



# Printing in the Digital Era

47th annual conference of

**iarigai**

International Association of  
Research Organizations  
for the Information,  
Media and Graphic Arts Industries

19 – 23 September 2021  
Athens, Greece

## PROGRAMME

**HELGRAMED**  
Hellenic Union of Graphic Arts  
& Media Technology Engineers

International  
Association  
of Research  
Organizations for the Information,  
Media & Graphic Arts Industries

The Iarigai logo, featuring the word "iarigai" in a red, lowercase, sans-serif font. Below it, the words "print and media" and "research" are written in a smaller, grey, lowercase, sans-serif font. To the right of the text is a circular icon with a crosshair and a globe-like pattern.A blue globe icon with white latitude and longitude lines.

International Circle  
of Educational Institutes  
of Graphic-Media  
Technology & Management

A circular icon with a crosshair and a globe-like pattern, similar to the Iarigai logo.

**GRAPHMEDLAB**  
HELLENIC GRAPHIC-MEDIA RESEARCH LAB  
UNIVERSITY OF WEST ATTICA

iarigai Conference Day 0 | Sunday 19 September 2021

**20:00-22:00** Evening reception for iarigai conference participants (Possibility to attend by IC participants)  
**B. & M. Theocharakis Foundation, Leof. Vasilissis Sofias 9 & Merlin 1 str., 106 71, Athens**  
 (Syntagma Metro station, Lines 2 & 3 - Red and Blue Lines)

iarigai Conference Day 1 | Monday 20 September 2021

**Opening Session - Session 1: Keynotes - Invited Speakers**  
**Room A: Ceremony Amphitheatre**

<b>08:30-09:15</b>	<b>Registration</b>	
	<b>OPENING SESSION</b>	
	<b>Chair: Anastasios E. Politis</b>	
<b>09:15-09:30</b>	Opening address of the 47th iarigai Conference. Prof. Dr.-Ing. Gunter Huebner	
<b>09:30-09:45</b>	Welcome address HELGRAMED, Dr. Marios Tsigonias University of West Attica	
<b>09:45-10:00</b>	Welcome address: Prof. Panagiotis Kaldis, Rector of the University of West Attica	
<b>Sessions/Time</b>	<b>SESSION 1 (Plenary), Keynotes</b>	
	<b>Chair: Gunter Huebner</b>	
<b>10:00-10:30</b>	<b>Laetitia Reynaud</b> - Intergraf's Policy Adviser, Intergraf, Belgium <i>Defending the Competitiveness of the European Graphic Industry</i>	
<b>10:30-11:00</b>	<b>Francois Martin</b> - Marketing & Communication, Bobst Group, Switzerland <i>Industry 4.0 in printing &amp; converting - The Bobst vision to shape the future of packaging</i>	
<b>11:00-11:30</b>	<b>Coffee break - foyer at Ceremony Amphitheatre</b>	
<b>11:30-12:00</b>	<b>Matteo Micheli</b> , Xrite - Sales Manager Print and Packaging Italy and Greece <i>How to drive Color consistency in the Packaging process</i>	
<b>12:00-12:30</b>	<b>Axel Fischer</b> - Dipl.-Chem, Head of Public Relations INGEDE - International Association of the Deinking Industry, Germany <i>After the pandemic: Printing becomes more sustainable</i>	
<b>12:30-12:45</b>	<b>Official group photo</b>	
<b>12:30-13:30</b>	<b>Lunch - Open Area, School of Graphic Artsrea, School of Graphic Arts</b>	
<b>Sessions/Time</b>	<b>SESSION 2A: Printing Technology</b>	<b>SESSION 2B: Color Science and Printing</b>
	<b>Chair: Gorazd Golob</b>	<b>Chair: Branka Lozo</b>
	<b>Room A: Ceremony Amphitheatre</b>	<b>Room B: Preservation Amphitheatre</b>
<b>14:00-14:30</b>	<b>Pauline Brumm, Nils Lindner, Tim Eike Weber, Hans Martin Sauer and Edgar Dörsam</b> , Technical University of Darmstadt, Institute of Printing Science and Technology and Collaborative Research Center Darmstadt, Germany: <i>A deep learning approach for the classification task of gravure printed patterns</i>	<b>Michael Krebs and Gunter Huebner</b> , Innovative Applications of the Printing Technologies (IAD), Stuttgart Media University, Germany: <i>Spectral dependence of light scattering in human skin detected with a screen printed device for blood oximetry</i>
<b>14:30-15:00</b>	<b>Georgios Gamprellis, National Printing Office, Greece Anastasios E. Politis</b> , HELGRAMED, <b>Yannis Sofias</b> , Heidelberg Hellas, <b>Antonios Tsigonias</b> , GARDEN – Graphic Arts Research, Development and Engineering Institute Athens, <b>Gerasimos Vonitsanos</b> , Hellenic Open University Patras, <b>Marios Tsigonias</b> , University of West Attica, Greece and <b>Kenneth Macro</b> Graphic Communication Department, CalPoly, San Luis Obispo, USA: <i>Challenges for the printing industry in the modern digital and meta-pandemic era</i>	<b>Michael Abildgaard Pedersen</b> , The Danish School of Media and Journalism Copenhagen, Denmark: Is it really true that Pantone Extended Gamut can reproduce 90% of all Pantone Spot Colors?
<b>15:00-15:30</b>	<b>Gunter Huebner, Michael Krebs, Frank Etzel, Larissa Nussbaum and Sabrina Thamm</b> , Innovative Applications of the Printing Technologies (IAD), Stuttgart Media University, Germany: <i>Printed Batteries, Properties of Substrates and Components, regarding Bendability and Barrier</i>	<b>Supawadee Theerathamakorn</b> , School of Science and Technology, Sukhothai Thammathirat Open University, Thailand and <b>Chawan Koopipat</b> , Department of Imaging and Printing Technology, Chulalongkorn University, Thailand: <i>Customers' color preference for Mango (Mangifera indica L.)var. Nam Dok Mai printed image based on color attributes of printed images</i>
<b>15:30-16:00</b>	<b>Coffee break - foyer at Ceremony Amphitheatre</b>	

