontinuierlichen Färbeverfahren durchgeführt wurden, auf das kontinuierliche Verfahren zu übertragen. Beim diskontinuierlichen Verfahren ist das Färben bisher nur durch die gleichzeitige Einwirkung von Temperatur und Zeit gelungen. Aufgrund des diskontinuierlichen Prozesses ist das Verfahren teuer und erfordert einen hohen Ressourceneinsatz, der die Umwelt belastet. Der Einsatz des kontinuierlichen Verfahrens ist für die Industrie nur bei großen Partien sinnvoll, führt dann aber zu einer Reduzierung des Energie-, Wasser-, Material- und Zeitverbrauchs in der Textilfärbung. Für Lohnveredler gibt es in der Regel keine Möglichkeit, eine Verfahrensumstellung zu untersuchen, entweder aus Zeit- oder Personalmangel oder weil die Maschinen auf hohe Arbeitsbreiten ausgelegt sind und somit die Entwicklung aufgrund des hohen Materialeinsatzes sehr kostenintensiv wäre.

Für einen solchen Fall sind modulare Schmalwarenveredelungsanlagen mit einer maximalen Arbeitsbreite von 500 mm von großem Vorteil. Im Rahmen des Vortrags wird theoretisch beleuchtet, wie eine Überführung eines diskontinuierlichen Färbeprozesses in den kontinuierlichen Prozess zu hohen Echtheiten der Ware sowie zu Einsparungen von Wasser-, Energie- und Chemikalienverbrauch führt. Dies kann durch den modularen Aufbau erreicht werden. Es können verschiedene Behandlungsmodule hintereinander geschaltet werden. So kann beispielsweise ein Färbefoulard mit einer Ultraschallfixierung kombiniert und mittels Carbon-Infrarot-Strahlern effizient behandelt werden. Mit Hilfe von farbmetrischen Tests und textilphysikalischen Untersuchungen werden die Ergebnisse des Prozesstransfers bewertet und eine Wirtschaftlichkeitsanalyse abgeleitet.

German speaking lectures/*Deutschsprachige Vorträge*:

Abstracts of the lectures / Kurzfassungen der Vorträge –
Saturday / Samstag, 14. October 2023

Schicksal und Auswirkungen von Farbstoffen beim Faser-zu-Faser-Recycling – Polyamid 66 (PA 66) durch selektive Auflösung in Calciumchlorid-Ethanol-Wasser (CEW)

Dr. Avinash P. Manian,

*Universität Innsbruck, Research Institute of Textile Chemistry/Physics /
Austria*

Das geschlossene Kreislaufrecycling ist ein wesentlicher Bestandteil der EU-Strategie für die Kreislaufwirtschaft von Textilien. Ein Ziel ist das Faser-zu-Faser-Recycling, d.h. die maximale Rückgewinnung aller Bestandteile aus aussortierten Textilien zur Herstellung neuer Textilien.

Eine wichtige Fragestellung betrifft das Schicksal und die Auswirkungen von Farbstoffen, die ursprünglich in den aussortierten Abfällen vorhanden waren. Wir haben die Rückgewinnung von PA 66 aus Mischungen mit anderen Fasern durch selektive Auflösung in CEW untersucht und anschließend für die Wiederverwendung zur Herstellung neuer Fasern wieder ausgefällt.

Dieser Vortrag beschäftigt sich mit dem Einfluss von Säure- und Metallkomplexfarbstoffen in Wolle-PA 66 Mischungen. PA 66 wird mit CEW aufgelöst und abgetrennt. Das gelöste Polymer wird anschließend durch Zugabe von Wasser wieder ausgefällt. Es wird untersucht, ob der Farbstoff aus dem Polymer ausgelaugt oder zurückgehalten wird und ob es zu einem Farbstofftransfer zwischen Wolle und PA 66 kommt. Auch wird gezeigt, ob die Rückhaltung der Farbstoffe im zurückgewonnenen PA 66 eine negative Auswirkung auf seine Schmelzverarbeitbarkeit zu neuen Fasern hat.

