Conference Program – Day 1
Tuesday – March 28, 2017

Plenary Session
Room 13b

Session Chair: Mr. Wolfgang Mildner
MSW, Founder and CEO, DE
LOPEC General Chair

09:00 Words of Welcome
Mr. Wolfgang Mildner
MSW, Founder and CEO, DE
LOPEC General Chair

09:05 Bringing printed and flexible transparent electrodes to market: Challenges and opportunities
Mr. John LeMoncheck
Cambrios Advanced Materials, President and Chief Executive Officer, US
- Challenges for startups in printed electronics
- Transparent electrodes for touch, OPV and OLEDs
- Automotive and wearable electronics

Short Courses
Room 13a

Session Chair: Dr. Giovanni Nisato
CSEM Muttenz
Business and Technology Development Senior Manager, CH

Materials for Printing Electronics

09:30 Printable electronic materials for organic thin-film devices: design and applications
Prof. Jiyoul Lee
Pukyong National University, KR
- Fundamentals of organic semiconductor for printed electronic
- Rational design of organic semiconductor for its application
- Other critical components of printed electronic devices

Printed and Organic Transistors

11:30 Electrical characterization of printed circuits and devices: Strategies to improve yield and performance
Prof. Henrique Leonel Gomes
Instituto de Telecomunicações, PT
- Printed circuits
- Electrical characterization
- Reliability

Conference Program – Day 1
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Business Conference
Room 13b

Session Chair: Mr. Thibaud Le Séguillon
Heliatek GmbH, CEO, DE

End-user Applications and Requirements

09:30 Biosensors for medical diagnostics
Dr. Christopher Hand, Abingdon Health Ltd, Chairman, UK
- OLED, OPD and immunodiagnostics as biosensor
- Multiplex, quantitative medical biosensor
- Biosensor for cancer diagnostics using OLEDs

09:50 Printed electronics in automotive applications
Mr. Vincent Salle, Parlex Europe, Vice President, Business Development, UK
- Human machine interface
- Automotive industry requirements
- Future printed electronics solutions

10:10 Printed electronic solution for future automotive application
Mr. Thomas Gallner, Continental Automotive GmbH, Director Search Field CO2 Reduction Technologies, DE
- Available technologies within continental
- Enable new automotive functions and component forms
- Automotive requirements and needed technology improvements

10:30 Enabling smart and connected living through advances in high volume roll-to-roll manufacturing
Ms. Enid Kivuti, Multek Flexible Circuits, Director of Innovation and Technology, US
- Search for cost effective manufacturing methods that enable connected living
- Printed electronics delivered by roll-to-roll screen-printing technology while balancing existing and rapidly evolving technologies
- Comprehensive overview of merging existing manufacturing techniques with new automated solutions to deliver improved performance

Business and Product Developments

11:30 Natural human machine interfaces in ambient intelligence: a case for printed electrochromics
Mr. Jani-Mikael Kuusisto, Ynvisible S.A., General Manager, PT
- Printed electrochromics
- Human machine interface design
- Ambient intelligence

11:50 Unchartered territory – A laser equipment maker’s approach to organic and printed electronics
Mr. Jörg Jetter, 4JET microtech GmbH & Co. KG, CEO, DE
- Laser micro machining
- Go to market strategy
Business Conference
Room 13b

Session Chair: Mr. Thibaud Le Séguillon
Heliatek GmbH, CEO, DE

12:10 Activities of TOYOBO focusing on substrates, stretchable conductive ink and smart textiles
Mr. Yasuaki Koseki, TOYOBO Co., Ltd., Manager, JP
- Substrate, polyimide, PET
- Stretchable ink
- Smart textiles

12:30 New generation hybrid and flexible platform for electronic sensors & systems
Mr. Wladimir Punt, Molex, Business Development Manager, DE
- Hybrid and flexible
- Silver-flex
- Electronic sensors and systems

Short Courses
Room 13a

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CSEM Muttenz
Business and Technology Development Senior Manager, CH

Sensors and Interfaces

14:00 Ultra-low detection limits and selectivity with organic bio-electronic sensors
Prof. Luisa Torsi
University of Bari, IT
- Organic bio-electronics
- Thin film transistors
- Biosensing

From Lab to Fab: Printing Photovoltaics

16:00 Printed photovoltaics
Prof. Christoph J. Brabec
University Erlangen-Nürnberg, DE
- Renewable energy
- Organic photovoltaics
- Perovskites, printing and coating

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Business Conference
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Heliatek GmbH, CEO, DE

Supply-chain challenges

14:00 Novel R2R barrier film solutions and their applications
Dr. Stephan Klotz, BASF Schweiz AG,
Director New Business Development, CH
- Flexible barrier films
- Roll-to-roll production
- Encapsulation

14:20 Rise of OLED equipment market
Dr. Seong Woo Chung, Sunic System Ltd.,
Chief of Marketing Officer/Executive Vice President, KR
- OLED
- Equipment
- Display

14:40 The role of COPT.center to initiate business for organic electronics in North Rhine-Westphalia
Dr. Stephan Kirchmeyer, University of Cologne,
Relations- and Marketing Manager, DE
- TOLAE technology in North Rhine-Westphalia
- Technology transfer
- Business model

15:00 Ultra-thin-glass – striving for the seamless integration of thin glasses into today’s mass production processes and environments
Mr. Matthias Jotz, SCHOTT AG,
Global Product Manager Semicon and Sensors, DE
- Flexible glass
- Building up a supply chain
- High strength glass

Examples and Strategies of IP Usage to Transform Technology to Business

16:00 From adding to creating value
Mr. Pascal Deloue, Central Midori International, General Manager, SG
- Creating
- Value
- Singapore