Sessions/Time	SESSION 3A: Printing Material Science Chair: Marketa Drzkova Room A: Ceremony Amphitheatre	SESSION 3B: Printing Technology - Functional Printing and wearables Chair: Anne Blayo Room B: Preservation Amphitheatre
16:00-16:30	<b>Eirini Pavlou</b> , Bank of Greece, Printing Works Department, <b>Antonios Tsigonias</b> , Hellenic Union of Graphic Arts and Media Technology Engineers-HELGRAMED, <b>Gallina Xanthopoulou</b> , <b>George Vekinis</b> , Advanced Ceramic and Composites Materials Laboratory, National Centre for Scientific Research Demokritos, <b>Thomas Katsaros</b> , Byzantine and Christian Museum of Athens, <b>Marios Tsigonias</b> and <b>Anastasios E. Politis</b> Graphic Arts Technology, University of West Attica Greece: <i>Development of Egyptian Blue pigment for the production of silk-screen printing process</i>	<b>Elena Yakovleva</b> , <b>Valery Gorbachev</b> , <b>Maria Saveljeva</b> , High School of Print and Media of St. Petersburg State University of Industrial Technology and Design, St. Petersburg, Russia and <b>Ignaty Adamantov</b> , ITMO University, St. Petersburg, Russia: <i>Wavelet-based watermarking in the finite field</i>
16:30-17:00	<b>Apostolos Koutsoukakis</b> and <b>Vasilios Georgakilas</b> , Department of Materials Science, University of Patras, <b>Theodora Philippakopoulou</b> and <b>Maria Anastasopoulou</b> , University of West Attica, <b>Dimitra Giasafaki</b> , <b>Christina Mitzithra</b> , <b>Theodore Steriotis</b> and <b>Georgia Charalambopoulou</b> , National Centre for Scientific Research "Demokritos, <b>Vassiliki Belessi</b> , Laboratory of Electronic Devices and Materials, University of West Attica, Greece: <i>Carbon Black and reduced Graphene Oxide water-based conductive inks</i>	<b>Alina Pranovich</b> , <b>Sasan Gooran</b> and <b>Daniel Nyström</b> , Linköping University, Department of Science and Technology, Norrköping, Sweden <b>Jeppe Revall Frisvad</b> , Technical University of Denmark, Department of Applied Mathematics and Computer Science, Lyngby, Denmark: <i>Optical properties and appearance of fused deposition modelling filaments</i>
17:00-17:30	<b>Kholoud Saleh Othman Al Ajlouni</b> , <b>Paul Daniel Fleming</b> and <b>Alexandra Pekarovicova</b> , Chemical and Paper Engineering, Western Michigan University- USA: <i>Glucomannan for food packaging biofilms: Faceting of the polymer film</i>	<b>Shu Chang</b> , Department of Graphic Communications, The Wilbur O. and Ann Powers College of Business, Clemson University USA <b>Christine Heusner</b> , School of Media Sciences, Rochester Institute of Technology, New York, USA <b>Marla Schweppe</b> , School of Design, Rochester Institute of Technology, New York, USA and <b>Gail Argetsinger</b> , Department of Theatre and Music, State University of New York, Brockport, New York, USA: <i>Showcasing Functional Inks and Electronics Wearable Art</i>
17:30-18:00	<b>Georgia - Maria Koltsia</b> and <b>Nikos Karampekios</b> , Graphic Arts Technology, University of West Attica, Greece: <i>Research &amp; Development dimensions. The Printing Industry in Greece. A first Empirical Capture</i>	
18:00-18:15	<b>Coffee break - foyer at Ceremony Amphitheatre</b>	
18:15-19:30	iargai General Assembly (representatives only) Room A - Ceremony Amphitheatre Evening: No program (at own leisure) or IC evening reception (20:00-22:00) Wyndham Grand Athens Hotel – Megalou Alexandrou 2 str., 10437, Athens Greece (Metaxourgeio Metro Station - Line 2 - Red Line)	

