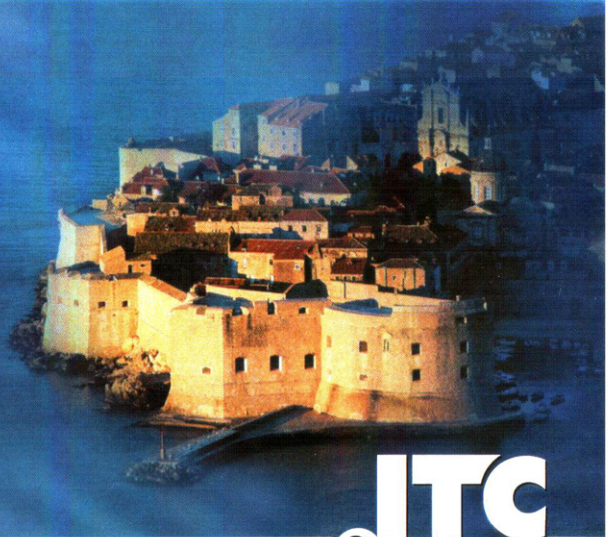


Organized by:
University of Zagreb
Faculty of Textile Technology



ITC
& DC

FINAL PROGRAMME

of the 9th International Textile, Clothing & Design Conference

Magic World of Textiles

Dubrovnik, CROATIA
October 7th to October 10th, 2018



9th INTERNATIONAL TEXTILE, CLOTHING & DESIGN CONFERENCE

Magic World of Textiles

FINAL PROGRAMME

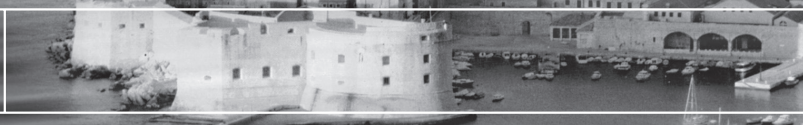
Organized by:

University of Zagreb
Faculty of Textile Technology
Zagreb, Croatia

Under the Auspices of:

Ministry of Science and Education, Zagreb, HR
University of Zagreb, Zagreb, HR
Croatian Academy of Engineering, Zagreb, HR
Danube Adria Association for Automation & Manufacturing, Vienna, AT
Association of Universities for Textiles, Ghent, BE
International Federation of Knitting Technologists, Reutlingen, DE
HIST, Croatian Association of Textile Engineers, Zagreb, HR
International Technical Committee for Textile Care
TSRC, Textile Science Research Center, Zagreb, HR

Dubrovnik, CROATIA
October 7th to October 10th, 2018



The Faculty of Textile Technology, University of Zagreb, has organised the 9th International Textile, Clothing and Design Conference in Dubrovnik, making our wish that the conference (ITC&DC) become a traditional one real. This conference is aimed at opening new roads in the development of global textiles, garment and fashion design, and to offer most recent knowledge to those who are able to use it.

Out of all the papers received, the International Review Committee has accepted 60 papers from 18 countries. They are printed in their integral form in the Book of Proceedings of the 9th ITC&DC 2018, and will be presented in one of the following sections:

- A Textile fibres and advanced materials
- B Textile finishing, dyeing and care
- C Clothing technologies and engineering
- D Analysis, testing and quality control
- E Design and marketing of textile and clothing
- F Sustainable textile products and processes.

We would like to express our sincerest thanks to all the participants for their valuable contribution and readiness to spend a part of their time in Dubrovnik, making the picture of the Magic World of Textiles more valuable and more real.

ITC&DC Team will try to do everything necessary to realise the aims of the Conference and to make all the participant feel welcome guests in Croatia.

Welcome to Dubrovnik!