16:20 Towards commercialization of new blue TADF emitters for OLED displays
Dr. Andreas Haldi, CYNORA, Chief Marketing Officer, DE
- Commercialization
- OLED
- TADF
Plenary Session
Room 14b

Session Chair: Mr. Wolfgang Mildner
MSW, Founder and CEO, DE
LOPEC General Chair

09:00
Words of Welcome
Mr. Wolfgang Mildner
MSW, Founder and CEO, DE
LOPEC General Chair

09:15
EU programs for large area electronics: From research to innovation funding
Mr. Henri Rajbenbach, European Commission for Communications Networks, Content & Technology, BE

• Success stories of recent programs
• Future programs and funding
• Targets and expected results

09:40
Printed electronics in Korea and future prospect of organic electronics
Dr. Sang Yoon Lee, Samsung, Senior Vice President, KR

• Printed electronics
• Korean national program
• Organic electronics roadmap

10:05
The internet of big things
Mr. Thibaud Le Séguillon, Heliatek GmbH, CEO, DE

• Heliatek enables internet of big things with an urban fit
• Decarbonized and decentralized energy solution based on organic solar film

Business Conference
Room 13b

Session Chair: Mr. Thibaud Le Séguillon
Heliatek GmbH, CEO, DE

16:40
Inkjet printing for OLED manufacturing
Mr. Jeffrey Hebb, Kateeva, Inc., Vice President of Global Marketing, US

• Inkjet printing
• OLED displays
• OLED mass production

17:00
The nano revolution
Ms. Corinne Versini, Genes’Ink, CEO, FR

• Revolution: 1870 the start of the plastic revolution, 1985 the start of the nano revolution.
• Ethic: What are the environmental and ethical issues that we must face?
• Dream: We are at the very beginning of a new age of chemistry, it is up to us to make.
Start-up Forum, Business Conference
LOPEC Forum, ICM Foyer

Jury:
Mr. Thibaud Le Séguillon, Heliatek, CEO, DE
Mr. John LeMoncheck, Cambrios Advanced Materials, President and Chief Executive Officer, US
Dr. Jan Blochwitz-Nimoth, NOVALED, CSO and Founder, DE

B-Round

11:30 Electroninks Incorporated
Dr. Brett Walker, Electroninks, CEO, US
• Conductive inks
• Precursor
• Circuit scribe

11:40 Virtual design of materials for organic electronics
Dr. Tobias Neumann, Nanomatch GmbH, Chief Executive Officer, DE
• Material development
• Predictive modeling
• Virtual design

11:50 GT+W - Industrialising functional printing
Dr. Juergen Willmann, GT+W GmbH, CEO, DE
• Start-up
• Functional printing
• Printing + measuring equipment

Seed Financing

12:00 A new approach to rapid prototyping printed electronics on thin, flexible substrates
Mr. Carlos Ospina, BotFactory, CTO, US
• Prototyping
• Additive manufacturing
• Assembly

12:10 Pylux: Novel polysulphide substrate material for flexible electronics manufacturing
Dr. Tolis Voutsas, Ares Materials, Inc., Vice President, Business Development, US
• Flexible substrate
• Flexible electronics
• Printed electronics

12:20 Senorics – The sensor revolution
Dr. Ronny Timmreck, TU Dresden, IAPP, Spin-off Manager, DE
• Sensor
• NIR
• Photodetector

12:30 Enerthing – Solar energy solutions for things
Dr. Michael Niggemann, Enerthing GmbH, CEO, DE
• Internet of things
• Energy
• Solar

12:40 The Vanguard Initiative:
Establishing international value chains in printed electronics
Dr. Christian Punctk, Karlsruhe Institute of Technology, Associate Director, DE
• Vanguard Initiative
• International value chains
• Private co-investment

12:50 Carbon Waters: A new generation of nanocarbons conductive inks
Dr. Alban Chesneau, Carbon Waters, Project Manager, FR
• Conductive inks
• Graphene
Wednesday – March 29, 2017

**Conference Program – Day 2**

**Energy**

**Session Chair:** Huib van den Heuvel, Solliance, Director, NL

11:30 | **Towards roll-to-roll production of efficient organic triple junction solar films on an industrial scale**

**Dr. Martin Pfeiffer,** Heliatek GmbH, CTO, DE

- Damp heat test passed for flexible solar films
- Efficient tandem cells produced by R2R vacuum processing
- Full scale production line for 120cm web in planning

11:50 | **Status S2S and R2R up-scaling progress for perovskite based PV modules at Solliance**

**Dr. Ronn Andriessen,** Solliance, Program Director, NL

- Perovskite based PV stack designs
- Perovskite based PV upsampling
- Perovskite based PV stability

12:10 | **Printed aqueous supercapacitors: Materials and architecture optimization for improved mechanical and electrical properties**

**Mr. Jari Keskinen,** Tampere University of Technology, Project Manager, FI

- Supercapacitor
- Energy storage
- Printed electronics

12:30 | **The real challenge of in-line quality control of electrodes coatings for lithium-ion batteries based on visual inspection**

**Dr. Michel Popovic,** IN-CORE SYSTEMES, General Manager, FR

- On-line high resolution practical quality control
- Key tool for durable materials and electrodes
- Real key challenges to accurately sense quality

**Functional Materials**

**Session Chair:** Dr. Mark James, Merck Chemicals, R&D Director, Head of Organic Electronics, UK

11:30 | **Solution-processed flexible organic thin film transistors with phenomenal reliability performances**

