



10<sup>th</sup> INTERNATIONAL SYMPOSIUM  
GRAPHIC ENGINEERING AND DESIGN

12 - 14 NOVEMBER, 2020

## PROGRAM

GRID  
2020

Thursday 12 November, 2020

 LIVE

\*CET – Central European Time

8:00–9:30 Login to the CISCO WEBEX MEETINGS PLATFORM

Chairpersons: Nemanja Kašiković, Gojko Vladić

9:30–10:00 Opening ceremony

Plenary lectures

10:00–10:30 NEW APPROACHES IN SMART PACKAGING TECHNOLOGIES  
*Arif Ozcan*

10:30–11:00 LIGNOCELLULOSIC BIO-REFINERY DOWNSTREAM PRODUCTS IN FUTURE  
PACKAGING APPLICATIONS  
*Igor Karlovits*

11:00–11:30 COLLABORATION IS THE FUTURE OF COMMERCIAL PRINTING  
*David L. Zwang*

BREAK 11:30–12:00

## SECTION 1: Paper as a substrate

Chairpersons: [Ivana Jurič](#), [Živko Pavlović](#)

- 12:00 PAPER SURFACE EFFICIENCY AND INKJET COLOUR REPRODUCTION ON INVASIVE AND AGRO RESIDUE PAPERS  
[Igor Karlovits](#), [Gregor Lavrič](#)
- 12:15 INFLUENCE OF RECYCLED FIBRES IN PAPER ON THE UV STABILITY OF THERMOCHROMIC PRINTS  
[Rahela Kulčar](#), [Marina Vukoje](#), [Ivana Krajnović](#), [Mirela Rožić](#)

## SECTION 2: Printing quality

Chairpersons: [Ivana Jurič](#), [Živko Pavlović](#)

- 12:30 DEVELOPMENTS IN DIGITAL PRINT STANDARDIZATION  
[Christos Trochoutsos](#), [Anastasios Politis](#)
- 12:45 COMBINATION OF AM AND FM SCREENING AS SECURITY PRINTED FEATURE  
[Vereshchagin Vladislav](#), [Pukhova Ekaterina](#), [Khokhlova Margarita](#)
- 13:00 COMPENSATION OF DEFECTS IN PRINTING PROCESS WITH HISTOGRAM METHODS  
[Ekaterina Pukhova](#), [Vladislav Vereshchagin](#)
- 13:15 INVESTIGATION OF PROCESS COLOURS VARIATIONS OF ELECTROPHOTOGRAPHY COLOUR PRODUCTION PRESSES  
[Iskren Spiridonov](#), [Simeon Yordanov](#), [Rumyana Boeva](#), [Aleksandar Milkov](#)

LUNCH BREAK 13:30-14:30

### SECTION 3: Novel technologies

Chairpersons: [Miljana Prica](#), [Ivan Pinčjer](#)

- 14:30 IMMERSIVE INTERCULTURAL EXPERIENCE FOR GRAPHIC COMMUNICATION STUDIES THROUGH VIRTUAL REALITY  
[Mohd Asrizal Razali](#), [Noranis Ismail](#), [Nurzihan Hassim](#)
- 14:45 COMPUTATIONAL DESIGN USED FOR JEWELRY  
[Nikolaos Efkolidis](#), [Prodromos Minaoglou](#), [Kyriaki Aidinli](#), [Panagiotis Kyratsis](#)

### SECTION 4: Graphic materials and processes efficiency Printing added value and Packaging added value

Chairpersons: [Miljana Prica](#), [Ivan Pinčjer](#)

- 15:00 THE INFLUENCE OF ARTIFICIAL AGING ON RECYCLABILITY AND MECHANICAL STABILITY OF PHARMACEUTICAL PACKAGING  
[Marina Vukoje](#), [Ivana Bolanča Mirković](#), [Martina Bešlić](#), [Gorana Petković](#)
- 15:15 MECHANICAL AND CHEMICAL RESISTANCE OF THERMOCHROMIC PACKAGING PRINTS  
[Sonja Jamnicki Hanzer](#), [Rahela Kulčar](#), [Marina Vukoje](#), [Petra Širol](#)

BREAK                      15:30-16:00

## SECTION 5: Digital media

Chairpersons: Magdolna Pál, Sandra Dedijer

- 16:00 THE RELATIONSHIP BETWEEN SOCIAL ROLES OF CONTEMPORARY ART MUSEUMS AND DIGITALIZATION  
*Atiye Güner, Ismail Erim Gülaçti*
- 16:15 VISUALIZATION OF THE PROCESS-RESOURCE MODEL FOR WORKFLOWS  
*Thomas Hoffman-Walbeck, Richard Adams II*