International Scientific/Programme Committee of the 9th ITC&DC 2018

President:

Zvonko DRAGČEVIĆ, University of Zagreb, Zagreb, Croatia

Members:

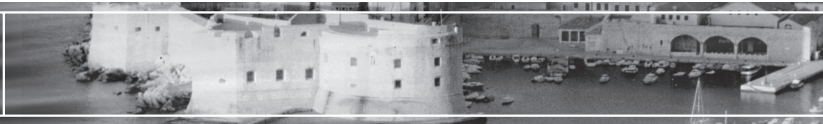
Dominique C. ADOLPHE, ENSISA, Mulhouse, France
 Sandra BISCHOF, University of Zagreb, Zagreb, Croatia
 Antonela CURTEZA, University of Iassy, Iassy, Romania
 Mizi FAN, Brunel University, London, Great Britain
 Jelka GERŠAK, University of Maribor, Maribor, Slovenia
 Jaime C. GRUNLAN, Texas A&M University, Texas, United States of America
 Hüseyin KADOGLU, Ege University, Izmir, Turkey
 Branko KATALINIĆ, Vienna University of Technology, Vienna, Austria
 Lieva Van LANGENHOVE, Ghent University, Ghent, Belgium
 Thomas LUXBACHER, Anton Paar, Austria
 Rimvydas MILAŠIUS, Kaunas University of Teology, Kaunas, Lithuania
 Jiri MILITKY, Technical University of Liberec, Liberec, Czech Republic
 Klaus OPWIS, German Textile Research Centre North-West, Krefeld, Germany
 Ivo SOLJAČIĆ, University of Zagreb, Zagreb, Croatia
 Norma STARSZAKOWNA, The London Institute, London, Great Britain
 George STYLIOS, Herriot-Watt University, Galashiels, Great Britain
 Xiaoming TAO, Hong Kong Polytechnic University, Hong Kong, China
 Anna UJHELYIOVÁ, Slovak Technical University, Bratislava, Slovakia
 Savvas G. VASSILIADIS, Technological Education Institute of Piraeus, Athens, Greece
 Malgorzata ZIMNIEWSKA, Institute of Natural Fibres & Medicinal Plants, Poznan, Poland
 Charles Q. YANG, The University of Georgia, Athens, United States of America

International Review Committee of the 9th ITC&DC 2018

Simon ANNAHEIM (CH); Sandra BISCHOF (HR); Ružica BRUNŠEK (HR); Mario CETINA (HR); Antonela CURTEZA (RO); Mirjana ČURLIN (HR); Andrej DEMŠAR (SI); Zvonko DRAGČEVIĆ (HR); Gökhan ERKAN (TR); Sandra FLINČEC GRGAC (HR); Petra FRANITZA (DE); Jelka GERŠAK (SI); Martinia Ira GLOGAR (HR); Diana GREGOR SVETEC (SI); Anica HURSA ŠAJATOVIĆ (HR); Maja JOKIĆ (HR); Jasminka KONČIĆ (HR); Thomas LUXBACHER (AT); Rimvydas MILAŠIUS (LT); Klaus OPWIS (DE); Andrea PAVETIĆ (HR); Slavenka PETRAK (HR); Tanja PUŠIĆ (HR); Elizabeth RAMOS KALMAR (CO); Tatjana RIJAVEC (SI); Dubravko ROGALE (HR); Tomislav ROLICH (HR); Rene ROSSI (CH); Nina Katarina SIMONČIĆ (HR); Olivera ŠAUPERL (SI); Bosiljka ŠARAVANJA (HR); Anita TARBUK (HR); Torsten TEXTOR (DE); Lieva VAN LANGENHOVE (BE); Branka VOJNOVIĆ (HR); Edita VUJASINOVIĆ (HR); Malgorzata ZIMNIEWSKA (PL)

Organizing Committee of the 9th ITC&DC 2018 (ITC&DC Team)

Edita VUJASINOVIĆ (President), Anica HURSA ŠAJATOVIĆ (Vice-president), Franjo BENJAK, Tea KAURIN, Bojan MAUSER, Marijana PAVUNC Samaržija, Tanja PUŠIĆ, Bosiljka ŠARAVANJA, Ivana ŠPELIĆ, Marin ŠPERANDA, Tanja VUKELIĆ.