**Dr. Steve CH Tu,** AUN, Manager Advanced Device Research Center, TW

- Organic thin film transistors
- Flexible polyimide substrate
- Reliability

11:50 | **Siloxane inks – A new class of materials for the printed IoT era**

**Dr. Juha Rantala,** Inkron, CEO, FI

- Functional inks
- Siloxane
- Printed IoT

12:10 | **Materials for printed transistors: More than proof of concept!**

**Dr. Aurélie Morley,** Merck Chemicals Ltd, R&D Lead, UK

- High performance organic electronic inks
- Printed thin film transistors
- Roll-to-roll fabrication

12:30 | **High-current pulse processing to improve stability and hysteresis in CNT-based printed electronic devices**

**Dr. Ryan Giedd,** Brewer Science, Inc., Director, Device Engineering & Development, US

- Devices
- CNT
- Pulse

**Scientific Conference**

Room 14a

**Session Chair:** Prof. Reinhard Baumann, Fraunhofer ENAS, DE

11:30 | **Monitoring laser scribing processes using VNIR hyperspectral imaging**

**Mr. Florian Gruber,** Fraunhofer IWS, Research Assistant, DE

- Laser scribing
- Hyperspectral imaging
- Monitoring

11:50 | **Sinter-free hybrid metal-polymer inks for printed and flexible electronics**

**Prof. Tobias Kraus,** INM – Leibniz Institute for New Materials GmbH, Deputy Head, InnovationCenter INM, DE

- Hybrid ink
- Sintering-free
- Inkjet printing

12:10 | **Light induced sintering of printed metal structures**

**Dr. Jürgen Keck,** Hahn-Schickard, Scientific Employee, DE

- Photonic sintering
- Laser sintering
- Printed metal inks

12:30 | **Stretchable conductors direct printing for electronic textile applications using pad printing**

**Dr. Yacov Schneider,** Nanoelectronic Center, Technion, Chief Engineer, IL

- Pad printing
- Stretchable conductors
- Transistors

**Session Chair:** Dr. Bertrand Fillon, French Plastic Institute (IPC), General Director of Research, FR

11:30 | **Highly efficient light-emitting diodes based on intramolecular rotation in coinage metal carbene complexes**

**Dr. Alexander S. Romanov,** School of Chemistry, University of East Anglia, Senior Post-doctoral Research Associate, UK

- Copper
- Carbone
- OLED

11:50 | **Rapid progress in achieving stable, efficient and deep-blue OLEDs with thermally activated delayed fluorescence materials**

**Dr. Angela Digennaro,** CYNORA GmbH, Scientist, DE

- OLED
- Blue
- Thermally activated delayed fluorescence

12:10 | **Study of the thermal stability of PEDOT:PSS thin films**

**Mr. Lukas Stepien,** Fraunhofer IWS Dresden, Scientific Staff, DE

- PEDOT:PSS
- Degradation
- Electrical conductivity

12:30 | **A universal OLED materials benchmark protocol**

**Mr. Michel Molaire,** Molecular Glasses Inc., CEO/Founder, US

- Benchmarking
- Robust design
- Signal to noise ratio
### Technical Conference
Room 13a

**Session Chair:** Dr. Rahul Gupta, Cambrios Technologies Corporation, Senior Director, Business Development, US

14:00 | Haptics, it used to be all about resonant frequency  
*Francesco Jeanneau,* Novasentis, Inc., CEO, US  
- Current haptic technologies are not meeting OEM goals  
- The sense of touch is a critical element into an immersive user experience  
- Haptic sensations must be localized and in high definition to meet user expectations

14:20 | Smart interactive and decorated surfaced for automotive and other electronics user interfaces  
*Dr. Wolfgang Clemens,* Polyci GmbH & Co. KG, Head of Product Management PolyTC, DE  
- Touch and gesture control  
- Silver mesh transparent conductive films  
- Automotive, white goods, consumer user interfaces

14:40 | Fingerprint sensors: Beyond the button  
*Mr. Bob Mackey,* Synaptics, Director of Biometric Architecture, US  
- Fingerprint sensor  
- Capacitive  
- Optical

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### Biomedical Applications

**Session Chair:** Dr. Kerry Adams, DuPont Teijin Films, Business Development Manager, US

14:00 | Application of screen-printed carbon films in biomedical sensors  
*Mr. Steven Setford,* Johnson & Johnson, Diabetes Care Companies, Director, Strip Development, UK  
- Screen-printed carbon sensors  
- Self-monitoring of blood glucose  
- Medical devices for diabetes management

14:20 | OLED/OPD transducer for point-of-use diagnostics  
*Dr. May Wheeler,* Cambridge Display Technology Ltd, Scientist, UK  
- OLEDs and OPDs  
- Rapid diagnostics  
- Point-of-use

14:40 | Paper-based platform for printed electrochemical biosensors  
*Mr. Giorgio Mutinati,* AIT Austrian Institute of Technology, Scientist, AT  
- Single-use qualitative biomedical sensor on paper  
- Printed electrode, bioink, microfluidic, microchip  
- Enzymatic assay for glucose impedimetric sensing

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### Scientific Conference
Room 14a

**Session Chair:** Prof. Gyou-Jin Cho, Sunchon National University, KR

14:00 | Direct laser scribing of organic photovoltaic on R2R processed thin-film barriers, enabling low-cost R2R flexible PV  
*Mr. Henri Fiedderus,* Holst Center / TNO, Senior Process Engineer, NL  
- Laser scribing  
- R2R thin film barrier  
- Organic photovoltaic

14:20 | Optical characterization of thin inkjet-printed organic photovoltaic films on flexible substrates by spectroscopic imaging ellipsometry  
*Mr. Christian Röling,* Accurion GmbH, Application Scientist, DE  
- Flexible substrates  
- Ellipsometry  
- Thin film

