### The Papers Program

#### The Keynote Papers

*Session Chair: Rita Hofmann, Ilford Imaging Switzerland GmbH*

8:00 am to 9:10 am

<table>
<thead>
<tr>
<th>Day</th>
<th>Title</th>
<th>Speaker(s)</th>
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<tbody>
<tr>
<td>Monday</td>
<td><strong>Will Displays Be Everywhere?</strong></td>
<td>Maarten Buijs, Royal Philips Electronics (The Netherlands)</td>
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<tr>
<td>Tuesday</td>
<td><strong>The Evolution of Display World, The Present and The Future</strong></td>
<td>Masaya Hikikigawa and Yutaka Ishii, Sharp Corporation (Japan)</td>
</tr>
<tr>
<td>Wednesday</td>
<td><strong>Digital Color Printing: The New Business of Printing</strong></td>
<td>Rafik Loutfy, Xerox Innovation Group (Canada)</td>
</tr>
<tr>
<td>Thursday</td>
<td><strong>Pigments and Dyes for Non-Impact Printing Applications</strong></td>
<td>Hans-Tobias Macholdt, Clariant GmbH (Germany)</td>
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</tbody>
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### Track I

#### Toner Based Printing Processes

*Session Chairs: Koji Hirakura, Ricoh; Detlef Schulze-Hagenest, NexPress GmbH; Eric Stelter, Heidelberg Digital LLC; and Bill Hanson, Torrey Pines Research*

Monday, September 30, 9:40 to 11:50 am

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker(s)</th>
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<tbody>
<tr>
<td>9:40 am</td>
<td><em>(Focal)</em> <strong>Particle Removal with High Electric Fields and Repeated Bombardment</strong>, Howard Mizes and Jim Beachner, Xerox Corporation (USA)</td>
<td></td>
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<tr>
<td>10:10 am</td>
<td><strong>Analysis of Mono-Component Toner Charging and Design of a High Durability Development Roller</strong>, Koji Takagi and Manabu Takeuchi, Ibaraki University (Japan); G.S.P. Castle, University of Western Ontario (Canada)</td>
<td></td>
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<tr>
<td>10:30 am</td>
<td><strong>An Experimental Design for Non-Contact Type Single Component Non-Magnetic Development System</strong>, Jong Moon Eun, Hyun Cheol Lee, Ki Jae Do, Hyun Wook Bae, and Duck Hee Lee, Samsung Electronics Co., Ltd. (Korea)</td>
<td></td>
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<tr>
<td>10:50 am</td>
<td><strong>Electric Field Calculation Based on PIDC in Monocomponent Development Systems</strong>, Jang Yi and Richard B. Wells, University of Idaho; and Tom Camis, Hewlett Packard Company (USA)</td>
<td></td>
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<tr>
<td>11:10 am</td>
<td><strong>Resonance Frequency and Stiffness of Magnetic Bead Chain in Magnetic Field</strong>, Hiroyuki Kawamoto, Nobuyuki Nakayama and Satoshi Yamada, Waseda University (Japan)</td>
<td></td>
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<tr>
<td>11:30 am</td>
<td><strong>Visualization Study of an Interaction Between Airflow and Scattering Toner</strong>, Keisuke Uchida, Ricoh Company, Ltd. (Japan)</td>
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</tr>
</tbody>
</table>
Toner Based Printing Processes *(continued)*

Monday, September 30, 1:10 to 4:10 pm

1:10 pm *(Focal)* **Electrostatic Adhesion Forces in Electrophotography,**
Eric Stelter, Ulrich Mutze and Joseph Guth, Heidelberg Digital LLC *(USA)*

1:40 pm **New Corona Charging System For Low Cost Printers,**
R. W. Gundlach, Aetas Technology Inc. *(USA)*; and
A. Fornalik and W. Mey, Torrey Pines Research *(USA)*

2:00 pm **The Adhesion of Spherical Toner Particles to an Organic Photoconductor: Contributions of van der Waals and Electrostatic Interactions,**
S. Cormier, D. S. Rimai, NexPress Solutions LLC *(USA)*; and
D. J. Quesnel, University of Rochester *(USA)*

2:20 pm Coffee Break

2:40 pm **Characteristics of Intermediate Transfer Process,**
Tsuneo Mizuno and Jun-ichi Hanna, Tokyo Institute of Technology *(Japan)*