German speaking lectures/*Deutschsprachige Vorträge*:

Abstracts of the lectures / Kurzfassungen der Vorträge –
Saturday / Samstag, 14. October 2023

TANADYE Concept von TANATEX – unsere Lösung für die Färberei von heute, die im Einklang mit Natur und Umwelt ist

Darius Naroska,

TANATEX Chemicals B.V. / The Netherlands

TANADYE ist das neueste intelligente Wassersparsystem, das von TANATEX Chemicals entwickelt wurde. Es ist in der Lage, bemerkenswerte Mengen an Wasser, Energie und Zeit einzusparen, indem es die traditionelle Zweibad-Färbemethode in einen Einbad-Wasch- und Färbeschritt umwandelt. Dies führt zu geringeren Kohlenstoffemissionen, erhöht die Effizienz am Arbeitsplatz und kommt der Qualität der behandelten Textilsubstrate zugute, da diese durch die kürzere Prozesszeit weniger beansprucht/geschädigt werden.

TANADYE ist ein Konzept, das nachhaltige Lösungen in der Nassverarbeitung bietet Polyester-, Polyamid- und Zellulosefasern.

Treibende Kraft hinter diesem Konzept ist die Einsparung von Wasser, die heutzutage ein vorrangiges Thema in der textilen Wertschöpfungskette ist. TANATEX möchte dazu beitragen, Wasser, eine wichtige Ressource auf der Erde, zu sparen, indem es den Vorbehandlungs- und Färbeschritt in einem vereint.

Das TANADYE-Konzept wurde als Beitrag von TANATEX zu nachhaltigen Lösungen für die Textilindustrie ins Leben gerufen, indem es Wasser- und Energieeinsparungen bei Färbeprozessen ermöglicht. Das TANADYE-Konzept umfasst die weltweit wichtigsten durch Ausziehverfahren verarbeiteten Fasern wie Polyester, Polyamid und Zellulose.

Social Program

Time Table Social Program

Friday 13.10.2023

| | |
|-------|---|
| 10:00 | City Tour (only in German) Follow the Traces of the Fuggers (2 h) / Start: Manzu Fountain at Königsplatz (from Congress by foot about 15 minutes) Use tram line 1, departure 09:40 (best to buy day ticket) |
| 14:00 | City Tour (only in German) The Water Management of Augsburg (1 h) / Start: Manzu Fountain at Königsplatz (from Congress by foot about 15 minutes) Use tram line 1, departure 13:40 (best to buy day ticket) |
| 17:30 | TIM Museum Tour |
| 19:00 | Festive Evening Dinner nunó Restaurant im TIM, Provinostraße 46 11, 86153 Augsburg Shuttle to TIM from Kongress am Park |

Sunday 15.10.2023

| | |
|-------|--|
| 10:00 | City Tour (only in German) (2 h) / Start Town Hall |
|-------|--|

Begleitprogramm

Zeitplan Begleitprogramm

Freitag, 13.10.2023

| | |
|-------|--|
| 10:00 | Stadtführung Auf den Spuren der Fugger (2 h) / Treffpunkt: Manzu-Brunnen am Königsplatz (Fußweg vom Kongress am Park ca. 15 Min.) Nutzung der Straßenbahnlinie 1, Abfahrt 09:40 (am besten Tagesticket lösen) |
| 14:00 | Stadtführung Augsburger Wassermanagement (1h) / Treffpunkt: Manzu-Brunnen am Königsplatz (Fußweg vom Kongress am Park ca. 15 Min.) Nutzung der Straßenbahnlinie 1, Abfahrt 13:40 (am besten Tagesticket lösen) |
| 17:30 | Besichtigung TIM (Staatliches Textilmuseum) |
| 19:00 | Festabend nunó Restaurant im TIM, Provinostraße 46 11, 86153 Augsburg Transfer zum TIM vom Kongress am Park |

Sonntag, 15.10.2023

| | |
|-------|--|
| 10:00 | Geführter Stadtspaziergang (2 h) / Treffpunkt: Rathaus |
|-------|--|

Notes / Notizen

Notes / Notizen

Scientific Committee

President:

Professor Dr. Michael Rauch, Hochschule Hof / Germany

International Members:

Dr. Waldemar Machnowski, Poland

Aziz Lallam, France

Meritxell Marti Gelabert, Spain

Dr. Valentina Trovato, Italy

Dr. Henrietta Judit Nagy, Hungary

Reinhard Zander, Germany

National VDTF team

including Lothar Hentz

Vera Gail

Michael Killisperger

Peter Becker

Organizing Committee

Tanja Jaich

Renate Haupt-Stephan

Ingrid Hammerl

Michaele Uppenkamp

Giuseppe Rosace

Including the members of the VDTF board:

Prof. Dr. Michael Rauch

Lothar Hentz

Paresh H. Patel

Harald Baumle

Peter Schomakers

Andreas Troscheit

Lukas Hartmann