

IFWS Conference 2023

Activate food for thought or restart

Review

Meeting of the IFWS in St. Gallen

International events as well as the pandemic brought the activities of the International Federation of Warp Knitting and Knitting Specialists (IFWS) to a standstill. For this reason, a meeting of the country sections Switzerland and Germany was organised on 27/28 November 2022. The objectives of the IFWS and future activities were discussed in open debate. The focus of the meeting was to find a meaningful new start and thus the beginning for a contemporary association life. The participants celebrated the 65th anniversary of the IFWS in the evening, one year late.

The highlight of the event was the visit to the Empa Research Institute in St. Gallen with a tour of the laboratories for recycling mobile phones and recovering numerous basic materials, electrospinning in the nano range and textile sensors.

Large quantities of no longer used mobile phones accumulate. There are about 45 metals in each mobile phone, of which 1/3 can currently be recovered, while some evaporate into the air or decompose into slag.

Our population is getting older, so it is important to simplify and reduce care. Empa is working on numerous possibilities. For example, nanofibres can be applied directly to wounds as scrims using a hand-spinning device. They disinfect, promote healing and form an artificial skin. Textile sensors are made to conduct electricity or light, to administer medicine, or to record pressure. Coating, embroidery or core-sheath structures can be used for this purpose.

New start

After a three-year break from Corona, the Regional Section Germany invited members to its annual meeting and general assembly in the textile town of Mühlhausen/Thuringia on 21-23 May 2023. The town has been known as a textile location in Germany and Europe for centuries and is considered the second largest area monument with many historical buildings.

General meeting

Currently, the German Section has 94 members, of which 37 are corporate, 30 individual, 10 young and 17 senior members.

The focus was on the new elections of the Executive Board for the period 2023-2025. All members of the Executive Board: Reinhard Helbig, Chemnitz, Rolf Schuhmacher, Balingen, Wolfgang Schäch Reutlingen, Matthias Knobel, Albstadt, Marina Baum, Albstadt-Sigmaringen, were unanimously re-elected.

The Section is planning the next general meeting with a symposium for 9-11 or 16-18 June 2024 in the Swabian Alb.

The lecture programme included interesting presentations from research and practice.

Lecture programme

Smart knitted textiles were presented by Dr. Gottfried Betz, Strickmanufaktur Zella GmbH. In addition to the production of luxury articles, the company develops knitted functional textiles, such as warming, luminous knitted fabrics. Together with yarn manufacturers, the company developed the smart yarn SMOOLS, which is made of Bw/cellulose or Tencel/cellulose. Paraffin is introduced into the cellulose part (voids), which acts like a textile air conditioner. This means that the fibres support the natural thermoregulation of the human body. However, scents (not perceived by humans) can also be incorporated to protect against moth damage. Both types of storage can withstand 40/50 washes.

Another development is knitted fabrics in which flexible polymer light guides are integrated. This makes it possible to turn classic outdoor cardigans into cycling jackets that indicate changes of direction or braking manoeuvres by light signal. The wireless control of the function is done with knitted push buttons. Knitted-in electrical lines (in the weft or forming a stitch) can be incorporated into belts or headbands, among other things. A power bank can be used to operate and regulate the heat supply. The creation of these innovations is only possible in a network with other partners and takes a long way to the final marketable product.

Dr Steffen Seeger, Saxon Textile Research Institute, Chemnitz, spoke about the drafting and design of knitwear in transition - (r)evolution through digitalisation and AI. The textile industry is driving the digital transformation and is also relying on artificial intelligence. Digitalisation is already in use in drafting, design, virtual patterning as well as technical requirements. Examples will be presented. (This lecture will be published in one of the next issues).

Florian Wieczorek, Smart Textiles hub GmbH, Dresden, spoke on the topic of fast prototypes using flat knitting technology. The company sees itself as a central contact point for the development of textile and electronic solutions according to special requirements. E.g. flat knitted fabrics for muscle stimulation for the sick or for space and aviation. The development of textile products that improve their functions and properties by integrating non-textile elements (electronics). But there are also solutions for knitting, such as near-net-shape cut parts, no waste, needle-accurate insertion of different yarns, integration of non-textile components, low set-up times.