3:00 pm **Reinforced Elastomer Roller for Toner Transfer,**
Diane Herrick, Bonnie Patterson and Biao Tan, NexPress Solutions, LLC *(USA)*

3:20 pm *(Focal)* **Color Radiant Fusing with Continuous and Flash Radiation,**
Domingo Rohde and Detlef Schulze-Hagenest, NexPress GmbH *(Germany)*

3:50 pm **Fuser Roll Material Effects on Digital Print Quality,**
Velliyur R. Sankaran, Sankaran Consulting *(USA)*; and
James Smith, OCE Printing Systems USA, Inc. *(USA)*

Award Talks Session

*Session Chairs: David Weiss, Heidelberg Digital LLC; Kuniki Seino, Minolta Co.; and Rita Hofmann, Ilford Imaging Switzerland GmbH*

Tuesday, October 1, 9:40 am to 11:40 am

9:40 am *(Invited)* **A Century of Image Science,**
Rodney Shaw, Hewlett-Packard Research Laboratories *(USA)*

10:10 am *(Invited/NIP17)* **The Design of High Performance Organic Photoconductors,**
Tetsuo Murayama, Mitsubishi Chemical Corporation *(Japan)*

10:40 am *(Invited)* **The Impact of Digital Xerography on Marking Materials,**
Robert Nash, Consultant, Hafren Associates *(USA)*

11:10 am *(Invited)* **Study of High Definition Thermal Transfer Ink Ribbon,**
Ikuo Hibino, Alps Electric Co., Ltd. *(Japan)*
Printing Systems Engineering/Optimization
Session Chairs: Randy Sanders, Torrey Pines Research; Bart Verlinden, Agfa Gevaert NV; and Toshihiko Oguchi, Morimura Chemicals, Ltd.

Tuesday, October 1, 1:00 to 3:20 pm

1:00 pm  *(Focal)* Photo-Quality Printing on a Digital Printing Press, 87
A. Ufuk Agar, Gary Dispoto, Ingeborg Tastl, Kok-Wei Koh, and Niranjan Damara-Venkata, Hewlett-Packard Laboratories (USA)

1:30 pm  *(Focal)* Robust Spatial-sampling Controller Design for Banding Reduction in Electrophotographic Process, 91
Cheng-Lun Chen, George T. C. Chiu and Jan P. Allebach, Purdue University (USA)

2:00 pm  A High Consistency Color Correction System in an Inkjet Printer, 98
Ferran Vilanova and Ramon Borrell, Hewlett-Packard (Spain)

2:20 pm  Extending Life of Thermal Inkjet Printheads for Commercial Applications, 103
Xavier Bruch, Hewlett-Packard (Spain)

2:40 pm  A Numerical Method Predicting the Paper Velocity at the Roller Transfer Unit in an Electrophotographic System, 108
Satoshi Okano, Osamu Takehira and Yuko Hayama, Ricoh Co., Ltd. (Japan)

3:00 pm  Semi-Conductive Polyurethane in EP Systems, 114
Charles J. Matteliano, Winfield Industries, Inc. (USA)

Tuesday Evening, October 1

Interactive Sessions

3:50 to 6:30 pm
Five minute oral previews will be followed by a conference-wide poster session beginning at. The poster presenters will be standing by their posters to discuss their work with participants. *The Interactive Papers Program begins on page xxvi.*

Print Gallery

Five-minute oral previews will be given from 3:50 to 4:50 pm on Tuesday in Track I room. A Gallery of state-of-the-art print samples will be maintained Tuesday through Thursday.

Textile Forum

7:30 to 9:00 pm
After the panel members present, attendees are encouraged to question panelists and offer their own viewpoints. The exhibit of digitally printed textile and fabrics will be maintained Tuesday through Thursday.

* paper not available at time of publication
Special Topic: Digital Printing
Commercial and Industrial Applications

Session Chairs: Huoy-Jen Yuh, Xerox Corporation; Eric Stelter, Heidelberg Digital LLC; and Hiromichi Noguchi, Canon Inc.

