

iarigai

FRIBOURG 2017

44th International Research Conference of **iarigai**
Advances in Printing and Media Technology

From printing to manufacturing

Welcome!



Theater "L'Équilibre", where the welcome reception will take place.

Conference program

Welcome!

Welcome to the major scientific and technical event of the print and media field, the 44th **iarigai** International Research Conference! Under the general topic of expanding “from printing to manufacturing”, the focus of the conference program will be on functional printing, media developments, and print science. As a participant, you will learn about new research findings and topical observations - information that will benefit both industry and the research community. You will also meet new and old colleagues and you will have the opportunity of networking with experts and industry representatives with different specializations. All this will contribute to the development of our field.

We proudly announce that the conference this year will take place in Fribourg, Switzerland, hosted by the iPrint Institute of the University of Applied Sciences of Western Switzerland. The **iarigai** Conference on “Advances in Printing and Media Technology” runs from 10th to 13th September. Some program sessions address specifically also industry participants, notably the special high-level keynote session and the panel discussion on Tuesday, 12th September, where distinguished industry leaders discuss the future of print and media towards digital direct manufacturing or production.

We are convinced that the conference days in Fribourg will be instrumental in the international exchange of knowledge between researchers from various fields as well as between research and industry. Thus, we will all be working together for the further development of the print and media industries.

We look forward to meeting you in Fribourg!

With our best regards,



**Prof. Fritz Bircher,
Conference Chair**

Day 1

Sunday, 10th September 2017

12:00-17:00 **Board meeting**

18:00 **Welcome reception at "L'Équilibre", Fribourg**
Registration start (at the Équilibre)

Day 2

Monday, 11th September 2017

8:30-9:00 **Welcome and Coffee**
Registration (at the NH Hotel)

09:00-10:30 **Opening session**

09:00-09:10 **Opening of the conference**

Anne Blayo, President of iarigai
Fritz Bircher, Conference director

09:10-09:15 Fribourg University of Applied Sciences - Welcome addresses
Jean-Nicolas Aebischer, Director

09:15-09:20 City of Fribourg - Welcome addresses
Thierry Steiert, Mayor

09:20-09:40 Industrial printing - needs for education
Fritz Bircher, iPrint Institute Fribourg

09:40-09:45 Introduction of new members

09:45-10:00 JPMTR - iarigai scientific publishing platform
Gorazd Golob, Editor-in-Chief

10:00-10:30 **Invited opening presentation**

Digital Direct Manufacturing
Steve Knight, Digital Direct Technologies

10:30-11:00 Coffee break

11:00-12:30 **Plenary session 1 - New dimensions of industrial printing**

Chair: Fritz Bircher

11:00-11:30 Mouvent™ Cluster - The Base for a printed Printer (keynote presentation)
Piero Pieranzzotti, Mouvent

11:30-12:00 Progress on massive scaling of NanoDrip electrohydrodynamic printing (keynote presentation)
Patrick Galliker, Scrona

12:00-12:30 New Printing Processes - Challenges for Paper Recycling (keynote presentation)
Axel Fischer, INGEDE

12:30-14:00 Lunch

14:00-15:15 Session 2 A – Inkjet printing

Chair: tbd

- 14:00-14:25 A Model of Inkjet Printing on porous Substrates incorporating Droplet Impact
Li Yang, Jianghao Liu and Xianfu Wei
- 14:25-14:50 Ink Jet Matching of Gravure Printed Wood Grain
Vinay Anil Turke, Paul Daniel Fleming, Veronika Husovska and Alexandra Pekarovicova
- 14:50-15:15 Waveform Optimization for Piezo Drop on Demand Inkjet Print Heads by Meniscus Motion Analysis
Johannes Renner and Fritz Bircher

Session 2 B – Printing processes

Chair: tbd

- Calculation of Mesh Depression due to Squeegee Forces during Screen-Printing Process
Gunter Huebner
- On the Measurement of the Pick-up Volume of Anilox Rollers by Fluorescence
Felipe Fernandes, Fabio Campanelli and Edgar Dörsam
- Accelerated Weathering Tests of Parking Vignettes
László Koltai, Csaba Horváth and Eszter Bartha

15:15-15:45 Coffee break

15:45-17:00 Session 3 A – Printed functionality 1

Chair: tbd

- 15:45-15:10 Co-Developing Services utilizing Printed Functionality
Liisa Hakola, Kaisa Vehmas, Thea Sipiläinen-Malm, Reetta Grenman and Anu Seisto
- 15:10-16:35 Influence of Drying Temperature on Morphology and Conductivity of Silver
Vincent Faure, Aurore Denneulin, Yahya Rharbi, Albert Magnin and Anne Blayo
- 16:35-17:00 Inkjet-fabricated Coated Reaction Platform for Colorimetric Glucose Detection
Eveliina Jutila, Risto Koivunen, Roger Bollström and Patrick Gane