## SECTION 6: Design

Chairpersons: Magdolna Pál, Sandra Dedijer

- 16:30 ADVERTISING ON CITY BUSES  
*Ana Dujmović, Nace Pušnik*
- 16:45 JEWELLERY DESIGN AND WEARABLE APPLICATIONS:  
A DESIGN THINKING APPROACH  
*Athanasios Manavis, Ioanna Nazlidou, Tatjana Spahiu, Panagiotis Kyratsis*
- 17:00 INFLUENCES JAPANESE PRINTMAKING ON EUROPEAN PRINT MAKING  
ART IN THAT CASE OF DEGAS-MANZI PARTNERSHIP  
*Yeter Beris, Ismail Erim Gülaçti*

**FRIDAY 13 November, 2020**

\*CET – Central European Time

**8:30–9:30 Login to the CISCO WEBEX MEETINGS PLATFORM**

**Chairpersons: Ivana Tomić, Neda Milić**

**Presentations from industry:**

 **LIVE**

- 09:30** Tom De Langhe (Xeikon-Flint Group)
- 10:00** Stanislava Stojanovic Novoselac (Eton Digital)
- 10:30** Ivica Marković (Alfa Digital d.o.o.)
- 11:00** Geert Lenvain (Electronics for Imaging - EFI)
- 11:30** Krzysztof Pachulski (Epic Games)
- 12:00** Tešo Mojić, Zlatko Panić, Borjan Divljanović (Mojić d.o.o.)

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 **RECORDED**

**NOTE:** For all questions for the **recorded presentations** contact the authors or send an email to [grid\\_info@uns.ac.rs](mailto:grid_info@uns.ac.rs).

## **SECTION 1: Design**

- 12:30 OBSERVATION ON CREATIVITY AND SPATIAL VISUALISATION SKILLS OF GRAPHIC ARTS' STUDENTS**  
*Helena Gabrijelčić Tomc, Tanja Nuša Kočevar*
- 12:45 APPLYING GRAPHIC DESIGN PRINCIPLES ON TEA PACKAGING**  
*Dorothea Kovačević, Maja Brozović, Dubravko Banić*

## SECTION 2: Novel technologies

- 13:00 ANALYSIS OF OBSERVING AND RECOGNITION PROFILE FACIAL IMAGES USING EYE TRACKING SYSTEM  
*Andrej Iskra, Helena Gabrijelčič Tomc*
- 13:15 3D PRINTING AND FUNCTIONALIZATION OF TEXTILES  
*Marjeta Čuk, Matejka Bizjak, Deja Muck, Tanja Nuša Kočevar*

## SECTION 3: Digital media

- 13:30 DEVELOPMENT OF CHILDREN'S COGNITIVE ABILITIES THROUGH INTERACTIVE APPLICATIONS  
*Filip Mauzner, Lidija Mandić, Ana Agić, Jesenka Pibernik*
- 13:45 USE OF CODECS IN VIDEO UPLOADS  
*Andrej Učakar, Patricija Selič, Raša Urbas*
- 14:00 EVALUATION OF THE IMPACT OF AN AWARENESS-BASED ANIMATION ON STUDENTS' KNOWLEDGE ABOUT MENTAL ILLNESS  
*Majca Plot, Saška Roškar, Helena Gabrijelčič Tomc*
- 14:15 USE OF PREPRESS AUTOMATION IN THE CZECH REPUBLIC AND EXAMPLES OF AUTOMATED PROCESSING FOR SELECTED PREPRESS TASKS  
*Petr Roudný, Markéta Držková*

BREAK 14:30-15:00

## SECTION 4: Packaging added value section

- 15:00 CONSUMER'S EXPERIENCE OF TEA PACKAGING AS ENVIRONMENT-FRIENDLY  
*Jesenka Pibernik, Tamara Tomašegović, Sanja Mahović Poljaček, Anđela Madžar*
- 15:15 PROMOTIONAL PACKAGING FROM CARTON OF INVASIVE ALIEN PLANT  
*Kaja Klančar, Urška Vrabič Brodnjak*
- 15:30 CHILD-RESISTANT FEATURES OF PHARMACEUTICAL PACKAGING IN THE EGYPTIAN AND GLOBAL MARKET; A COMPARATIVE STUDY  
*Mai Ahmed S. Hussein, Mohamed Attia, Noha Mohamed*
- 15:45 BIOBASED INTELLIGENT PACKAGING APPLICATION  
*Asli Beyler Çigil*
- 16:00 PACKAGING DESIGN AND TESTING BY EYE TRACKING  
*Gregor Franken*