Wednesday, October 2, 9:20 to 11:20 am

9:20 am  Digital Color Printing: Expanding Solutions and Applications,  
Christopher Bondy, NexPress Solutions LLC (USA)

10:00 am  Ink Jet Printing in Industrial and Commercial Applications,  
Nathaniel R. Schwartz, Flint Ink Corporation (USA)

10:40 am  High Speed Inkjet Technology in the Corrugated Packaging Market -  
A Business Case, Niels Frederiksen, Scitex Digital Printing, Inc. (USA)

Special Topic: Digital Printing  
Commercial and Industrial Applications (continued)

Wednesday, October 2, 1:00 to 3:00 pm

1:00 pm  Revolutionary Xerographic Digital Production Press,  
Paul Garsin, Xerox Corporation (USA)

1:40 pm  The Fundamentals of HP Indigo’s Digital Offset Color Printing Process and How It Rivals Mechanical Offset Printing,  
Udi Chatow, Hewlett Packard/Indigo Division (Israel)

2:20 pm  Printing for an Audience of One, Robert J. Barbera, Xeikon America, Inc. (USA)

Production Digital Printing

Session Chairs: Peter Bracke, Dotrix; Eric Stelter, Heidelberg Digital LLC; and Huoy-Jen Yuh, Xerox Corporation

Thursday, October 3, 9:20 to 11:30 am

9:20 am  (Focal) Short Run Digital Color….Where is the Market?  
Barbara A. Pellow, Rochester Institute of Technology (USA)

9:50 am  The Production Digital Printing Market: Opportunities and Trends,  
Ron Gilboa, CAP Ventures Inc. (USA)

10:10 am  MICR Laser Printing and High Speed Reader/Sorter Performance,  
James C. Maher, Daniel Charles and Francisco Aponte,  
Rosetta Technologies Corporation (USA)

10:30 am  Intelligent Cut Sheet Media Handling, Chuck Bennett, Xerox Corporation (USA)

10:50 am  ToneJet: A New Standard in Digital Printing, John Teape, Peter Taylor,  
Owen Crees, Stephen Nicholls, and Neil Emerton, ToneJet Limited (UK)

11:10 am  Developing Print Applications for Both Offset and Electrophotographic Printing,  
Leonard R. Christopher, Heidelberg Digital LLC (USA)

* paper not available at time of publication
Ink Jet Printing Processes  
*Session Chairs: Shinri Sakai, Seiko Epson and Ramon Borell, HP Spain*

Thursday, October 3, 12:50 to 3:30 pm

12:50 pm  
*(Focal)* The Development of Static Electricity Actuated Inkjet Head for POS Printers, Masahiro Fujii and Taro Takekoshi, Seiko Epson Corporation *(Japan)*

1:20 pm  
Operating Voltage Effects on Bubble Growth Dynamics of Thermal Inkjet Printheads, Jinn-Cherng Yang, Ching-Long Chiu and Charles C. Chang, OES/ITRI *(China)*

1:40 pm  
The Quality Plan for the Manufacture of an Ink Jet Print Assembly with 1536 Jets, Carl Tracy and Dave Grose, Spectra, Inc. *(USA)*

2:00 pm  
*(Focal)* Large Drop Volumes from Xaar-Type Inkjet Printheads, W. Zapka, R. Kaack, W. Voit, M. Schulz, M. Zimmerman, L. Levin and W. Ahlemeier, XaarJet AB *(Sweden)*

2:30 pm  
Ink Jet Modeling For Development of New High Performance Ink Jet, Robert Hasenbein, Spectra, Inc. *(USA)*

2:50 pm  
Transient Phenomena During Drop Formation in DOD Printing, Brice Lopez, Damien Vadillo and Pascal Pierron, ARDEJE *(France)*; and Arthur Soucemarianadin, LEGI, University Joseph Fourier at Grenoble *(France)*

3:10 pm  
Systematic Consideration for the Thermodynamic Stability of Pigmented Inkjet Dispersions and Inks, Jie Wang, Graphic Sciences, Inc. *(USA)*

Interactive Sessions

Thursday, October 3, 3:40 to 6:30 pm

Five minute oral previews will be given at the end of the oral sessions in the appropriate track rooms and followed by a conference-wide poster session. The poster presenters will be standing by their posters to discuss their work with participants. *The Interactive Papers Program begins on page xxvi.*

Thermal Printing  
*Session Chairs: Richard Henzel, Eastman Kodak Company; Robert Weiss, MAN Roland; and Takashi Kitamura, Chiba University*