**Coordinators of the 9th ITC&DC 2018:**

Section A - Textile fibres and advanced materials: Sandra BISCHOF

Section B - Textile finishing, dyeing and care: Thomas LUXBACHER

Section C - Clothing technologies and engineering: Antonela CURTEZA

Section D - Analysis, testing and quality control: Rimvydas MILAŠIUS

Section E - Design and marketing of textile and clothing: Elizabeth RAMOS KALMAR

Section F - Sustainable textile products and processes: Alka MIHELIĆ BOGDANIĆ

Registration desk: Anica HURSA ŠAJATOVIĆ & Tanja VUKELIĆ

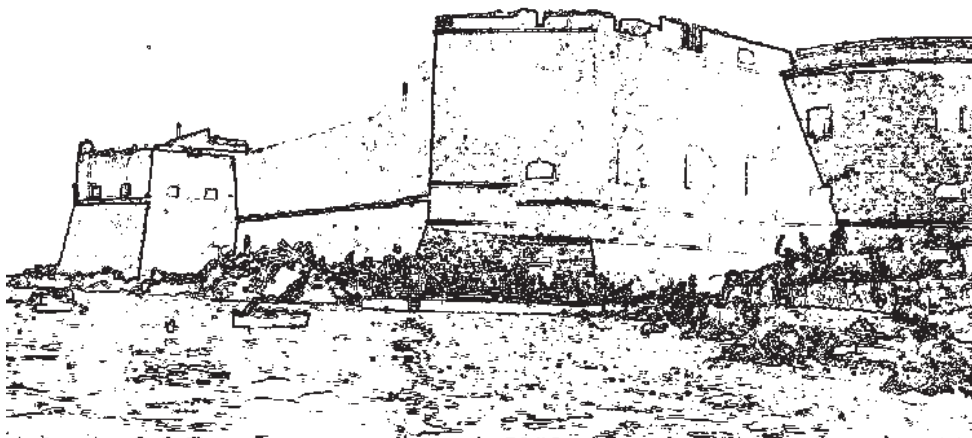
Technical assistance: Marin ŠPERANDA

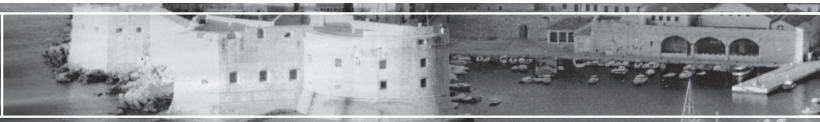
GENERAL INFORMATION

9th ITC&DC 2018 will start on Sunday, October 7th to Wednesday October 10th 2018 in the Centre for Advanced Academic Studies (CAAS) in the heart of the historic city centre of Dubrovnik (area Pile), Don Frane Bulica Street 4 (see map).

Information desk is in operation at the CAAS during the Conference. All details and necessary information on the contents and schedule of the Conference, as well as other relevant matter, will be available there for the participants and guests.

All participants during the conference should bring accreditation and appropriate tickets for individual events.





FINAL PROGRAMME

Sunday, October 7th 2018, Arrival day

15:00 – 20:00 Registration of authors and other participants

20:30 – 21:30 Welcome party (CAAS)

Monday, October 8th 2018

08:00 – 09:00 Registration of authors and other participants

09:00 – 09:30 Opening ceremony (Conference Hall 1)

09:30 – 10:30 Plenary lecture (Conference Hall 1)

10:30 – 11:00 Coffee break

11:00 – 12:00 Expert focus lecture (Conference Hall 1)

12:00 – 13:00 Expert focus lecture (Conference Hall 1)

13:00 – 15:00 Conference lunch (Restaurant MIMOZA)

15:00 – 17:00 Oral presentation – Section A & D

A1 – A4

D1 – D6

17:00 – 18:00 Poster presentations and discussion – Section A, D and F (with refreshments)

AP1 – AP9

DP1 – DP6

FP1 – FP3

20:00 Evening entertainment (LINDO)

Tuesday, October 9th 2018

09:00 – 10:30 Oral presentation – Section B & C

B1 – B3

C1 – C4

10:30 – 11:00 Coffee break

11:00 – 13:00 Oral presentation – Section B, E & F

B4 – B7

E1 – E2 and F1

13:00 – 15:00 Conference lunch (Restaurant MIMOZA)

15:00 – 16:00 Poster presentations and discussion - Section B, C & E (with refreshments)

BP1 – BP8

CP1 – CP6 and EP1 – EP5

16:00 – 17:00 Closing ceremony (Conference Hall 1)

20:00 Conference dinner (Restaurant MIMOZA)