iargai Conference Day 2 | Tuesday 21 September 2021

### SESSION 4 Plenary, IC Opening session

Chair: **Chrysoula Gatsou** Room A: Ceremony Amphitheatre

09:15-09:30	Welcome address University of West Attica, Prof. Panagiotis Kaldis, Rector
09:30-10:00	Opening address of the 52nd IC Conference, Prof. Dr. Anastasios E. Politis, Chairman of the IC <i>The future of Print Education in the Digital Era: Which way forward?</i>
Sessions/Time	<b>SESSION 1 (Plenary), Keynotes, Chair: Anastasios E. Politis</b>
10:00-10:30	<b>Thomas Katsaros</b> , Athens Byzantine and Christian Museum, Greece <i>Tomb Raiders in research of Exotic properties of Han and Egyptian blue - From the Terracotta guardians of the first Emperor of China and from the burial chamber of the pyramid of Djoser to superconductivity and 3D printing</i>
10:30-11:00	<b>Konstantinos Spyropoulos</b> , BEL Information Systems, Greece <i>The Connected Converter</i>

<b>11:00-11:30</b>	<b>Coffee break - foyer at Ceremony Amphitheatre</b>	
<b>11:30-12:00</b>	<b>Enn Kerner</b> , Vice President of Estonian Engineering Association and Sinapse Print Simulators <i>During the Meta Pandemic Era: Learning continues using Simulation Technology in Print Education</i>	
<b>12:00-12:30</b>	<b>Stelios Manousakis</b> , Product Director, Digital Printing, Bobst Group, Spain <i>From pixel to drop: Inkjet innovations for the digital printing industry</i>	
<b>12:30-12:45</b>	<b>Official group photo</b>	
<b>12:30-13:30</b>	<b>Lunch - Open Area, School of Graphic Artsrea, School of Graphic Arts</b>	
<b>Sessions/Time</b>	<b>SESSION 5A: 3D printing - Additive manufacturing</b> <b>Chair: Cathy Ridgway</b> <b>Room C: Graphic Arts Technology Lecture Room</b>	<b>SESSION 5B: Quality for printing and finishing</b> <b>Chair: Erzsebet Novotny</b> <b>Room B: Preservation Amphitheatre</b>
<b>14:00-14:30</b>	<b>Li Yang, Henrik Pettersson, Göran Flodberg and Samuel Löfstrand</b> , Research Institute of Sweden (RISE) Stockholm and Addema, Jönköping, Sweden: <i>Influence of some Material properties on and quality of selective laser sintering (SLS) built objects</i>	<b>Carl Fridolin Weber, Dieter Spiehl and Edgar Dörsam</b> , Technical University of Darmstadt Darmstadt, Germany: <i>Comparing gloss meters for gloss measurements Properties on the Printing of Fine Features in on metallic embellishments from the printing industry</i>