Friday, October 4, 8:00 to 10:30 am

8:00 am  
*(Focal)* Media Advances in Dye Diffusion Thermal Transfer to Facilitate a Multihead Printer System, David G. Foster and Maurice L. Gray, Eastman Kodak Company *(USA)*

8:30 am  
Kodak Professional ML-500 Digital Photo Print System, David E. Coons, Eastman Kodak Company *(USA)*

8:50 am  
Scanner-based Granularity Measurement on a Continuous Density Wedge, Dirk W. Hertel and Bror O. Hultgren, Polaroid Corporation *(USA)*

9:10 am  
Scanner-Based Measurement of Print Line Placement, Suhail S. Saquib, Dirk W. Hertel, James W. Slack, Brian Busch and Richard G. Egan, Polaroid Corporation *(USA)*

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<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Authors</th>
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<tbody>
<tr>
<td>9:30 am</td>
<td><strong>Model-Based Thermal History Control</strong></td>
<td>Suhail S. Saquib and William T. Vetterling, Polaroid Corporation (USA)</td>
</tr>
<tr>
<td>9:50 am</td>
<td><strong>Digital Ceramics and Glass Decoration with Thermal Transfer Printing</strong></td>
<td>Daniel J. Harrison and Pam Geddes, IIMAK (USA)</td>
</tr>
<tr>
<td>10:10 am</td>
<td><strong>Development of an In-line Cross-linked Thermal Dye Transfer Receiver</strong></td>
<td>Teh-Ming Kung, Dave Bailey, George Bodem, and Brian Pope, Eastman Kodak Company (USA)</td>
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**Track II**

**Special Topic: Security Printing**

*Session Chair: Annette Jaffe, Consultant*

Monday, September 30, 9:40 am to 11:40 am

<table>
<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>9:40 am</td>
<td><strong>Forensic Science and the Digital Printing Industry</strong></td>
<td>Marc Gaudreau, Canada Customs and Revenue Agency (Canada)</td>
</tr>
<tr>
<td>10:20 am</td>
<td><strong>The Use of Non Impact Printing in Security Documents such as Passports</strong></td>
<td>Ronald K. Seguss, Canadian Passport Office (Canada)</td>
</tr>
<tr>
<td>11:00 am</td>
<td><strong>Is Your Document Safe: An Overview of Document and Print Security</strong></td>
<td>Edward J. Delp, Purdue University (USA)</td>
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**Special Topic: Security Printing (continued)**

Monday, September 30, 1:10 to 4:10 pm

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:10 pm</td>
<td><strong>Forensic Document Examination Using Magnetic Imaging Techniques</strong></td>
<td>T. Jagielinski, F. Chamberlain, D. Yang, and M. Yount, San Diego Magnetics, Inc. (USA)</td>
</tr>
<tr>
<td>1:50 pm</td>
<td><strong>InkJet Counterfeiting on the Desktop: A Problem to be Faced</strong></td>
<td>Tony Harris, Software 2000 (UK) Ltd. (UK)</td>
</tr>
<tr>
<td>2:30 am</td>
<td>Coffee Break</td>
<td></td>
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<tr>
<td>2:50 pm</td>
<td><strong>Document Verification and Traceability Through Image Quality Analysis</strong></td>
<td>David Wolin, ImageXpert, Inc. (USA)</td>
</tr>
<tr>
<td>3:30 pm</td>
<td><strong>Use of Signature Analysis to Discriminate Digital Printing Technologies</strong></td>
<td>John Oliver and Joyce Chen, Alberta Research Council (Canada)</td>
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</table>

**Panel Discussion on Security Printing**

Monday, September 30, 5:00 to 6:30 pm

*Moderators: Sara Church, Bank of Canada; Lorelei Pagano, U. S. Secret Service*

*paper not available at time of publication*
Special Topic: Nontraditional Ink Jet Applications

Session Chair: Linda Creagh, Spectra, Inc.