14:40 | Process dependent performance of slot die coated OLED-multilayers  
*Mr. Sebastian Raupp,* Karlsruhe Institute of Technology, PhD, DE  
- Slot die coating  
- SMOLED  
- Multilayer

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### Materials II

**Session Chair:** Dr. Barbara Stadlober, Johanneum Forschungsgesellschaft mbH, AT

14:00 | Understanding the barrier performance of multilayer films – Theoretical studies of steady-state and transient permeation  
*Mr. Oliver Miesbauer,* Fraunhofer Institute for Process Engineering and Packaging IVV, Scientist, DE  
- Permeation through multilayer barrier films  
- Numerical simulation  
- Lag time of permeation

14:20 | Bendable encapsulants and dielectrics to be used in backplanes of flexible displays  
*Mr. Gerhard Domann,* Fraunhofer Institut für Silicatforschung, Head of Competence Team Optics and Electronics, DE  
- Flexible displays  
- Dielectrics  
- Encapsulants

14:40 | Stability and degradation of organic materials: Atomistic modelling impact  
*Dr. Jacob Gavartin,* Schrodinger Inc, Materials Science Lead, UK  
- Stability descriptors  
- Molecular dynamics  
- Quantum chemistry
Conference Program – Day 2
Wednesday – March 29, 2017

Technical Conference
Room 13a
Upscaling Production and Manufacturing Processes
Session Chair: Prof. Karlheinz Bock, Technische Universität Dresden, DE
15:40 | Flexible manufacturing of 3D printed electronics via print driven process chains
Dr. Martin Hedges, Neotech AMT GmbH, Managing Director, DE
• 3D printed electronics
• Mechatronics
• Flexible manufacturing
16:00 | Instantaneous drying and sintering of water or solvent based conductive coatings
Dr. Kai Bär, adphos Digital Printing GmbH, Managing Director, DE
• Instantaneous drying
• Sintering of water
• Sintering of solvent based conductive coatings
16:20 | Spatial atomic layer deposition for large-area and flexible applications
Dr. Paul Poodt, Holst Centre, Program Manager, NL
• Spatial atomic layer deposition
• Roll-to-roll ALD
• Flexible electronics

Technical Conference
Room 13b
Smart and Hybrid Systems
Session Chair: Mr. Scott White, PragmatIC, CEO, UK
15:40 | Discover how item-level data is transforming consumer experience in retail
Mr. Francisco Melo, Avery Dennison, VP/GM Global RFID, UK
• RFID, NFC
• Omni-channel
• Consumer experience
16:00 | Advances in flexible hybrid electronics reliability
Mr. Douglas Hackler, American Semiconductor, Inc., President & CEO, US
• Flexible hybrid electronics
• FHE reliability
• FieX-IC
16:20 | Injection molded structural electronics: Mass manufactured smart plastics
Prof. Antti Keränen, TactoTek, CTO, FI
• Injection molded electronics
• Hybrid integration
• Smart surfaces

Scientific Conference
Room 14a
Printing, Patterning and Equipment III / Publishing your Research
Session Chair: Prof. Sung-Lim Ko, Konkuk University, KR
15:40 | Roll-to-roll processing of thin-film-transistor circuits
Dr. Ari Alastalo, VTT, Principal Scientist, FI
• Roll-to-roll processing
• Thin-film transistors
• Circuits
16:00 | Using the coffee ring effect to reduce the thickness of inkjet printed dielectrics
Dr. Neil Graddage, National Research Council Canada, Research Officer, CA
• Inkjet
• Dielectric
• TFT
16:20 | Inkjet-printing of aptamers for printable sensor developments
Prof. Silvia Schintke, HEIG-VD, University of Applied Sciences Western Switzerland, Head of Laboratory of Applied NanoSciences (COMATEC-LANS), CH
• Inkjet-printing for printable sensors
• Surface functionalization
• Non-contact atomic force microscopy

Scientific Conference
Room 14b
Materials III
Session Chair: Dr. Henning Richter, Nano-C Inc., Vice President, Research and Development, US
15:40 | Printing self-reducing copper ink and hot press post treatment yielding conductive copper patterns
Mr. Yitzchak (Isaac) Rosen, The Hebrew University of Jerusalem, PhD Student, IL
• We printed a self-reducing copper precursor ink
• Decomposition was obtained by hot press
• Resulted in better conductivity than heat alone
16:00 | A versatile molecular ink platform for printed electronics
Dr. Arnold Kell, National Research Council, Research Officer, CA
• Molecular silver ink
• Conductive
• Screen, inkjet and aerosol jet printing
16:20 | Novel simplistic method for bending tests on flexible electronic devices
Ms. Emmy Holst, Fraunhofer FEP, Research Fellow, DE
• Bending tests
• Flexible electronics
• OLED
**Conference Program – Day 2**

*Wednesday – March 29, 2017*

**Technical Conference**
Room 13a

**Upscaling Production and Manufacturing Processes**

Session Chair: Prof. Karlheinz Bock, Technische Universität Dresden, DE

*16:40| Integration of nano imprint R2R into the production processes for printed electronic products*

Mr. Thomas Kolbusch, Coatem Coating Machinery GmbH, Vice President, DE

- Printed electronic
- Roll-to-roll
- Nano imprint

*17:00| Roll-to-roll methods for producing electrodes for flexible electronics*

Dr. Marja Vilkman, VTT Technical Research Centre of Finland, Senior Scientist, FI