Session 3 B – Printing for packaging

Chair: tbd

- Investigating Opportunities for 3D Digital Package Prototypes in the Proofing Workflow
Amanda Whyte, Natalia Lumby and Reem El Asaleh
- Formulation of a Bio-based and Water-based Ink for Flexography
Fanny Bardot, Charles Bouchard, Olivier Tonnoir, Anne Blayo and Gérard Mortha
- Smart Packages by Means of Intelligent Codes
Mustafa Bilgin and Johannes Backhaus

17:15-18:30 General assembly (appointed representatives only)**18:30-19:15 Board meeting (members only)**

Day 3

Tuesday, 12th September 2017**09:00-10:15 Plenary session 4 – Media**

Chair: tbd

- 09:00-09:25 Title 4 (keynote presentation)
NN, Media research institute (tbc)
- 09:25-09:50 Title 5 (keynote presentation)
NN, Media company (tbc)
- 09:50-10:15 Canadian Magazine Publishers – State of the ‘App’
Christopher Smyth and Carman Fan

10:15-10:45 Coffee break

10:45-12:00

Session 5 A – Printing inks

Chair: tbd

10:45-11:10

Predictive Modelling of Demixing and Evaporation from a Roller Nip-distributed Water-in-Ink Thin Film Emulsion using Tack Measurement

Patrick Gane, Carl-Mikael Tåg and Cathy Ridgway

11:10-11:35

The Yin and Yang of Colors – how to calculate the exact complementary color to a specific chromatic Brand Color

Michael Abildgaard Pedersen

11:35-12:00

Microscale Halftone Analysis: measurement Framework and Convolution Strategy to differentiate Physical and Optical Dot Gain

Louis Vallat-Evrard, Lionel Chagas, Raphaël Passas and Nadège Reverdy-Bruas

Session 5 B – Print quality

Chair: tbd

Special Examination for the Durability of Text Books

Csaba Horváth

Quality Testing of Samples from Multi-Layer-Printing Process using the Method of Visual Color Assessment

Heike Gute, Edgar Dörsam and Hans Martin Sauer

Quality Control in Job Printing: adaptable Camera Focus using Power Spectrum

Julian Schäfer, Felipe Fernandes and Edgar Dörsam

12:00-13:30

Lunch

13:30-14:45

Session 6 A – Printing functionality 2

Chair: tbd

13:30-13:55

Analyte Separation for Microfluidic Applications by Surface Charge Modified Functional Pigment Coatings

Risto Koivunen, Eveliina Jutila, Roger Bollström and Patrick Gane

13:55-14:20

A Method to Assess the Cross-Sectional Profile of Fused Deposition Modeling Lines

Heng Li, Bruce Myers and Shu Chang

14:20-14:45

Cheap Carbon Nanodots obtained from Waste and their Use as Luminescent Material for (Water-based) Ink-jet Inks

Massimo Varisco, Denis Zufferey, Fritz Bircher and Olimpia Mamula Steiner

Session 6 B – Substrates for printing

Chair: tbd

The Evaluation of Bio-Based Binders Influence on Offset Print Mottle using GLCM

Igor Karlovits, Janja Juhant Grkman, David Ravnjak and Gregor Lavrič

Using ISIT as a Probe to establish Critical Roughness – film thickness relationship

Mika Anttila, Martti Toivakka and Patrick Gane

The Wettability Effect of CMY Water-based Flexographic Printing Inks

Zuzanna Żołek-Tryznowska, Joanna Izdebska-Podsiadły and Mariusz Tryznowski

14:45-15:15

Coffee break

15:15-17:00

Plenary session 7 - Introduction & panel discussion on digital direct manufacturing

Chair: Fritz Bircher

15:15-15:30

Short introduction representative of packaging printing

15:30-15:45

Short introduction representative of additive manufacturing

15:45-16:00

Short introduction representative of printed electronics

16:00-16:15

Short introduction representative of bioprinting

16:15-17:00

Panel discussion

Moderator: Fritz Bircher

- 17:00-17:15** **Closing of the conference**
- 17:00-17:10 Wrap up
Fritz Bircher, Conference director and Anne Blayo, President of iarigai
- 17:10-17:15 45th International Research Conference, Warszawa, September 2018
Presentation by the University of Warsaw (Zuzanna Żótek-Tryznowska)
- 19:30** **Conference dinner**

Day 4

Wednesday, 13th September 2017

09:00 **Meeting at the NH Hotel**

Building of two groups

Group 1

Transfer by shuttle to the Marly Innovation Center (MIC)

Group 2

15' walk to the Museum

09:15-10:15 **Visit iPrint Institute**
The modern Way of Printing

Visit Gutenberg Museum
The ancient Way of Printing

10:15-10:30 Coffee break (at the MIC)
Transfer by shuttle to the Museum

Transfer by shuttle to the MIC
10:30-10:45 Coffee break (at the MIC)

10:45-11:45 **Visit Gutenberg Museum**
The modern Way of Printing

Visit iPrint Institute
The ancient Way of Printing

15' walk back to the NH Hotel

Transfer by shuttle back to the NH Hotel

12h00 **Back at the NH Hotel**

Trains leaving Fribourg:

- 12h26 in the direction of Geneva (every 30 minutes)
- 12h34 in the direction Bern/Zurich (every 30 minutes)