Tuesday, October 1, 9:40 am to 11:40 am

9:40 am  Inkjet Printing of Materials as a Mimic of Biological Growth,  
Yuka Yoshioka, Ghassan Jabbour and Paul Calvert, University of Arizona (USA)  

10:20 am  Digital Ink-jet-based Printing: Beyond Color,  
James Caruso, Toivo Kodas and Mark Hampden-Smith,  
Superior MicroPowders (USA)  

11:00 am  Solder Jet™ - Optics Jet™ - AromaJet™ - Reagent Jet - Tooth Jet  
and Other Applications of Ink-Jet Printing Technology,  
David B. Wallace and Donald J. Hayes, MicroFab Technologies, Inc. (USA)  

Textile and Fabric Printing

Session Chairs: Ming Xu, Sawgrass; and Jos Notermans, Stork Digital Imaging BV

Tuesday, October 1, 1:10 to 3:00 pm

1:10 pm  (Focal) Effects of Pretreatments on Print Qualities of Digital Textile Printing,  
Qinguo Fan, Yong K. Kim, Armand F. Lewis and Melynda K. Perruzzi,  
University of Massachusetts Dartmouth (USA)  

1:40 pm  Developments in Textile Ink Jet Printing with Pigment Inks,  
Ulrike Hees, Mike Freche, Michael Kluge, John Provost, and Juergen Weiser,  
BASF Aktiengesellschaft (Germany)  

2:00 pm  The Use of Cycolor Technology in Textile Printing,  
Ibrahim Katampe and Joseph C. Camillus, Cycolor Inc. (USA)  

2:20 pm  Virtual Designing in 3D for Textile Printing,  
Lisa Parrillo Chapman and Cynthia L. Istook, North Carolina State University (USA)  

2:40 pm  Textile Design Education in Digital Inkjet Fabric Printing,  
Hitoshi Ujiie, Philadelphia University (USA)  

Interactive Sessions

Tuesday, October 1, 3:50 to 6:30 pm

Five minute oral previews will be given at the end of the oral sessions in the appropriate track rooms and followed by a conference-wide poster session. The poster presenters will be standing by their posters to discuss their work with participants. The Interactive Papers Program begins on page xxvi.

Toner Based Printing Materials

Session Chairs: Patricia Burns, Xerox Corporation; Mary McStravick, Xerox Corporation; Ian Neilson, Coates Electrographic; and Suda Kiakamjornwong, Chulalongkorn University

Wednesday, October 2, 9:20 to 11:40 am

9:20 am  (Focal) The Toner for Low Energy Fusing by Using Crystalline Polyester,  
Eiji Shirai, Katsutoshi Aoki and Masayuki Maruta, Kao Corporation (Japan)  

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9:50 am  **Toner Binder Resins with Improved Fusing Properties,** Klaus Berger and Matthias Bruch, Ticona GmbH (*Germany*); Toru Nakamura, Ticona Japan Ltd. (*Japan*)

10:10 am  **Study on Shear Rate and Particle Shape-dependency of Viscosity for Electrophotographic Liquid Toners,** Joong-Hwan Choi and Kyung-Yol Yon, Samsung Electronics Co. Ltd. (*Korea*)

10:30 am  **Properties and Printer Performance of Wax-containing Polyester Toners Prepared by Chemical Milling,** Eui-Jun Choi, Chul-Hwan Kim, Tae-Ho Park and Hyun-Nam Yoon, DPI Solutions, Inc. (*Korea*)

10:50 am  **Tailoring Resin Properties of In-situ Suspension Polymerized Toner,** Jun Yang, New Jersey Institute of Technology (*USA*); Hong He, Ting-jie Wang and Yong Jin, Tsinghua University (*P. R. China*)

11:10 am  **Study of the Effect of External Additives on Toner Performance,** Maria R. Nargiello-Tetreault, Degussa Corporation (*USA*); Paul Brandl and Hirokuni Shirono, Nippon Aerosil Co., Ltd. (*Japan*)

### Toner Based Printing Materials (continued)

**Wednesday, October 2, 1:00 to 3:00 pm**

1:00 pm  **Toner Charging Characteristics in the Rotation Mixing System of Toner and Carrier,** Y. Hoshino, Y. Ando, H. Yoshida, and Y. Nakamura, Nippon Institute of Technology (*Japan*); S. Kiatkamjornwong, Chulalongkorn University (*Thailand*)

1:20 pm  **The First Measurement of Cohesive Force Distributions in Powder Flow: New Insights into Effects of Metal Oxide Surface Additives on Xerographic Toner,** Richard P. N. Veregin and Mandy Lam, Xerox Research Centre of Canada (*Canada*)

1:40 pm  **A Method to Confirm the Accuracy of the Blow-Off Tribo and Charge Spectrograph Measurement Techniques,** E. J. Gutman, Consultant (*USA*)