Wednesday, October 10th 2018

10:00 Official ITC&DC Excursion for authors and other participants

Conference Hall 1

Conference Hall 2



09:30 – 10:30 Plenary lecture (Conference Hall 1)

CRNOJA ČOSIĆ Marina & KÖLL Berndt; SCHRAM Nicole; SCHNETZLINGER Birgit;
ARBESLEITNER Roland & MALINOWSKY Robert

Advanced Textiles- Relevance and Potentials for Consumers & Industry

Chair persons: Tanja PUŠIĆ & Thomas LUXBACHER

11:00 – 12:00 Expert focus lecture (Conference Hall 1)

GRUNLAN Jaime C.

Water-Based, Environmentally-Benign Flame Retardant Treatments for Textiles

Chair persons: Sandra BISCHOF & Charles Q. YANG

12:0 – 13:00 Expert focus lecture (Conference Hall 1)

RAMOS KALMAR Elizabeth

Edesign: My experience, a path from eco-design and evolution to change

Chair persons: Edita VUJASINOVIĆ & Antonela CURTEZA

15:00 – 17:00 Section D: Analysis, Testing & Quality Control (Conference Hall 1)

Chair person: Rimvydas MILASIUŠ & Huseyin KADOĞLU

D1	BAJZIK Vladimir <i>Application of Image Analysis for Determination of Surface Cover of Weaves</i>
D2	LEGAUDIENE Brigita & MILAŠIUŠ Rimvydas <i>Influence of Weave on Tearing Strength of Woven Fabric</i>
D3	MATUSIAK Malgorzata; WILK Edward; ZIELINSKI Janusz & KWIATKOWSKA Maria <i>Investigation of Mechanical Properties of Seersucker Woven Fabrics of Different Structure</i>
D4	MIKUCIONIENE Daiva; MURALIENE Laima; LAURECKIENE Ginta & BRAZAITIS Marius <i>Investigation and Evaluation of Knitted Orthopaedic Supports Compression</i>
D5	ŠOMODI Željko; ZDRAVEVA Emilija & BRNADA Snježana <i>Numerical Model of the Standard Textile Flexibility Test Based on the Hyperbolic Approximation</i>
D6	ÜZÜMCÜ Memik Bünyamin & KADOĞLU Hüseyin <i>Relationship Between Compact-Spun Cotton Yarn Properties and Fiber Properties</i>



15:00 – 17:00 Section A: Textile Fibres and Advanced Materials (Conference Hall 2)

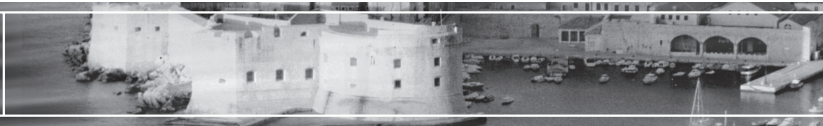
Chair person: Dominique D. ADOLPHE

A1	KENAN ÇEVEN Erhan; TOPRAKKAYA KUT Dilek & KARAKAN GÜNAYDIN Gizem & TUNÇEL Ömer <i>Filtration and Antistatic Properties of Polyester Carbon Fabrics Used for the Cleanrooms</i>
A2	LIU Yuqing; LIU Kang; LING Zhongwen; ZOU Qi <i>Nanocomposite Membranes for Water Purification</i>
A3	TAO Ran; PANG Qingyu; XU Luyan; LIU Bing; YANG Xuhong & ZHU Xinsheng <i>Dual Grafting Copolymerization, Sulfonation and Removal of Copper (II) Ions of Polypropylene Nonwoven Fabrics from Aqueous Solution</i>
A4	ZIMNIEWSKA Malgorzata & ROZANSKA Wanda <i>Effect of Preliminary Processes of Flax And Hemp on the Fibre Properties Suitable for Composite Reinforcement Application</i>