- Roll-to-roll
- Flexible electrodes
- Self-alignment

**Technical Conference**
Room 13b

**Smart and Hybrid Systems**

Session Chair: Mr. Scott White, PragmatIC, CEO, UK

*16:40| 3D printing of flexible and stretchable interconnects*

Dr. Michael Renn, Optomec, Inc, Chief Technology Officer, US

- Flexible circuits
- Hybrid electronics

*17:00| Inkjet flex: Roll-to-roll inkjet printing of copper-based printed electronics applications*

Mr. Steven Bagshaw, CPI, Business Development Manager, UK

- Inkjet printing
- Copper electronics
- Internet of things

**Scientific Conference**
Room 14a

**Printing, Patterning and Equipment III / Publishing your Research**

Session Chair: Prof. Sung-Lim Ko, Konkuk University, KR

*16:40| Easily integratable, low cost nano lens array technology for large-area flexible printed electronics*

Dr. Young-Sam Park, ETRI, Principal Member of Engineering Staff, KR

- Nano lens
- Flexible
- Organic light emitting diode

*17:00| Publishing your research – An introduction to scientific publishing*

Mr. Simon Buckmaster, IOP Publishing, Publisher, UK

- Scientific publishing
- Peer-review
- Writing scientific articles

**Scientific Conference**
Room 14c

**Materials III**

Session Chair: Dr. Henning Richter, Nano-C Inc., Vice President, Research and Development, US

*16:40| Synthesis of processable n-type polymers*

Dr. Roman Tkachov, Fraunhofer-Institut für Werkstoff- und Strahltechnik, Researcher, DE

- n-type conductive polymer, poly[Kx(Ni-ett)]
- Monomer and polymer structure
- Printable paste

*17:00| Printing electronic and sensing components on biocompatible and biodegradable PLA substrates*

Dr. Danick Briand, École Polytechnique Fédérale de Lausanne, Team Leader MEMS and Printed Microsystems, CH

- Poly-lactic acid substrate
- Printing resistors and transistors
- Biocompatible and biodegradable
TC Poster Session
ICM Foyer 18:00–20:00

Upscaling Production and Manufacturing Processes

Advanced materials deposition digital solutions for printed electronics and smart 3D printing
Mr. Nicolas Bernardin
Ceradrop, Deputy Managing Director, FR

New silicon frontiers: Physically flexible system-on-a-chip
Mr. Rich Chaney
American Semiconductor, General Manager, US

Development of high-precision web handling modules of a R2R evaporation system for flexible OLED devices
Mr. Hyuntae Kim
KIMM, Korea Institute of Machinery & Materials, Researcher, KR

High speed non-contact electrical metrology for printed electronics
Dr. Adam Lewis
National Physical Laboratory, Higher Research Scientist, UK

Precision stripe coating by non-meniscus guided tungsten carbide lip slot die
Mr. Naoki Rikita
MMC RYOTEC CORPORATION by Mitsubishi Materials, Technical Director, JP

High volume digital printing of antennas and circuitry with continuous copper and aluminum
Dr. Dene Taylor
SPF-Inc, President, US

Energy

Organic photovoltaics: Enabling production of commercially viable modules
Dr. Stephane Berny
MERCK Chemicals Ltd., R&D Manager, UK

Lifetime study of flexible encapsulated organic photovoltaic modules: Optimization of device architecture and selection of encapsulated materials
Dr. Muriel Matheron
CEA INES, Research Scientist, FR

Automotive & Aerospace

Light weight cables enhance vehicle performance
Mr. Tommi Rintala
New Cable Corporation, CEO, FI

Functional Materials

Transparent and conductive surface modification for polymers
Mr. Thomas Abendroth
Fraunhofer IWS, Scientific Co-worker, DE

Smart dispersion – How to achieve better dispersion results with realtime process analysis
Mr. Ulf Koepke
EXAKT Advanced Technologies GmbH, R & I Manager, DE

Publicly Funded Projects

Processing of metal oxide nanoparticle inks for OPV and OLED applications by a novel new synthesis route
Dr. Christine Boeffel
Fraunhofer IAP, Project Manager, DE

In-mold hybrid integration process for LED displays
Mr. Sami Ilhme
VTT, Senior Scientist, FI

Luminous ceramic tile based on flexible LED lighting module with high lighting uniformity
Dr. Kimmo Keränen
VTT, Senior Scientist, FI

Biomedical Applications

Multifunctional printed PEDOT:PSS skin-multielectrode arrays
Dr. Sébastien Sanaur
Ecole Nationale Supérieure des Mines de Saint-Etienne, Associate Professor, FR

Flexible Displays and Lighting

Conformable organic liquid crystal displays
Dr. Jan Jongman
FlexEnable, Senior Engineering Manager, UK

Wearable Electronics

Integration of electroactive fibers and yarn structures into automotive interiors for enhanced interactive surfaces and sensor actuator applications
Dr. João Gomes
CENTI – Centre for Nanotechnology and Smart Materials, RTD Manager, PT

A study of pad-bonding strength enhancements on elastometric substrate
Dr. Jay Yu
AU Optronics, Senior Researcher, TW
**TC Poster Session**

ICM Foyer 18:00–20:00

**Smart and Hybrid Systems**

Printed electronics for enhancing the functionality of packages  
Prof. Dr. Ulrich Moosheimer  
Munich University of Applied Sciences, Professor for Printing Technologies, DE

**Substrates and Encapsulation**

Polyester films for the next generation of flexible electronics  
Dr. Bill MacDonald  
DuPont Teijin Films, Business Research Associate, UK

Transparent and high conductive fabric based electrodes  
Dr. Roland Steim  
Sefar AG, Project Manager, CH