2:00 pm  **Novel Sol-gel Materials with Charge Transporting Properties,** Xin Jin, David S. Weiss and Louis Sorriero, Heidelberg Digital LLC (*USA*); Wayne T. Ferrar, NexPress Solutions LLC (*USA*)

2:20 pm  **The Effect of Toner and Carrier Physical Properties on Developer Conductivity,** R. J. Nash, C. A. Hanzlik, R. J. Hodgson (deceased), and R. N. Muller, Xerox Corporation (*USA*)

2:40 pm  **Charging Characteristics of Electron Donor-Acceptor Complexes Formed by Combination of Positive and Negative Charge Control Agents,** Keiki Suganami and Manabu Takeuchi, Ibaraki University (*Japan*); Toshihiko Oguchi, Morimura Chemicals Ltd. (*Japan*)

### Image Permanence

**Session Chairs: Henry Wilhelm, Wilhelm Research; Rita Hofmann, Ilford Imaging Switzerland GmbH; and Toshihiko Oguchi, Morimura Chemicals**

**Thursday, October 3, 9:20 to 11:40 am**


9:50 am  **Photo Imaging with Ink Jet Inks,** Sandra L. Issler, DuPont Performance Coatings (*USA*)
10:10 am  **Image Permanence of Ink Jet Print System for Portrait,**  
Hiroyuki Onishi, Hidemasa Kanada, Tsuyoshi Sano, and Kiyohiko Takemoto,  
Seiko Epson Corporation (Japan)  

10:30 am  **Assessing Humid Permanence of Inkjet Photos,**  
Shilin Guo, Nils Miller and Dan Weeks, Hewlett-Packard Company (USA)  

10:50 am  **Image Stability of Printpix Paper,**  
Eiichi Sakai, Fumiya Tabata and Shoujirou Sano, Fuji Photo Film Co., Ltd. (Japan)  

Yoshihiko Shibahara, Hiroshi Ishizuka, Naotsugu Muro, Yukihiro Kanazawa,  
and Yoshio Seoka, Fuji Photo Film Co., Ltd. (Japan)  

**Image Permanence (continued)**  
Thursday, October 3, 1:00 to 3:10 pm  

1:00 pm  **Features of Reciprocity Failure and Ozone Fading in Ink Jet Images,**  
Paul Wight, Avecia (UK)  

1:20 pm  **Light Fading and Pollution Tests of Proofing Materials,**  
Christina Almeida and Franziska Frey, School of Print Media  
Pilar Martinez, Image Permanence Institute, Rochester Institute of Technology (USA)  

1:40 pm  **(Focal) Designing Lightfast Inks and Media for Multi-Dyeload Printers,**  
Eric Burch, Nils Miller, Bor-Jiunn Niu, and Shilin Guo, Hewlett-Packard/San Diego (USA)  
Alexey Kabalnov, Charles Dupuy, Pat Wang, Paul Tyrell, and Larrie Deardurff  
Hewlett Packard Company/Covallis (USA)  

2:10 pm  **Influence of UV A Spectral Absorption and Photopermanence on the Weatherability of Laminated Ink Jet Graphics,**  
Joseph C. Suhadolnik,  
Andrea Smith, Nancy Cliff, Harry J. Evers, III, Mervin Wood, Michael Amone,  
and Walter Renz, Ciba Specialty Chemicals Corporation (USA)  

2:30 pm  **Image Stability and Performance of a New Silver Halide Color Paper for Digital Printers: Crystal Archive Paper Type One,**  
Shin Soejima,  
Hiroyuki Yoneyama, and Naoto Ohshima, Fuji Photo Film Co., Ltd. (Japan)  

2:50 pm  **Finishing! How Does it Affect Ink Jet Photo Prints?**  
Ray A. Work, III, Work Associates, Inc. (USA); Edwin S. Iracki, DuPont Company (USA)  

**Interactive Sessions**  
Thursday, October 3, 3:40 to 6:30 pm  

Five minute oral previews will be given at the end of the oral sessions in the appropriate track rooms and followed by a conference-wide poster session. The poster presenters will be standing by their posters to discuss their work with participants. *The Interactive Papers Program begins on page xxvi.*
Ink Jet Printing Materials

Session Chairs: Jim Stasiak, Hewlett-Packard; Guido Desie, Agfa Gevaert NV; and Jun-ichi Hanna, Tokyo Institute of Technology