## SECTION 5: Printing added value

- 16:15 EVALUATION OF ZIPPER TEAR STRIP DESIGN STRUCTURE FOR PAPERBOARD PACKAGING  
*Josip Bota, Gorana Petković*
- 16:30 INVESTIGATION OF THE OPTICAL PROPERTIES OF CHITOSAN AND RICE STARCH BLENDS, AS A FILLER IN PAPER OR AS A FILM FOR PACKAGING APPLICATIONS  
*Urška Vrabič Brodnjak, Dimitrina Todorova*
- 16:45 INVESTIGATION ON THE PRINTABILITY OF SPECIALTY PAPERS FOR LUXURY LABELS  
*Dimitrina Todorova, Nevena Pavlova*
- 17:00 THE INFLUENCE OF PCL-ZNO COATING COMPOSITION ON COATED OFFSET CARDBOARD PRINTS  
*Tomislav Cigula, Tomislav Hudika, Mihael Katana, Marina Golik Krizmanić, Tamara Tomašegović*
- 17:15 PCL-TiO<sub>2</sub> NANOCOMPOSITE TO IMPROVE AGEING OF OFFSET PRINTS  
*Tomislav Hudika, Tomislav Cigula, Mihaela Žličarić, Maja Stržič Jakovljević*

BREAK 17:30-17:45

## SECTION 6: Graphic materials and processes efficiency

- 17:45 THE PRODUCTION OF ECOFRIENDLY BIOFILM WITH NATURAL OIL FOR FOOD PACKAGING  
*Emine Arman Kandirmaz, Omer Bunyamin Zelzele*

## SECTION 7: Printing quality

- 18:00 PROSPECTS FOR THE FUTURE OF COMMERCIAL PRINTING  
*Csaba Horváth, László Koltai, Klaudia Maňúrová*
- 18:15 THE EFFECT OF DEINKING AND BINDER TYPE ON INKJET PRINT QUALITY  
*Arif Ozcan, Emine Arman Kandirmaz, Omer Bunyamin Zelzele*



## SECTION 8: Paper as a substrate

### 18:30 SUSTAINABLE CARDBOARD LABEL PRODUCTION

*Gulsah Yilan, Arif Ozcan, Tanju Caglar*

### 18:45 THE PRODUCTION OF FLAME RETARDANT PAPER WITH DOPO

*Hatice Birtane*

### 19:00 THE EFFECT OF THE VIRGIN FIBERS TO THE PROPERTIES OF DIFFERENT PAPER PRODUCTS

*Tibor Czene, László Koltai*

**SATURDAY 14 November, 2020**

**11:00 - 12:00 POSTER SECTION**

*Posters will be available on the symposium website from 11 am to 12 am (CET).  
For all questions, contact the authors or send an email to [grid\\_info@uns.ac.rs](mailto:grid_info@uns.ac.rs).*

**SECTION 1: Graphic materials and processes efficiency**

**THE EVALUATION OF THE ORGANIC LOAD OF THE WASTE OFFSET DEVELOPER WITH EXTRACTION METHODS**

*Savka Adamović, Ivan Pinčjer, Bojan Banjanin, Stefan Đurđević, Nada Miketić*

**A MINI REVIEW: OPTIMAL DYE REMOVAL BY FENTON PROCESS CATALYSED WITH WASTE MATERIALS**

*Aleksandra Kulić Mandić, Milena Bečelić-Tomin, Đurđa Kerkez, Gordana Pucar Milidrag, Vesna Pešić, Miljana Prica*

**PASTA PACKAGING WITH BIO-BASED BARRIER TO PREVENT INSECTINFESTATION**

*Urška Vrabčić Brodnjak, Pasquale Trematerra*

**INVESTIGATIONS ON BOOK CUTTING BY CIRCULAR KNIFE WITH ECCENTRIC BLADE MOVEMENT**

*Georgij Petraszwili, Piotr Janicki, Serhii Komarov*

**FENTON-LIKE OXIDATION OF FLEXOGRAPHIC WATER-BASED KEY (BLACK) DYE: A DEFINITIVE SCREENING DESIGN OPTIMIZATION**

*Vesna Gvoić, Miljana Prica, Đurđa Kerkez, Ognjan Lužanin, Aleksandra Kulić Mandić, Milena Bečelić-Tomin, Dragana Tomašević Pilipović*