Dr. Heike Illing-Günther, Saxon Textile Research Institute, Chemnitz, reported on the strategic orientation of the STFI - sustainable and recyclable. The textile industry in Germany has changed fundamentally in recent decades. The trend of globalisation has brought about a change in the industry. It has seized the opportunity and made technical applications the focus of its production. Textile research has also developed from technology to material research. Both aspects speak for success. The textile industry has become an indispensable partner in many sectors. The STFI has grown strongly in the last 5 to 10 years, which was sometimes done relatively pragmatically - where there is too much work, helping hands and heads have to go. now it is time to consolidate, both in terms of content and personnel. In doing so, the strategy of thematic diversity, which is based on many years of experience, will be continued. Textile development today is no longer concerned with clothing, but to a large extent with functional textiles, so-called technical textiles. STFI will continue to expand its core competencies until 2025. Sustainability, for example, will become an even bigger issue. Whether it is energy-efficient technologies such as laser-based dry pre-treatment or the photo-

initiated cross-linking of prints, coatings and composites, natural material-based materials using wood or biodegradable products (such as fibre hemp).

The practical research is evident in the semi-industrial plant technology used for F/E. Here, R2R working is of great importance in order to make the transfer to production as simple as possible. It opens up the possibility of start-up or replacement production. Focused, the STFI is consistently pursuing this path and establishing the Centre for Textile Sustainability. This is where energy-efficient dry finishing processes will be found, but also another nonwoven formation process that is still missing - wet nonwoven technology. Sustainability in the sense of resource, energy and time efficiency has an origin and a future at the STFI.

Company visits

Textile finishing Gebr. Hecht GmbH

In 1836, the foundation stone was laid for an industrial textile company for decadding and pressing cloth and worn clothing. This was followed as early as 1844 by a finishing and cloth shearing plant. Over the years, other production areas were added, such as bleaching, finishing, rope and piece dyeing. After a not always easy path until 1989, the company developed into a dyeing plant for cross-wound bobbins and an automatic bobbin winding plant. On 1 May 1990, the textile finishing was reprivated and then converted into a yarn supplier. Up to 180 colour shades were available. During our visit, the company was looking for a new owner.

Dingelstädter Strick GmbH

The businessmen Erhard Schminke (familiar with the knitting industry) and Detlef Sonne (financier) founded the knitwear factory in October 1990. Due to the proximity to the former knitting industry (Apolda, Mühlhausen), numerous skilled workers were available. After the start of production of women's knitwear for the upmarket specialised trade. In 1992, the first own collection was finished in the new factory with 16 workers. By 1996, the knitting and ready-to-wear departments had been considerably expanded and the workforce increased to 70. After graduation, the son, Ingo Schminke, joined the family business. Production was expanded and modernised more and more. The production of complete jumpers is another step forward. Ingo Schminke developed the necessary technology for this as well as the corresponding machine Stoll Knit & Wear (patent) in his diploma thesis. In 2000, 90 workers are already employed in the expanded factory. The flat knitting factory was modernised with two Steiger Vesta-Multi flat knitting machines. Six years later, more than 100 workers were working in the multi-shift operation.

In the second pillar, flat knitting machines with 47 working positions in 12/14 gauge are in operation. The fine knitted fabrics, mainly made of extra-fine merino fibres from Italy, are printed using the thermo process. The jumpers have linked seams.

Strick Zella GmbH

The company was founded in 1920 as the Leonhard Mai knitwear factory. High quality and attractive design were the hallmarks of this company. In 2005, a successful new start was made with Dr. Gottfried Betz. With its own labels Mia Mai (women) and Leonhard Mai (men), the company develops and produces high-quality knitwear with casual elegance and innovative additional functions. Yarns made of viscose, merino and cashmere blends are processed, with selected zip labels and heads. The products have a high quality, good wearing comfort and a good fit.

The second mainstay, which is currently being developed, is functional textiles with electro-optical functions, such as attractively luminous caps and jackets. Electric heaters, e.g. in belts powered by a

power bank, increase comfort outdoors. This production is still in the early stages of development and is being carried out in cooperation with Thuringia's Smarttex network.

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