Friday, October 4, 8:00 to 10:10 am

8:00 am (Focal) Influence of Substrate Properties in Drop on Demand Printing, G. Desie, S. Allaman, O. Lievens, and K. Anthonissen, Agfa-Gevaert N.V. (Belgium); Arthur Soucemarianadin, LEGI, University Joseph Fourier, Grenoble (France)

8:30 am UV Curable Ink Jet Raw Material Challenges, Jeffrey A. Klang and James Balcerski, Sartomer Company (USA)

8:50 am The Development of Pigment Ink for Plain Paper, Minoru Usui, Hiroko Hayashi, Kazuhiko Hara, and Tsuyoshi Kitahara Seiko Epson Corporation (Japan)

9:10 am Color Reproducibility of the Encapsulated Pigment, Isao Tsuru, Takehiro Tsusumi and Michitaka Sawada, Kao Corporation (Japan)

9:30 am (Focal) Measurement and Modeling of Drop Absorption Time for Various Ink-Receiver Systems, Kwok L. Yip, Anthony R. Lubinsky, Dennis R. Perchak, and Kam C. Ng, Eastman Kodak Company (USA)

9:50 am Coagulation Kinetics of Surface Modified Pigment Particles, Yuan Yu and Friedrich von Gottberg, Cabot Corporation (USA)

Track III

Special Topic: Plastic Electronics

Session Chairs: Jim Stasiak, Hewlett-Packard; and Andronique Ioannidis, Xerox Corporation

Monday, September 30, 9:40 to 11:00 am

9:40 am Printing Techniques and Plastic Electronics for Paperlike Displays, John A. Rogers, Bell Laboratories, Lucent Technologies (USA)

10:20 am Advances in Printed Organic Photonics and Photovoltaics, G. E. Jabbour, Optical Sciences Center, The University of Arizona (USA)

Special Topic: Plastic Electronics (continued)

Monday, September 30, 1:00 to 2:20 pm


1:40 pm Thin Film Electronics-Electronics Anywhere, Thomas N. Jackson, Pennsylvania State University (USA)
Organic Electronics
Session Chairs: George Malliaras, Cornell University; Jin Mizuguchi, Yokohama National University; Susanne Heun, Covion Organic Semiconductors GmbH

Monday, September 30, 2:40 to 4:30 pm

2:40 pm (Focal) Time-resolved Spectroscopic Study on Photocarrier Generation Process in Layered Organic Photoreceptors, Yutaka Sasaki and Kan Takeshita, Center for Analytical Chemistry and Science, Inc. (Japan); Takayuki Shoda and Tetsuo Murayama, Mitsubishi Chemical Corporation (Japan)

3:10 pm Nature of Latent Images Formed on Single Layer Organic Photoreceptors, Inan Chen, Quality Engineering Associates, Inc. (USA)

3:30 pm Electronic Structure of Thioindigo Derivatives as Studied by Polarized Reflection Spectra on Single Crystals, Jin Mizuguchi and Misato Mochizuki, Yokohama National University (Japan)

3:50 pm Hole Mobility in Substituted N, N’-bis-(m-tolyl)-N-N’-diphenyl-1, 1’-biphenyl-4,4’-diamine (TPD) Derivatives Doped into Poly(styrene), Max Bishop, Jose-Luis Maldonado, Canek Fuentes-Hernandez, Benoit Domercq, Steve Barlow, S. Thayumanavan, Massimo Malagoli, Mariappan Manoharan, Jean-Luc Brédas, Seth R. Marder and Bernard Kippelen, University of Arizona (USA)

4:10 pm Dipole-Dipole Interaction Between a Fluorescent Dye and a Phosphorescent Dopant in Solid Thin Films: A Concentration and Excitation Intensity Study, G. Ramos-Ortiz, B. Domercq and Bernard Kippelen, Optical Sciences Center, University of Arizona (USA) Y. Oki, currently at Kyushu University (Japan)

Organic Electronics (continued)

Tuesday, October 1, 9:40 to 11:30 am

9:40 am (Focal) Polymer Light Emitting Diodes Made by Inkjet Printing, Jürgen Steiger and Susanne Heun, Covion Organic Semiconductor GmbH (Germany); and Neil Tallant, Avecia Ltd. (UK)