**APPLICATION OF ADVANCED OXIDATION PROCESS FOR THE REMOVAL OF SYNTHETIC WATER-BASED PRINTING DYE AND MICROPLASTICS FROM AQUEOUS SOLUTION**

*Miljana Prica, Aleksandra Tubić, Maja Lončarski, Vesna Gvoić, Sanja Vasiljević, Živko Pavlović, Jasmina Agbaba*

**EXPLORING THE VARIOUS PARAMETERS OF CO<sub>2</sub> LASER IN THE CUTTING OF PAPER**

*Ivan Pinčjer, Nada Miketić, Ivana Tomić, Savka Adamović*

**PRELIMINARY ANALYSIS OF IMAGE PROCESSING-BASED EVALUATION OF EMBOSSED QUALITY**

*Magdolna Pál, Bojan Banjanin, Sandra Dedijer, Gojko Vladić, Gordana Bošnjaković*

**STATISTICAL ANALYSIS OF THE INFLUENCE OF PRINT RUN ON SURFACE ROUGHNESS OF DIGITAL FLEXO PRINTING PLATES' SOLID TONE AREAS**

*Sandra Dedijer, Magdolna Pál, Stefan Poljak, Živko Pavlović, Ivana Jurić, Neda Milić Keresteš*

**TREATMENT OF WASTE WATER CONTAINING PRINTING DYES: SUMMARY AND PERSPECTIVES**

*Đurđa Kerkez, Milena Bečelić-Tomin, Gordana Pucar Milidrag, Vesna Gvoić, Aleksandra Kulić Mandić, Anita Leovac Maćerak, Dragana Tomašević Pilipović*

## SECTION 2: Education

### 3D PRINTING IN THE EDUCATION OF GRAPHIC ENGINEERING AND DESIGN STUDENTS

*Banjanin Bojan, Pál Magdolna, Dimovski Vladimir, Savka Adamović, Ana Lilić*

### CLASSIFICATION IN SCIENTIFIC AND TECHNICAL WRITING

*Jelisaveta Šafranj, Marina Katić, Jelena Zivlak*

### ECONOMIC DISCOURSE AND VISUAL CONFIGURATION

*Alpar Lošonc, Andrea Ivanišević*

## SECTION 3: Packaging added value

### PACKAGING PAPER COATED WITH PLA

*Diana Gregor-Svetec, Tadeja Šumrada*

### ECO-FRIENDLY MATERIAL FOR PACKAGING

*Laura Gegeckiene, Ingrida Venyte*

### RESEARCH METHODOLOGIES FOR ASSESSING THE ERGONOMICS OF PACKAGING PRODUCTS – A REVIEW

*Gordana Bošnjaković, Gojko Vladić*

## SECTION 4: Novel technologies

### 3D PRINTED JEWELLERY DESIGN PROCESS BASED ON SCULPTURE INSPIRATION

*Karin Košak, Deja Muck, Marjeta Čuk, Tanja Nuša Kočevar*

### STUDY OF 4D PRIMITIVES' SELF-TRANSFORMATION

*Matej Pivar, Deja Muck*

### DEVELOPMENT OF PRODUCTS STATE IDENTIFICATION APPLICATION

*Stefan Đurđević, Dragoljub Novaković, Željko Zeljković*

### EYE TRACKING STUDY OF FRONT AND PROFILE FACE IMAGE OBSERVATION AND RECOGNITION

*Andrej Iskra*

## SECTION 5: Typography

### INFLUENCE OF WHITE SPACE ON TEXT SCANNING

*Kata Jovančić, Neda Milić Keresteš, Uroš Nedeljković*

### THE EFFECT OF CONTROLLING THE WEIGHT VARIABLE ON THE TYPEFACE ATTRIBUTE ASSESSMENT

*Jelena Žarko, Uroš Nedeljković*

### KINETIC TYPOGRAPHY – FIGURATION AND TECHNOLOGY

*Nikolina Stanić Loknar, Diana Bratić, Ana Agić*

### AI DRIVEN OCR: RESOLVING HANDWRITTEN FONTS RECOGNIZABILITY PROBLEMS

*Diana Bratić, Nikolina Stanić Loknar*

## SECTION 6: Design

### THE POWER OF COMMEMORATIVE BANKNOTE DESIGN TO SUPPORT GLOBAL AND LOCAL EVENTS

*Khlood Khaled Ahmed*

### DESIGNING PARTERRES ON THE MAIN CITY SQUARES

*Milena Lakićević, Ivona Simić, Radenka Kolarov*

### DESIGN SOLUTIONS OVERVIEW OF UNIVERSAL MOTOR GEAR DRIVES WITH HELICAL GEARS

*Milan Rackov, Ivan Knežević, Maja Čavić, Marko Penčić, Dijana Čavić, Siniša Kuzmanović*