**BC Poster Session**

ICM Foyer 18:00

**Business and Product Developments**

Flexible connectors for flexible electronics  
Mr. Antti Backman  
Delektre Ltd., CEO, FI

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**SC Poster Session**

ICM Foyer 18:00–20:00

**Printing, Patternning Technologies and Equipment**

Towards roll-to-roll reverse-offset printing  
Dr. Ari Alastalo  
VTT, Principal Scientist, FI

Direct writing of patterned, lead-free nanowire aligned flexible piezoelectric device  
Dr. Meng Gao  
Institute of Chemistry, Chinese of Academy of Sciences, Student, CN

Reliability of electrically conductive adhesive interconnections in printed flex-to-flex system integration  
Dr. Tuomas Happonen  
VTT Technical Research Centre of Finland Ltd, Senior Scientist, FI

Improvement of roll-to-roll fabrication based polymeric semiconductor thin film transistor  
Mr. Jaemin Kim  
Konkuk University, Researcher, KR

Improvement of electrical performance of printed OTFT by calendaring process  
Prof. Sangyoon Lee  
Konkuk University, KR

Development of new products with optimized slot dies – The scalable process  
Mr. Maick Nielsen  
TSE Troll AG, Managing Director, CH

Electromigration (EM) reailability study on electrohydrodynamic-jet-printed Ag lines  
Ms. Chaei Yu  
Kongju National University, Student, KR

**Circuit Design, Simulations, and Systems**

Methods of display graphical information using printed electronics  
Mr. Ignatii Adamantov  
Saint Petersburg State University of Industrial Technologies and Design, PhD Student, RU

A fast printed pressure and impact force sensing surface  
Mr. Marco Fattori  
Technical University of Eindhoven (TUE), PhD Researcher, NL

Layout versus schematic in multilayered printed electronics designs  
Dr. Ryan Griffin  
National Research Council Canada, Electronics Designer, CA

Rapid-prototyping and instrumentation using printed electronics  
Mr. Alexandre Pereira  
Commissariat à l’Energie Atomique, Researcher, FR
Devices

Measuring and controlling exciton diffusion length in highly efficient small molecules organic semiconductors for organic photovoltaic applications using solvent vapor annealing
Mr. Oskar Blaszczyk
University of St. Andrews, PhD Student, UK

Printed graphite/Cu electrodes for back electrodes in printed photovoltaic thin films
Mr. Alexander Blümel
Joanneum Research Forschungsgesellschaft mbH, Scientist, AT

The effect of bias stress and environmental stability on inkjet-printed CMOS circuits
Dr. Afshin Dadvand
National Research Council Canada, Research Officer, CA

Organic semiconductor explosive sensors
Mr. James Giackin
University of St Andrews, PhD Student, UK

Tungsten polyoxometalate as an interfacial layer for solution processed high performance metal oxide transistors
Dr. Adrica Kyndiah
Centre national de la recherche scientifique CNRS – University of Bordeaux, Post Doctoral fellow, FR

Flexible and disposable printed devices for temperature control and monitoring
Mr. Alberto Loi
Fundació Eurecat, Researcher, ES

Fully screen printed flexible thin film loudspeaker using a piezoelectric polymer
Mr. Kris Marcelissen
Fontys University of Applied Sciences, Research assistant, NL

Enerthing – Solar energy solutions for things
Dr. Michael Niggemann
Enerthing GmbH, CEO, DE

Transparent quantum dot light emitting diode (QD-LEDo) with various inorganic nano-particles as electron transport layer
Dr. Min Suk Oh
Korea Electronics Technology Institute (KETI), Managerial Researcher, KR

Efficient pyrrole[3,4-c]pyrrole-1,3-dione-based wide band gap polymer for high efficiency binary and ternary solar cells
Mr. Insoo Shin
Pukyong National University, Graduate Student, KR

Hot-air annealing method for improving the performance of organic-inorganic hybrid lead halide perovskite solar cells
Mr. Insoo Shin
Pukyong National University, Graduate Student, KR

Materials

New ink formulation using non-chlorinated solvents for organic solar cells
Dr. Badrou Reda Aich
National Research Council, Research Council Officer, CA

Functionalization of cellulose fabric with AgNWs and TiO2 nanomodifier
Dr. Grzegorz Celichowski
University of Lodz, Associate Professor, PL

Suppressing spontaneous polarization of p-GaN by graphene oxide passivation: Enhanced light output of flexible UV-LED
Prof. Seung Yol Jeong
Korea Electrotechnology Research Institute, Principal Research Scientist, KR

Additive Manufacturing / 3D Printing in Combination with Printed Electronics

3D printing of soft-ferrite core and Ag winding for fabrication of electromagnet and transformer
Mr. Taekyu An
Kongju National University, Student, KR

How can 3D printed electronics change the mobile world?
Dr. Fernando de la Vega
PV Nano Cell, Ltd., Founder and CEO, IL

Resistive switching characteristics of all-solution-based Ag/Mn:ZnO/W:In2O3 devices for non-volatile memory application
Ms. Jiyeon Yang
Kongju National University, Student, KR

Quality control and device characterisation of defects by laser based imaging techniques
Dr. Alina Zoladek-Lemanczyk
National Physical Laboratory, Higher Research Scientist, UK

2.5D and 3D Printed Electronics

Hydro-printing electrical circuits onto 3D objects
Mr. Gabriel Saada
Hebrew University of Jerusalem, Student, IL

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Plenary Session
Room 14b

Session Chair: Mr. Wolfgang Mildner
MSW, Founder and CEO, DE
LOPEC General Chair

09:05 Printed sensors: Approaches from consumer health to lifesciences
Dr. Giovanni Nisato
CSEM, Business and Technology Development Senior Manager, CH
• Printed sensor technology from 2D to 2D+ sensors
• On body sensors for consumer health applications
• Towards ehealth and lifescience applications

09:25 Toward flexible future of electronics
Ms. Jennifer Y. C. Lin
AU Optronics Corporation, Associate Vice President of Advanced Technology Research Center, TW
• Organic TFT
• Production
• Flexible electronics

09:50 Collaboration and the development of a flexible hybrid electronics ecosystem
Dr. Melissa Grupen-Shemansky
SEMI, CTO SEMI / FlexTech, US
• SEMI
• NextFlex
• Flexible hybrid electronics

10:15 Fully printed organic sensors
Mr. Jean-Yves Gomez
ISORG, Founder & CEO, FR
• Printing
• Sensors
• Large surface

10:40 Presentation of Student Poster Award
### Technical Conference – Room 13a

**Flexible Displays and Lighting**

**Session Chair:** Dr. Edzer Huitema, Apple Inc., Hardware Enineering, US

11:30 | The importance of low power electrohoretic displays to emerging printed and flexible electronics  
**Dr. Michael McCreary**, E Ink Corporation, Chief Technology Officer, US  
- EPD are ideal visual readouts for flexible wearables  
- Printed segmented or TFT backplanes can be used  
- Full color EPD with no CFA have been demonstrated

11:50 | Flexible OLED lighting integration into glass-glass composites  
**Dr. Stefan Mogck**, Fraunhofer Institute for Organic Electronics, Electron Beam and Plasma Technology FEP, Head of Department R2R Organic Technology, DE  
- Roll-to-roll OLED  
- Autoclave process  
- Glass-glass laminates

12:10 | Printable electronic technologies developed at CDT: Overview of technology platforms and current performance  
**Dr. Miguel Carrasco**, Cambridge Display Technology Limited, Program Manager, UK  
- Photodetectors  
- Sensors  
- Displays

12:30 | Introduction of standardization activities for flexible display devices in IEC TC 110  
**Mr. Kei Hyodo**, Konica Minolta Inc., Manager, JP  
- Flexible displays  
- Standardization  
- Evaluation method

### Technical Conference – Room 13b

**Wearable Electronics**

**Session Chair:** Dr. Jyrki Schroederus, PolarElectro, CTO, FI

11:30 | Printed, skin-mounted hybrid system for ECG measurements  
**Prof. Matti Mäntysalo**, Tampere University of Technology, FI  
- Wearable bandage  
- Healthcare  
- Stretchable electronics

11:50 | Development of integrated printed and embedded sensors on personal protective equipment for hazardous environment and personal monitoring  
**Dr. João Gomes**, CENTI – Centre for Nanotechnology and Smart Materials, RTD Manager, PT  
- Personal protective equipment  
- Textile integration  
- Printed sensors

12:10 | Conformable sensor arrays for large area and high resolution thermal imaging  
**Dr. Jan-Laurens van der Steen**, Holst Centre/TNO, Senior Scientist, NL  
- Conformable  
- Sensor  
- Array

12:30 | Integration of organic LED and optical sensing to create a wearable health monitoring device  
**Dr. Thomas Knieling**, Fraunhofer ISIT, Head of Business Field Wearable Electronics, DE  
- OLED  
- Flexible  
- Wearable

### Scientific Conference – Room 14a

**Devices I**

**Session Chair:** Dr. Chao-Jen Wang, Industrial Technology Research Institute, ITRI, Project Manager at Display Technology Center, TW

11:30 | Robust design and fabrication of flexible logic circuits based on 3D-printed 5V dual-gate organic NAND technology  
**Prof. Sungjune Jung**, Pohang University of Science & Technology, KR  
- Organic printed electronics  
- Dual-gate organic transistor  
- Inkjet printing

11:50 | Fully roll-to-roll gravure printed 4 bit NFC tag for developing user interface board game  
**Dr. Younsu Jung**, Sunchon National University, Researcher, KR  
- NFC tag  
- Roll-to-roll gravure  
- Interface game

12:10 | Fully roll-to-roll gravure printed 40 dpi TFT-active matrix based signage  
**Mr. Junfeng Sun**, Sunchon National University, Doctoral Candidate, KR  
- Roll-to-roll gravure  
- 40 dpi TFT-active matrix  
- Flexible signage

12:30 | Single-substrate integrated active-matrix pyro-sensor  
**Dr. Herbert Gold**, Joanneum Research, Senior Scientist, AT  
- Sensor-electronics integration  
- Ferroelectric sensor  
- Flexible active-matrix

### Scientific Conference – Room 14b

**Printed Electronics**

**Session Chair:** Dr. Herbert Gold, Joanneum Research, Senior Scientist, AT

11:30 | Highly stretchable conductive wirings with silver flake paste  
**Mr. Cai-Fu Li**, Osaka University, Specially Appointed Researcher, JP  
- Copper conductive ink  
- Low decomposition temperature  
- Printing on 2D substrates and 3D objects

12:10 | Inkjet-printing on 3D-Printed substrates  
**Ms. Lisa-Marie Faller**, Alpen Adria University, University Assistant, AT  
- Various 3D-printed substrates and conductive inks  
- Lowcost and off-the-shelf  
- Smart packages and ubiquitous sensing devices

12:30 | Printed stretchable sensors for garments and automotive applications  
**Mr. Sripathi Raja Jeyakumar**, Fraunhofer Institute For Silicon Technology, Student, DE  
- Stretchable electronics  
- Screen printing  
- Wearables
**Session Chair:** Dr. Nina Riegel, OSRAM OLED GmbH, Innovation Management, DE

**14:00 | OLED-technology in rear lamps – Challenges in system engineering and robustness validation**
Dr. Wolfgang Pohlmann, Hella, Vice President, DE
- Organic light emitting diode
- OLED, automotive, rear lamp, tail lamp
- System development and reliability

**14:20 | Printed electronics for interactive and responsive automotive interior components**
Dr. André Pinto, CeNTI, Researcher, CH
- Smart components
- Interactive and responsive interiors
- In mould labeling

**14:40 | Printed heaters for space applications**
Dr. Dirk Godlinski, Fraunhofer IFAM, Project Manager, DE
- Digital printed heater
- Space relevant substrate
- Performance testing

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**Session Chair:** Dr. Wolfgang Clemens, PolyIC, Head of Product Management PolyTC, DE

**14:00 | End-to-end NFC solutions enable the internet of everything**
Dr. Peter Fischer, Thin Film Electronics, Chief Operating Officer, US
- NFC solutions bring intelligence to ordinary items
- Consumers are engaged by tapping a smartphone
- High-volume NFC production is possible with R2R

**14:20 | Development of an integrated flexible energy harvesting and storage system**
Dr. Thomas Kugler, Cambridge Display Technology Ltd., Principal Scientist, UK
- Thermoelectric generator
- Battery
- Supercapacitor

**14:40 | A new energy storage technology for the internet of things**
Dr. Michael Korell, Evonik Creavis GmbH, Project Manager – Intrapreneur, DE
- Energy storage
- Internet of things
- Batteries

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**Session Chair:** Prof. Klaus Meerholz, University of Cologne, DE

**14:00 | Universal charge generation layers for all-solution processed, highly efficient tandem organic light emitting diodes**
Ms. Min Zhang, Karlsruhe Institute of Technology, PhD Student, DE
- Charge generation layer
- Solution process
- Organic light emitting diodes

**14:20 | High bright polymer light electroluminescent diodes by energy transfer process in a simple structure towards large area emission**
Dr. João Gomes, CeNTI – Centre of Nanotechnology and Smart Materials, R&D Manager, PT
- PLED
- Large area emission
- Flexible lighting

**14:40 | Improved stability of blue TADF emitters with EQE >10% to replace fluorescent blue emitters**
Dr. Stefan Höfle, CYNORA GmbH, R&D Scientist, DE
- Thermally activated delayed fluorescence
- Improved stability
- OLED

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**Session Chair:** Prof. Donald Lupo, Tampere University of Technology, FI

**14:00 | Sensoric functionalisation of industrial textile fibers by printing**
Dr. Danick Briand, Ecole Polytechnique Fédérale de Lausanne, Team Leader MEMS and Printed Microsystems, CH
- Industrial textile fibers
- Printing
- Sensors

**14:20 | Explicit relationship between the growth of electric resistance due to cracking and the parameters of the crack pattern**
Dr. Oleksandr Glushko, Erich Schmid Institute, Project Leader, AT
- Polymer metallization
- Reliability
- Electrical degradation
Publicly Funded Projects

Session Chair: Dr. Jérôme Gavillet, CEA-Liten, Printed Electronic Program Director, FR

16:00 | Nanotechnology and textile electronics
Prof. Jong Min Kim, University of Cambridge, UK
• The vision of 1D-NEON
• 14 partners from 7 European countries
• The main challenges of currently available state-of-the-art technologies

16:20 | PI-SCALE: Creating an open access european flexible OLED pilot line
Dr. Erno Langendijk, Holst Centre, Business Development and Program Manager – Flexible OLEDs, NL
• Open access, customized flexible OLED services
• Bridging the gap between R&D and mass manufacturing
• Accelerating integration of flexible OLEDs in diverse applications

16:40 | Design driven innovation as a means to guide research in flexible electronics
Prof. Pim Groen, Holst Centre, Program Manager, NL
• Design driven innovation
• Flexible electronics
• OLED

Substrates and Encapsulation

Session Chair: Dr. Bill MacDonald, DuPont Teijin Films, Business Research Associate, UK

16:00 | Development of robust barrier films for flexible electronics
Prof. Samuel Graham, Woodruff School of Mechanical Engineering, Georgia Institute of Technology, US
• Barrier films
• Flexible electronics
• Mechanical properties

16:20 | Gas barrier film for OLED devices
Prof. Tadahiro Furukawa, Yamagata University, JP
• Gas barrier film
• Evaluation method
• Roll-to-roll

16:40 | Screen printing, copper plating, and debonding process for flexible OLED substrates
Dr. Doo-Hee Cho, Electronics and Telecommunications Research Institute (ETRI), Senior Engineer, KR
• Flexible OLED
• Printing
• Plating

Scientific Conference

Session Chair: Prof. Jukka Hast, VTT Technical Research Centre of Finland, Research Professor – VTT Printed Intelligence, FI

16:00 | Advances in materials for solution deposited, printable organic photodiodes: Imaging the future
Dr. Toby Cull, Merck Chemicals Ltd., R&D Manager, UK
• Organic semiconductor
• Photodetector
• Printable

16:20 | Beyond the shockley equation: Reliable parameter extraction from low-mobility solar cells
Dr. Bernd Ebenhoch, Karlsruhe Institute of Technology, Postdoctoral Researcher, DE
• JV-curve fitting
• Internal voltage
• Charge carrier mobility

16:40 | Capacitive force sensors for an artificial skin
Mr. Andreas Albrecht, Technische Universität München, Doctoral Candidate, DE
• Force sensors
• Artificial skin
• Screen-printing