10:10 am Patternable Polymers as Hole Transport Materials for Organic Light-Emitting Diodes, Benoit Domercq, Richard D. Hreha, Nathalie Laribieau, Joshua N. Haddock, Christopher Schultz, Yadong Zhang, Seth R. Marder and Bernard Kippelen, Optical Sciences Center, The University of Arizona (USA)

10:30 am Jet Printing for Large Area Electronics, Steven Ready, William Wong, Kateri Paul and Bob Street, Palo Alto Research Center, Inc. (USA)

10:50 am Advances in Piezoelectric Deposition of Organic Electronic Materials, Marlene McDonald, Spectra, Inc. (USA); Susanne Heun, Covion Organic Semiconductors GmbH (Germany); and Neil Tallant, Avecia Ltd. (UK)

11:10 am Charge-Injection-Controlled Organic Transistor, Ken-ichi Nakayama, Shinya Fujimoto and Masaaki Yokoyama, Osaka University (Japan)
Advanced and Novel Imaging
Session Chairs: Aharon Korem, Aprion Digital and Norio Kokaji, Meisei University

Tuesday, October 1, 1:10 to 3:00 pm

1:10 pm (Focal) Exposing Cycolor Film using Telegen’s New Linear Head, Joseph C. Camillus, Cycolor Inc. (USA)

1:40 pm Photography via Photoacid Generation and Amplification, John L. Marshall and Stephen J. Telfer, Polaroid Corporation (USA)

2:00 pm Jet-printed Lithography for Semiconductor Device Fabrication, W. S. Wong, S. E. Ready, J. Ho, J. P. Lu, and R. A. Street Palo Alto Research Center (USA)

2:20 pm Simulation of Traveling Wave Toner Transport, Ralph Kober, Aachen University of Technology (Germany)

2:40 pm Electron Emission Properties of Carbon Nanocoils, Yoshikazu Nakayama, Lujun Pan and Taichi Hayashida, University of Osaka Prefecture (Japan)

Interactive Session
Tuesday, October 1, 3:50 to 6:30 pm
The Interactive Papers Program begins on page xxvi.

Print and Image Quality
Session Chairs: Peter Engeldrum, Imcotek; Eggert Jung, NexPress GmbH; and Makoto Matsuki, NTT Quaris Corporation

Wednesday, October 2, 9:20 to 11:30 am

9:20 am (Focal) Perceptibility of Non-sinusoidal Bands, Wencheng Wu, Edul N. Dalal and René Rasmussen, Xerox Corporation (USA)

9:50 am Differential Gloss Visual Threshold Under Normal Viewing Conditions, Chunghui Kuo, Yee Ng and Jeffrey C. Wang, NexPress Solutions LLC (USA)

10:10 am Shape-Changing Spot Function for Digital Clustered-Dot Halftoning, J. Q. Trelewicz, IBM Almaden Res. Ctr. (USA); Danielle Dittrich and Yue Qiao, IBM Printing Systems (USA); and Chai-Wah Wu and Gerry Thompson, IBM T. J. Watson Res. Ctr. (USA)

10:30 am Interpretation of Dot Area and Dot Shape of Inkjet Dots Based on Image Analysis, Paul D. Fleming, James E. Cawthorne, Falguni Mehta, Saurabh Halwawala and Margaret K. Joyce, Western Michigan University (USA)

10:50 am Measurement of Mechanical and Optical Dot Gain of Ink Jet Printings and Its Application to Estimate the Reflectances of the Images, Chawan Koopipat, Norimichi Tsumura and Yoichi Miyake, Chiba University (Japan); Makoto Fujino, Seiko Epson Corporation (Japan)

11:10 am Modelling Ink-jet Printing - Does the Kubelka-Munk Theory Apply?, Li Yang, Linkoping University (Sweden)
### Print and Image Quality (continued)

Wednesday, October 2, 1:00 to 1:40 pm

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00</td>
<td>Precision Tone Reproduction Curve Measurement Technique for High Image Quality and Halftone Design Applications</td>
<td>Howard Mizes, Xerox Corporation (USA)</td>
</tr>
<tr>
<td>1:20</td>
<td>An Evaluation Method of Gradation Reproduction Based on Micro Colorimetry</td>
<td>Jun Abe and Toshihiko Inagaki, Fuji Xerox Co., Ltd. (Japan)</td>
</tr>
</tbody>
</table>

### Media for Digital Printing

*Session Chairs: Vera Bares, