



University of Zagreb Faculty of Textile Technology & AMCA TTF

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SCIENTIFIC LECTURE

entitled

Maintenance of electroconductive flexible substrates

by

Assoc. prof. **Ilda Kazani**, PhD

on Friday July 8th, 2022 at 11:30 AM

in lecture hall **A-301**, Prilaz baruna Filipovića 28a, Zagreb

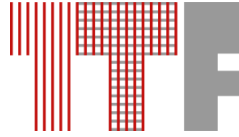
Abstract:

Over the last years' smart textiles and wearable textile systems have become popular as a concept. These developments require new materials such as electroconductive textiles. As a result, research into screen printing of conductive silver inks onto flexible substrates has emerged. In this study, screen printing is used to print four kinds of silver-based conductive inks (two with PES resin and two with Epoxy resin) on polyurethane foam and nonwoven PES substrate. The screen-printing method is chosen to make these flexible substrates electroconductive, because it is a low cost and user-friendly technique to obtain flexible and lightweight conductive flexible substrates. For the evaluation of the electrical properties the square resistance R_{\square} of the printed flexible substrates was measured after each five cycles of dry cleaning up to 60 cycles in order to provide an evaluation of the conductivity of the four inks with respect to each substrate. The printed textiles studied here show good electrical properties after printing ($< 0.05 \Omega/\square$). However, after 60 dry cleaning cycles, the conductivity decreased considerably. Therefore, in order to improve their maintenance, it is necessary to cover them with a protective polyurethane layer to maintain electrical properties after dry cleaning. In this case, the resistivity remained below $2.3 \Omega/\square$ after 60 dry cleaning cycles. Here was shown that the PES based ink combines best with PES substrate, while epoxy-based ink gives better results with polyurethane foam, so a good combination between ink and substrate needs to be found in order to obtain a high-quality electroconductive substrate that can be integrated into garments and easily maintained.

Biography:



Ilda Kazani is currently Associated Professor at the Textile and Fashion Department, Polytechnic University of Tirana. She studied Textile Engineering at the Polytechnic University of Tirana, Albania, where she obtained the diploma in Textile Engineering in 2002. The same year, she became a staff member of this department. In 2008, Ilda Kazani received a second Master degree in Materials and Metallurgy from Polytechnic University of Tirana. During the period April-June 2008, she completed her Master thesis at the Department of Textiles (Ghent University) in Belgium on "Production of electroconductive elastic yarns for smart textiles applications". From 2009 till 2012, she has been an active member of the Smart Textile Group at the Department of Textiles (Ghent University), where she conducted research on "Study of screen-printed electroconductive textile materials". In 2012 she received the Doctoral school diploma in Textile Engineering and PhD in Textile Engineering from Engineering and Architecture, University of Gent in Belgium. Since 2012 she is back at the Textile and Fashion Department, Polytechnic University of Tirana, where one of the master courses that she teaches is on "Smart textiles". From 2017 she is nominated as a member of Albanian Young Academy. She is the main author and co-author of 64 publications in international scientific journals and conference proceedings.



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LECTURE

entitled

The Department of Textile and Fashion at Polytechnic University of Tirana, Albania – possible staff and student mobility

by

Prof. **Ermira Shehi**, PhD

on **Friday July 8th, 2022 at 11 AM**

in lecture hall **A-301**, Prilaz baruna Filipovića 28a, Zagreb

Abstract:

The Department of Textile and Fashion is a didactic, research and scientific unit at the Polytechnic University of Tirana since 1994. The Department is the successor of the Textile Chair since 1982. During the recent years it has been a positive period of transformation and development for our department in terms of curricula, research work and qualification of staff. Currently the offers three full-time study cycles: Bachelor - 3 years, Master of Science - 2 years and Doctoral Studies in the fields of research: Textiles (clothing, footwear, and leather) and Materials. In addition to the basic study cycles, the department offers short-term vocational training courses in Design and CAD/CAM. The Physical-Mechanical and Chemical Laboratory of Textile and Leather, the CAD/CAM Technology Laboratory and the Modelling and Design Atelier are parts of the Department. Laboratories are equipped with modern apparatus and equipment for performing laboratory tests and analyses from the fibrous raw materials to the finished textile or leather products. The Physical-Mechanical and Chemical Laboratory of Textile and Leather is accredited according to the ISO / IEC 17025: 2017 standard and continuously expands its testing activity in tests of the physical-mechanical and chemical nature. The Department of Textile and Fashion, as the only public academic unit in the field of technology and science of textile and leather materials, has close cooperation with clothing, leather, and footwear companies in Albania, in terms of organizing internships of students, consulting and cooperation, technology transfer, joint research etc. As part of the Polytechnic University of Tirana, the Department of Textile and Fashion works rigorously towards fulfilling its mission for the development of knowledge, for the integration of teaching with scientific research, to contribute to economic development, for providing services, expertise to stakeholders, strengthening the university-industry link, fostering the ongoing qualification of its academic and support staff, to support and protect students in exercising their right to a quality education.

Biography:



Ermira Shehi obtained the degree Textile Engineer in 1992 (5-year study program) at Faculty of Mechanical Engineering, Polytechnic University of Tirana, and was lecturer at Textile Department since 1993. In 2000 she obtained Master in Business Administration, Faculty of Economy, University of Tirana and University of Nebraska. In 2007 she got her PhD Degree in Textile Engineering on “Optimization of sewing parameters and quality of sewn products”; in 2012 the title “Associate Professor” and 2021 “Professor”. She participated in training programs in Germany, Ireland, USA, Greece, Slovakia, Czech Republic and other. She is a member of many project teams such as: “Promotion of the Textile and Garment Industry in Albania”; FP6 “Strengthening of human and materials capacities of the research

textile Center in Albania” financed and supported by the EC; “Training of the qualified specialists and quality management”; Promotion of the efficiency increase of the manufacturing firms in Albania; Productivity Increase of the garment and footwear manufacturing firms in country”- USAID Albania; “ Research and report on the specifications for the VET Schools laboratories, EU IPA 2010 Project on Human Resources Development in Albania (European Union funded project implemented by ILO) – Project on Curricula development for post-secondary programs, and Recognition and Certification of the Competences from the Work Experience in the textile sector etc. Currently she is Head of Textile and Fashion Department and Head of the Professors Council of Mechanical Engineering Faculty. She is the author and co-author in many publications/presentations/study papers and teaching books. Her research interests are clothing production technology; production quality control and work management, Process and product optimization, textile structure and testing.