## SECTION 7: Printing added value

### COLORIMETRIC CHANGES OF WATERBASED FLEXOGRAPHIC INK PRINTED ON HEMP-BASED PAPERS EXPOSED TO ARTIFICIAL AGEING

*Ivana Plazonić, Irena Bates, Vesna Džimbeg-Malčić, Davor Zember*

### THE INFLUENCE OF TOTAL BASE INK COVERAGE ON THE UNIFORMITY OF DIGITAL PRINTS OVERPRINTED WITH PEARLESCENT INKS

*Ivana Tomić, Ivan Pinčjer, Nada Mikić*

### MATHEMATICAL MODELLING OF OPTICAL DENSITY ON THE EXAMPLE OF PRODUCING RASTERIZED FILMS

*Bohdan Durnyak, Mikola Lutskiv, Vitalij Buben, Petro Shepita, Georgij Petriaszwili, Zuzanna Żolek-Tryznowska*

### INFLUENCE OF DIGITIZATION INPUT DEVICE ON CALCULATION OF PRINT (NON)UNIFORMITY VALUE OF PRINTS USING ISO 13660 METHOD

*Ivana Jurić, Dragoljub Novaković, Nemanja Kašiković, Sandra Dedijer*

### THE EFFECTS OF FRAGRANCED MICROCAPSULES APPLICATION ON THE PHYSICAL AND PRINT QUALITY CHARACTERISTICS OF THE PRINTS

*Rastko Milošević, Nemanja Kašiković, Živko Pavlović, Saša Petrović, Dragan Kukuruzović, Raša Urbas*

## SECTION 8: Printing quality

### ANALYSIS OF RASTER IMPRINTS PARAMETERS ON THE BASIS OF MODELS AND EXPERIMENTAL RESEARCH

*Bohdan Durnyak, Mikola Lutskiv, Georgij Petriaszwili, Petro Shepita*

### COLOUR QUALITY TESTING OF CYAN OFFSET PRINTS DEPENDING ON PIGMENT CONCENTRATION AND DIFFERENT CTP SCREENING MODE

*Sandra Mustač, Igor Majnarić, Stanko Bauk, Slaven Miloš*

### INFLUENCE OF INKJET PRINT PARAMETERS ON THERMAL RESISTANCE OF PRINTED KNITWEARS

*Mladen Stančić, Branka Ružičić, Đorđe Vujčić, Dragana Grujić, Miroslav Dragić, Bojan Janković*

## FACTORS INFLUENCING MECHANICAL PROPERTIES OF POLYURETHANE FOAMS USED IN COMPRESSIBLE FLEXOGRAPHIC SLEEVES

*Saša Petrović, Nemanja Kašiković, Željko Zeljković, Rastko Milošević*

### SECTION 9: Digital media

#### THE ANALYSIS OF GRAPHIC DESIGN PLATFORMS USED IN SOCIAL MEDIA MARKETING

*Ksenija Mitrović, Anja Jakšić, Jelena Spajić*

#### ANALYSIS OF THE LOADING ANIMATION PERFORMANCE AND VIEWER PERCEPTION

*Gojko Vladić, Selena Mijatović, Gordana Bošnjaković, Ivana Jurić, Vladimir Dimovski*

#### ELECTRONIC PUBLISHING AS A GRAPHIC PRODUCT

*Željko Zeljković, Dragoljub Novaković, Saša Petrović, Neda Milić Keresteš, Stefan Đurđević*

### SECTION 10: Paper as a substrate

#### MEASUREMENTS OF SURFACE FREE ENERGY AS A TOOL TO ASSES THE EFFECT OF VARNISHING AND PRINTING OF THE PAPER SUBSTRATES

*Zuzanna Żolek-Tryznowska, Marta Więcek*

#### ADHESION STRENGTH OF TEMPERATURE VARIED NANOCELLULOSE ENHANCED WATER BASED PAPER AND CARDBOARD ADHESIVES

*Barbara Šumiga, Igor Karlovits, Boštjan Šumiga*

12:00

End of the conference

GRID  
2020

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