

AT-A-GLANCE
Printing for Fabrication

TUESDAY SEPTEMBER 13, 2016

9:00	Keynote: Materials in the Flatland, <i>Kostya S. Novoselov, University of Manchester (UK)</i> Renold C16		
10:10	Break to change rooms; EXHIBIT OPENS Renold C15		
	DIGITAL FABRICATION AND 3D PRINTING TRACK <i>Renold C16</i>	DIGITAL PRINTING TECHNOLOGIES TRACK <i>Renold C2</i>	MATERIALS, METHODS, AND PERFORMANCE TRACK <i>Renold C9</i>
	<i>3D Printing and Additive Manufacturing I</i>	<i>Inkjet-Based Processes I</i>	<i>Metrology Tools for Digital Printing Processes</i>
10:20	Material Jetting 3D Printing Process by Thermal Inkjet Head	Evaluation Method of Inkjet First Drop Dissimilarity	JIST-FIRST PAPER: Measurement of Inkjet Drop Volume — The Role of Image Processing
10:40	Finishing Processes of Fused Deposition Modeling (FDM) 3D Printer	FOCAL: Measurement of Inkjet Printhead Reliability by Detecting Every Single Droplet in Flight	FOCAL: Development of a Small Built-in Spectrophotometric Sensor for Color Printers
11:00	Three Dimensional Inkjet Fabrication of Nano-Composite Hydrogel	<i>Interactive Previews: Titanium Oxo-alkoxide Clusters as a New Source Material for High Quality TiO2 Structures by Inkjet Printing 11:10-11:15; and Reproduction of HDR Image on Paper Medium Using Inkjet Printer 11:15-11:20</i>	<i>Interactive Preview: A New Out-of-Gamut Determination Method of Image based on Irregular Segmentation 11:10-11:15</i>
11:10			
11:20	30-minute Coffee Break; EXHIBIT OPEN Renold C15		
11:50	FOCAL: Newly Developed Printing Technologies for 3D Printed Electronics	FOCAL: Interaction of Sequential Pulsed Electrohydrodynamic Jets for Drop-on-Demand Printing	FOCAL: Basic Study on Evaluation Method of Thermal Conduction through Printing Papers Using 1-Dimensional Thermal Conductivity Measurement
12:20	Inkjet Printing and the Steady State Macroscopic Mechanical Energy Balance (SSMMEB) Equation	Development of New Aqueous Resin Ink for Sign Graphics	Study on Visibility of Density Unevenness in Printed Images Affected by Characteristics in Input Images
12:40	Implementation of the Four-Flux Model for Spectral and Color Prediction of 2.5D Prints	Breakthroughs Required in Piezo-on-Demand Inkjets for Production Printing: Satellite Drops, Ink Penetration, and Evaporation	FREE TIME TO VISIT EXHIBIT OR OTHER SESSIONS
13:00	90 -minute Lunch Break (on your own) and Exhibit Open		
14:30	Keynote: HP's Jet Fusion 3D Printing Technology - Enabling the Next Industrial Revolution, <i>Tim Weber, HP Inc. (USA)</i> Renold C16		
15:20	Break to change rooms		
15:30	Development of Inks Suitable for the Manufacturing of Micro Scale Polyurethane Foams	Influence of Z Number and Pulse Voltage on Drop-on-Demand Inkjet Printability	Colleague Connections: Overview of the UK Innovation Landscape
15:50	On-Demand-Like FDM 3D Printhead Consideration	Laser Drying Technology Applied to Improvement of Density Variation on Offset-Coated Paper	
16:10	3D High Viscosity Jetting of Functional Materials		
16:30	<i>Interactive Previews: Advancements in Inkjet Technology for Materials Deposition and Manufacturing 16:30-16:35 and Depth Feeling Dependence on Array Condition of Objects 16:35-16:40</i>	Application of Antibacterial Coatings on Resin Composite Implant Materials Using Inkjet Printing Technology	
16:30	Coffee Break, DEMONSTRATION SESSION, AND EXHIBIT-ONLY TIME		

Day ends at 17:45

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WEDNESDAY SEPTEMBER 14, 2016