17:00 – 18:00 Poster presentation

Section A: Textile Fibres and Advanced Materials

AP1	BRUNŠEK Ružica; SUTLOVIĆ Ana & HUDOLIN Daphne <i>Dyeing Behavior of Silk Degummed with Different Methods</i>
AP2	BRUNŠEK Ružica; VOJNOVIĆ Branka; BUTORAC Jasminka & RAMLJAK Josip <i>Influence of Flax Retting on Wastewater Quality</i>
AP3	HRABOVSKÁ Veronika; UJHELYIOVÁ Anna, RYBA Jozef, JANČOVIČOVÁ Viera & HRICOVÁ Marcela <i>Properties of Biodegradable Fibres from Poly(Lactic) Acid</i>
AP4	VINČIĆ Agata; VOJNOVIĆ Branka; DIMITROV Nino & IVAČIN Zrinka <i>Wool as a Soil Conditioner in Gardening</i>
AP5	RYBA Jozef; POLÁK Šimon; HRABOVSKÁ Veronika & KLEŠČÍ Michal <i>Influence of Cooling Air on Mechanical Properties of Polypropylene Fibres</i>
AP6	SKURKYTĖ-PAPIEVIENĖ Virginija; ABRAITIENĖ Aušra; SANKAUSKAITĖ Audronė; RUBEŽIENĖ Vitalija; DUBINSKAITĖ Kristina <i>Enhancement of Thermal Properties of Bio-Based PCM with Carbon-Nanotubes</i>
AP7	SONG Xinhui & SUI Jianhua <i>Study on the Permeation of Thermopsetting Epoxy Resin to UHMWPE Short Fiber Yarn</i>
AP8	ŠESTÁK Jozef; ŠČASNIKOVÁ Katarína & DUBEC Andrej <i>Antibacterial Nanoadditives Based on NanoCaCO₃, NanoTiO₂ and NanoZnO and their Application in Polypropylene Fibres and Foils</i>

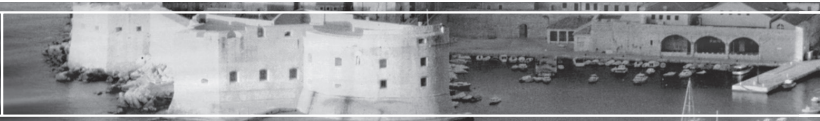


Section D: Analysis, Testing & Quality Control

DP1	BAHETI Smita & TUNAK Maros <i>Estimation of Structural Properties of Carbonized Needle-Punched Nonwovens by X-RAY Computed Tomography</i>
DP2	LAURECKIENE Ginta & MILAŠIUS Rimvydas <i>Peculiarities of Long-Lasting Stress Relaxation and Its Prediction</i>
DP3	MALINAR Rajna; BRNADA Snježana & FLINČEC GRGAC Sandra <i>Effect of Constructual Characteristics and Sample Preparation of Fabric on Textile Dust Generation</i>
DP4	VUJASINOVIĆ Edita; VUKELIĆ Tanja & PAVUNC SAMARŽIJA Marijana <i>Creativity in Forensic Textiles Examination</i>
DP5	ŽUVELA BOŠNJAK Franka; KOPITAR Dragana & AKALOVIĆ Jadranka <i>Influence of Different Tanning Agents on Thermal Resistance of Leather</i>

Section F: Sustainable Textile Products and Processes

FP1	KOS Dora; LJUBIĆ Valerija & ILIČIĆ Ivana <i>Decorative Fabrics as a Product of Nature and Technology</i>
FP2	MIHELIC - BOGDANIĆ Alka; BUDIN Rajka & ŠPELIĆ Ivana <i>Optimization of Polyethylene Production using Heat Recovery and Solar Energy</i>
FP3	RAMOS KALMAR Elizabeth <i>The Green is a New Black: Figue Potential as a Sustainable Fiber for Textile Development in the New Millennium</i>



Tuesday, October 9th 2018

09:00 – 10:30 Section B: Textile Finishing, Dyeing and Care

Chair person: Klaus OPWIS

B1	AKSEL EREN Hüseyin; KENAN ÇEVEN Erhan & KARAKAN GÜNAYDIN Gizem <i>Effect of H₂O₂ Bleaching Process on Yarn and Fabric Properties</i>
B2	GRANCARIĆ Ana Marija; B. FISCHER Christian; MICHAELAKIS Antonios; GHAFARI Peyman; PAPACHRISTOS Dimitrios; FRITZ Melanie; BOTTERI Lea; BALATSOS Georgios & KARRAS S. Vasileios <i>Mosquito Repellents on Cotton/PET Fabric Combating with Aedes Albopictus</i>
B3	KÜÇÜKER Melike; AKCAN Mustafa; DİLDAR A. Ali & DURUR Güngör <i>Environmentally Friendly and Innovative Studies to Develop Different Appearance on Wellsoft Fabric</i>