<b>14:30-15:00</b>	<b>Jakob Feldmann, Dieter Spiehl and Edgar Dörsam</b> , Technical University of Darmstadt, Institute of Printing Science and Technology Darmstadt, Germany: <i>Paper embossing tools: a fast fabrication workflow using image processing and stereolithography additive manufacturing</i>	<b>Fereshteh Abedini, Saan Gooran and Daniel Nyström</b> , Media and Information Technology Divisio, Linköping University, Norrköping, Sweden <i>The effect of halftoning on the appearance of 3D printed surfaces</i>
<b>15:00-15:30</b>	<b>Coffee break - foyer at Ceremony Amphitheatre</b>	
<b>Sessions/Time</b>	<b>SESSION 6A: Graphic Design and Layout</b> <b>Chair: Marios Tsigonias</b> <b>Room C: Graphic Arts Technology Lecture Room</b>	<b>SESSION 6B: Quality for printing and finishing</b> <b>Chair: Chrysoula Gatsou</b> <b>Room B: Preservation Amphitheatre</b>
<b>15:30-16:00</b>	<b>Evgenia Pagani</b> , National and Kapodistrian University of Athens, Greece: <i>The binding of children's book in Greece: a content analysis</i>	<b>Karim Abdel Aal, Max Ailigner and Norbert Willenbacher</b> , Karlsruhe Institute of Technology, Germany: <i>The Influence of the Pastes' Slip and Wetting Properties on the Printing of Fine Features in Flatbed Screen Printing of Silicon Solar Cell Metallization</i>
<b>16:00-16:30</b>	<b>Konstantinos Kyriakopoulos, Sofia Strati and Chrysoula Gatsou</b> , University of West Attica, Greece: <i>Combining Graphic Design and Mathematics</i>	<b>Bethany Wheeler and Shu Chang</b> , Department of Graphic Communications, The Wilbur O. and Ann Powers College of Business, Clemson University, USA: <i>Feasibility of Low-Cost Color Sensors in Graphic Communications Virtual Classroom Learning</i>
<b>16:30-17:00</b>	<b>Coffee break - foyer at Ceremony Amphitheatre</b>	
	<b>Closing Session - Plenary, Chair: Gunter Huebner</b> <b>Room B: Preservation Amphitheatre</b>	
<b>17:00-18:00</b>	Wrap up and presentation of next conference venue - End of conference	
<b>20:00 - 23:00</b>	<b>Gala dinner (together with IC participants)</b> Ilissia Restaurant-Cafe, Gardens of Athens Byzantine and Christian Museum Leof. Vasilissis Sofias 22, Athina 106 75 (Evangelismos Metro Station Line 3 - Blue Line)	

### IARIGAI Conference Day 3 | Wednesday 22 September 2021

<b>09:00-17:00</b>	IARIGAI industrial visit at Forlabels printing company, Oinofyta Voiotia Lunch - Mpatis seafood restaurant, Oropos, Attiki
<b>Evening</b>	Evening: No program (at own leisure)

### IARIGAI Conference Day 4 | Thursday 23 September 2021

<b>08:30-20:00</b>	IARIGAI and IC day excursion Athens, Korinthos - Isthmos Canal, Nemea Archeological site, Nemea Palivos winery wine testing and light lunch, Mycenae Archeological site, City of Nafplion, Athens
<b>Evening</b>	Evening: No program (at own leisure)