9:00	KEYNOTE: Low-Temperature Organic and Oxide Transistors for Printable Electronics, Henning Sirringhaus, University of Cambridge (UK) <i>Renold C16</i>		
10:00	Break to change rooms; EXHIBIT OPENS <i>Renold C15</i>		
	DIGITAL FABRICATION AND 3D PRINTING TRACK <i>Renold C16</i>	DIGITAL PRINTING TECHNOLOGIES TRACK <i>Renold C2</i>	MATERIALS, METHODS, AND PERFORMANCE TRACK <i>Renold C9</i>
	<i>3D Printing and Additive Manufacturing II</i>	<i>Inkjet-Based Processes II</i>	<i>Performance of Print Products (Quality, Robustness, Permanence, and Functionality)</i>
10:10	Fine Particulate and Chemical Emissions from Desktop 3D Printers	Key Design Considerations for Measurement of Drops-in-Flight Using Machine Vision	The Relationship between Dispersion Stability and Print Qualities on the Coated Paper
10:30	Intensive 3D Structure Modeling and Seamless Data Flow to 3D Printers Using Voxel-based Data Format FAV (Fabricatable Voxel)	FOCAL: Inkjet Printing onto Patterned Substrates	Visualization and Quantitation Technology of Carbon Black Dispersion State in Intermediate Transfer Belt Using Confocal Laser Scanning Microscope
10:50			Development of Image Quality and Reliability Enhancing Technology for 29 x 23 Size Digital Inkjet Press M-1
11:00	Polymer Spray Deposition: A Novel Aerosol based Electrostatic Digital Deposition System for Additive Manufacturing	Interactive Previews: Inkjet Printing of Elastomeric Optical Waveguides 11:00-11:05 and Improved Color Performance of Reactive Dye Inkjet Printing on Cotton Fabrics by Controlling Ink Droplets Spreading 11:05-11:10	Interactive Preview: Motion Illusion Brought by Arrays of Arrowhead Patterns 11:10-11:15
11:10			
11:10	40-minute Coffee Break; EXHIBIT OPEN <i>Renold C15</i>		
11:50	FOCAL: The Impact of 3D Printing on US Copyright and Trademarks	FOCAL: Refilling Characteristics of High Frequency Piezo Driven Inkjet Print Heads	FOCAL: Evaluating Gonio-Appearance in Advanced Printing Materials with Quality Control Procedures and Instrumentation Used for Automotive Coatings
12:20	Estimation of High Speed Sintered Nylon-12 Tensile Strength Using Visible Reflectance Spectroscopy	Textile Inkjet Printing to Support US Manufacture Reshoring	3D Printing in the Development of an Endoscopic Probe
12:40		JIST-FIRST PAPER: Multi Pulse Train Modelling of Piezo-Drop-on-Demand Inkjet Print-Head Response	
13:00	Spinal Bracing for the Future	Interactive Preview: The Effect of Paper's Properties on the Dot Reproduction of Image in Inkjet Printing 13:00-13:05	Quantification of Faithful "Color Appearance" Reproduction, and Application to New Products
13:00	90 -minute Lunch Break (on your own) and Exhibit Open		
14:30	Coated Powder based Additive Manufacturing Using Inkjet Technique	Ink Recirculation – Xaar TF Technology™: A Study of the Benefits	<i>Physics and Chemistry of Materials I</i>
	<i>Printed Electronics I</i>		Dispersion Control of Liquid Toner by Dispersant and Analysis of Adsorption Structure
14:50	Offset Printing of Conductive Features onto Paper Substrates	FOCAL: Development of Wound Dressings for Biofilm Inhibition by Means of Inkjet Printing ends at 15:20	Understanding Dynamic Relaxation of Inks at a Timescale Relevant to High Frequency Drop-on-Demand Printing
15:10	Inkjet Printable Anode Ink for Fuel Cell Applications		Interactive Previews: Inkjet Printed MoS2 Electronics 15:10-15:15; Preparation and Application of Polyurethane Polymer Modified by Nano Silica 15:15-15:20; and Shape Control Synthesis of Silver Hierarchical Microcrystals 15:20-15:25
15:30	Interactive Preview: Analysis on Printed Electronics Circuit Design 15:30-15:35	FREE TIME TO VISIT EXHIBIT OR OTHER SESSIONS	
15:30	40-minute Coffee Break; EXHIBIT OPEN/CLOSES AT END OF BREAK <i>Renold C15</i>		
		<i>Workflow</i>	
16:10	Fabrication of Printed Switches	Optimized Image Rendition with White Colorant in a Digital Electrophotographic Printing Process	Inkjet Printing with Inks that Phase Separate during Drying
16:30	A Novel Printable Process for Fabricating Large Size OLED Display	Development of a Supervision System: Towards Closing the Control Loop in 3D Printing Systems	Semi-Conductive Printing Rolls for Improved Print Quality
16:50	Low-Voltage Printable OFETs for Sub-ppm Detection of Ammonia under Humid Conditions	Interactive Preview: Functional Coating Developments for the Digital Manufacturing Age 16:50-16:55	Interactive Previews: Predicting Paper Wrinkles in Fusing Process of Laser Printers Using Dynamic FEA 16:50-16:55; Preparing Anti-Bacterial Printing Toner via Emulsion Aggregation Method 16:55-17:00; and Synthesis of Guar Gum Derivatives in [BMIM]Cl Ionic Liquids and Their Application on Pulping and Papermaking 17:00-17:05

Day ends at 17:10

Day ends at 16:55

Day ends at 17:05

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THURSDAY SEPTEMBER 15, 2016

9:00	The Objectives of a National Project of 'Manufacturing Innovation through Development of Next Generation 3D Printers' in Japan, <i>Hideki Kyogoku, Kindai University (Japan)</i> <i>Renold C16</i>		
10:10	Break to change rooms		
	DIGITAL FABRICATION AND 3D PRINTING TRACK <i>Renold C16</i>	DIGITAL PRINTING APPLICATIONS TRACK <i>Renold C2</i>	DIGITAL PRINTING TECHNOLOGIES TRACK <i>Renold C9</i>
	<i>Printed Electronics II</i>		<i>Printing and Fabrication Principles and Processes</i>
10:20	Optical Waveguides Fabricated by Combination of Inkjet and Flexographic Printing	Late Breaking News / Success Stories Group Discussion	Meniscus Motion Inside a Drop-On-Demand Inkjet Print-Head Nozzle
10:40			Digital UV Printing of 3 Dimensional Objects at High Speeds
11:00	JIST-FIRST PAPER: Investigation on an Inkjet Printed Passive Sensor for Wireless Ice Detection on Wind Rotor Blades		<i>Interactive Previews: Geometric Element Test Targets (GETT™) for Determination of 3D Printers' Resolutions</i> 11:00-11:05 and <i>Inks of Organic Cu-Precursors with Short Carbon Chain</i> 11:05-11:10
11:00	60-min Coffee Break + INTERACTIVE PAPER SESSION I <i>Renold C15</i>		
12:00		Security Printing	Elastomer Fatigue in Belt Fusing
12:20	FOCAL: Flexible Pressure Sensor Driven by All-Printed Organic TFT Array Film	FOCAL: Security Print Features based on Additive Manufacturing - Threat or Opportunity?	<i>Interactive Previews: Toner Mask Method for Imaging on Niobium</i> 12:20-12:25 and <i>Control of Titania Layer of Dye-Sensitized Solar Cell (DSC)</i> 12:25-12:30
12:30	JIST-FIRST PAPER: Intense Pulsed Light Sintering of an Inkjet Printed Silver Nanoparticle Ink Depending on the Spectral Absorption and Reflection of the Background	Effect of Non-Integer Scaling on the Recovery of Data Bearing Marks	3D Printed Ceramics: Current Challenges and Future Potential
12:50	The First International Standards for IEC/TC 119 Printed Electronics Materials Substrate and Conductive Ink	Comparison of Technologies for Card Printing Applications	Simulations of Drop Formation in Complex Rheological Fluids - Can Rheology Improve Jetting Performance?
13:10	80-minute Lunch Break (on your own)		
14:30	Multicolor Electrochromic Device with LSPR of Silver Electrodeposition Toward Color Reflective Display	BIOPRINTING TRACK <i>Renold C2</i>	TECHNOLOGIES IN DIGITAL PHOTO FULFILLMENT TRACK <i>Renold C9</i>
		<i>Bioprinting I</i>	<i>Tools and Strategies of Print Preservation</i>
14:50	<i>Printed Sensors</i>	Dispensing of Hydrogel Ink onto Electrospun Biodegradable Paper for Biomedical Applications	Welcome remarks and Company Introductions
15:00	Switchable Passive Wireless Vapour Sensors from Inkjet Printed Electronic Components on Poly(dimethylsiloxane)	Effect of Thermal Inkjet Printing on Bacterial Cells	
15:10	<i>Interactive Previews: Packaging Added Value Solutions by Thermochromic Liquid Crystal-based Printed Labels</i> 15:10-15:15; <i>A Part Complexity Measurement Method Supporting 3D Printing</i> 15:15-15:20; and <i>Watermarking Embedding Algorithm for Color QR Code based on Image Normalization and Contourlet Transform</i> 15:20-15:25	Regenerated Silk Fibroin as Inkjet Printable Biomaterials	
15:30		<i>Interactive Previews: 3D Printed Ultrasound Phantoms for Clinical Training</i> 15:30-15:35 and <i>A Method for Detecting the Fluorescence-Emission Wavelength and Visualization of Biological Traces</i> 15:35-15:40	FOCAL: Printing to Preserve – How Are We Doing Today?
15:30	60-min Coffee Break + INTERACTIVE PAPER SESSION II <i>Renold C15</i>		
16:30	Inkjet Printed Micro Saddle Coil for MR Imaging	The Use of Inkjet Printing and Thermal Phase Change Inks to Create Sacrificial Prevascular Networks	FOCAL: Kodak Professional Endura Premier Paper for the Premium Photo Book Market
16:50			
17:00	Inkjet Printed Polyelectrolytes for Microfluidic Paper-based Analytical Devices	Novel Approach for Predicting Coffee-Ring-Effect in Drying Droplets based on Binary Solvent Mixture from Substance Data	FOCAL: Original Photopaper Developments and Applications to Further the Advancement and Growth of the Premium Photo Book Segment
17:10	OPEN TO VISIT OTHER SESSIONS	In Vivo Characterization of Bioprinted Capillaries	
	Day ends at 17:10	Day ends at 17:30	Day ends at 17:30
CONFERENCE RECEPTION MUSEUM OF SCIENCE AND INDUSTRY (MOSI) 19:00 - 22:00			

Annual Meeting of Members 11:00-11:15
Renold D7

Security Printing Workshop <i>Renold D7</i>
COLLEAGUE CONNECTIONS— CONNECTIONS FOR INNOVATION IN SECURITY PRINTING

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FRIDAY SEPTEMBER 16, 2016

9:00	Materials and Fabrication Methods for Biofabrication, Jürgen Groll, University of Würzburg (Germany) Renold C16		
10:00	Break to change rooms		
	BIOPRINTING TRACK <i>Renold C16</i>	MATERIALS, METHODS, AND PERFORMANCE TRACK <i>Renold C2</i>	TECHNOLOGIES IN DIGITAL PHOTO FULFILLMENT TRACK <i>Renold C9</i>
	<i>Bioprinting II</i>	<i>Physics and Chemistry of Materials II</i>	<i>Photo Book Construction and Preservation</i>
10:10	Fabrication of ZrO ₂ -SiO ₂ Binary Oxides Scaffold by Inkjet Printing for Bone Tissue Engineering Applications	Hi Resolution Inkjet Printing of OLEDs at Merck	FOCAL: Long-Term Digital Preservation of Photo Books
10:30			
10:40	Placenta Vasculature 3D Printed Imaging and Teaching Phantoms	Fully Solution Processed Organic Light-Emitting Electrochemical Cells (OLEC) with ZnO Interlayer for Lab-on-Chip Applications	FOCAL: Using Technology to Acquire Customers in the Personalised Photo Market
10:50	Printed Electronics and 3D Printing as New Manufacturing Technologies - New Opportunities for Bio-based Materials	Application of Vinylcarbonates as Low-Toxic Monomers in Digital Inkjet Inks	
11:10	30-min Coffee Break		
11:40	FOCAL: Reactive Inkjet Printing Applications for Tissue Engineering	FOCAL: Sub-Micron Patterning of Polymer Brushes by Controllable Deposition of Polyelectrolyte Monolayers	FOCAL: Customer Photo Books for the Future
12:10	JIST-FIRST PAPER: Growth-Inhibitory Effect of Chemotherapeutic Drugs Dispensed by Inkjet Bioprinting on Cancer and Non-Cancer Cells	Inkjet Printing of Graphene Inks for Wearable Electronic Applications	20-minute stretch break / session change <i>Factors that Influence Permanence and Durability of Photo Books</i>
12:30	FOCAL: Altering the Bubble Release of Reactive Inkjet Printed Silk Micro-Rockets	FOCAL: Multi-Functional Carbon Fibre Composites Obtained Using Inkjet Printed Polyme	FOCAL: Safety of Freezing Inkjet Prints for Long Term Storage
	60-minute Lunch Break (on your own) 13:00 - 14:00		
14:00	DIGITAL PRINTING TECHNOLOGIES TRACK <i>Renold C16</i>		
	<i>Ink Substrate Interactions</i>		
	The Effect of Nanoparticle Binders and Modified Precipitated Calcium Carbonate on Ink Absorption Behavior in a Multilayered Coating Layer	JIST-FIRST PAPER: Liquid Exfoliation of Layered Materials in Water for Inkjet Printing	FOCAL: Photo Book Permanence and Durability Standards and Their Impact on the Fulfillment Industry
14:20	Inkjet Alchemy - Inkjet Printing of Thin Metal Oxide Films with Dichroic and Metallic Appearance	<i>Laser Imaging and Patterning</i>	
14:30			
14:40	Controlling "Coffee Staining" Effect of Inkjet-Printed Droplets from Graphene Oxide Inks	FOCAL: Development for Secondary Color Graininess Separation Method for the Electrophotographic Imaging	FOCAL: A Guide for the Assessment and Mitigation of Bleed, Gloss Change, and Mold in Inkjet Prints During High-Humidity Conditions
14:50		Laser Color Marking Using Thermo-Sensitive Recording Paper	
	talks end at 15:00	talks end at 15:10	talks end at 15:00
15:30	Tours begin at ~15:30		