09:00 – 10:30 Section C - Clothing Technologies and engineering (Conference Hall 2)

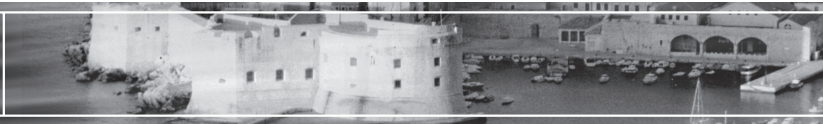
Chair person: Anica HURSA ŠAJATOVIĆ

C1	DABOLINA Inga; LAPKOVSKA Eva; ZOMMERE Gunta & VILUMSONE Ausma <i>End-User Satisfaction with Army Uniforms - Case Study</i>
C2	DANILA Victoria; CURTEZA Antonela; BALAN Stela & IROVAN Marcela <i>Designing Comfortable Neonatal System Clothes for Premature Babies</i>
C3	DIYAOLU Idowu <i>Qualitative Assessment of Nigerian Fabrics</i>
C4	MIELICKA Elżbieta; NAPIERALSKA Lidia & JARZYNA Violeta <i>Modification of Work Wear Clothing Based on Analysis of User Dimensions</i>

11:00 – 13:00 Section B: Textile Finishing, Dyeing and Care (Conference Hall 1)

Chair person: Sandra BISCHOF

B4	LUXBACHER Thomas <i>Standard Cotton Fabric as a Reference Material for the Streaming Potential Measurement</i>
B5	MAGOVAC Eva; BISCHOF Sandra; GRUNLAN C. Jaime & JORDANOV Igor <i>LBL Deposition – an Innovative Method of Surface Modification of Cotton for Enhanced Flame Retardant Properties</i>
B6	OPWIS Klaus; BENKEN Rainer; KNITTEL Dierk & GUTMANN S. Jochen <i>Dyeing of Textiles in Ionic Liquids</i>
B7	YANG Q. Charles & CHEN Qin <i>Flame Retardant Finishing of the 50/50 Polyester/Cotton Blend Fabric for Protective Clothing</i>



**11:00 – 13:00 Section : E: Design and Marketing of Textile and Clothing
F: Sustainable Textile Products and Processes (Conference Hall 2)**

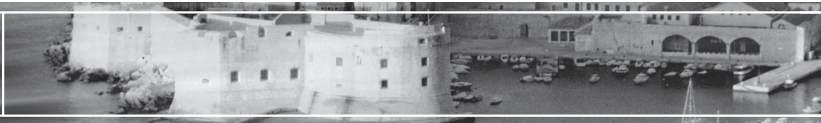
Chair person: Alka MIHELIC BOGDANIC

E1	DIYAOLU Idowu; IREFIN Isaac & AKARAKIRI S Joshua <i>Total Quality Management Practices in Nigerian Textile Industry</i>
E2	SHI Yinglu; WANG Shuhuan & YANG Xuhong <i>Generation of Fractal Images Based on Mandelbrot Set and it's Application in Textile Pattern Design</i>
F1	MERSHA Yalewlet Arega; GODDARD Mary-Lorène; KHENOUSI Naby; SCHACHER Laurence; ADOLPHE Dominique C.; RAHARIVELOMANANA Phila; DELAITE Christelle; NALANKILLI G. & NIGATU Desalegn <i>Development of an Innovative Charged Electrospun Nanoweb using Endemic Plant Extracts</i>
F2	RAMOS KALMAR Elizabeth <i>Weaving Wool. A Sustainable Fiber to Leave Good Footprints Case Study</i>

15:00 – 16:00 Poster presentation

Section B: Textile Finishing, Dyeing and Care

BP1	AKÇAKOCA KUMBASAR Emriye Perrin; MORSÜMBÜL Seniha & ÇAY Ahmet <i>Fatigue Behaviour of Encapsulated Photochromic Dye on Textile</i>
BP2	FLINČEC GRGAC Sandra; VRBIĆ Ana & MALINAR Rajna <i>The Influence of Microwaves on the Cross-Linking of Maleic Acid with B-Cyclodextrin and Cellulose</i>
BP3	FRAS ZEMLJIĆ Lidija, SAUPERL Olivera, VOLMAJER Julija & PERŠIN Zdenka <i>Functionalization of Fibres Using Biopolymers for Development of Bioactive Textile Materials</i>
BP4	GRGIĆ Katia; PUŠIĆ Tanja; FLINČEC GRGAC Sandra; DEKANIĆ Tihana & TARBUK Anita <i>Cellulosic Fabrics – Assessment of N-CETYL Pyridinium Chloride Adsorption and Desorption</i>
BP5	MILASIENE Daiva & IVANAUSKAS Remigijus & BELUKHINA Olga <i>Influence of Polyamide Fibre Treatment Conditions on the Quality of Silver Selenide Layer</i>
BP6	PARK Young Ki & PARK Yoon Cheol <i>Preliminary Study on the Correlation Between Printed Fabrics and Its Image Files</i>
BP7	PUŠIĆ Tanja; MALARIĆ Krešimir; ŠARAVANJA Bosiljka; DEKANIĆ Tihana; HURSA ŠAJATOVIĆ Anica & BEŠLIĆ Silvia <i>Impact of the Washing Conditions on Electromagnetic Shield Effect of Nickel/ Copper (Ni/Cu) Fabric</i>
BP8	SAUPERL Olivera; VOLMAJER Julija & FRAS ZEMLJIĆ Lidija <i>Treatment of Textile Materials by Using Carbon Obtained from Sugar</i>
BP9	TARBUK Anita; DEKANIĆ Tihana & PUŠIĆ Tanja <i>Oxidative Bleaching of Woolen Fabrics</i>



Section C - Clothing Technologies and Engineering

CP1	ALUCULESEI Bianca; KRZYWINSKI Sybille & CURTEZA Antonela <i>Three-Dimensional Construction and Simulation of Trousers for Wheelchair Users</i>
CP2	HRŽENJAK Renata; DOLEŽAL Ksenija & BRLOBAŠIĆ ŠAJATOVIĆ Blaženka <i>Regional Differences of Body Measurements for Croatian Girls</i>
CP3	KIRIN Snježana & DRAGČEVIĆ Zvonko <i>Investigation of Workload in the Technological Sewing Process using the RULA Method</i>
CP4	LAGE Agne; ANCUTIENE Kristina & KOLDINSKA Marie <i>The Relationship Between Fabric Mechanics and Virtual Garment Appearance Quality</i>
CP5	ŠPELIĆ Ivana & GOTAL Tajana <i>The Reduction of the Response Times in the Footwear Production Process with IT Infrastructure</i>
CP6	ŠPELIĆ Ivana; ROGALE Dubravko; PETRAK Slavenka & MAHNIĆ NAGLIĆ Maja <i>The Clothing Thermal Properties Modifications Due to Garment's Length</i>

Section E: Design and Marketing of Textile and Clothing

EP1	JEMO Danijela, KESOVIA K. M. Mateo & DUJAKOVIĆ Tanja <i>Documenting and Conserving the Traditional Technique of Metal Thread Embroidery on Man's Waistcoat from Dubrovnik Area</i>
EP2	NOVAK Ivan; BIHAR Željko & BENJAK Franjo <i>Some Issues of Brand Value in Interdisciplinary Textile Economy</i>
EP3	SOLJAČIĆ Ivo & POTOČIĆ MATKOVIĆ Vesna Marija <i>Significance of the Journal Jugoslavenski Tekstilni Vjesnik / Tekstilni Vjesnik (1927-1945)</i>
EP4	ŠPELIĆ Ivana; HURSA ŠAJATOVIĆ Anica & ROGALE Dubravko <i>The International Standards as Mean of Globalization</i>
EP5	ŠPELIĆ Ivana; PETRIC Josip & ŠIŠIĆ Matej <i>The History of the US Military Personnel Jackets</i>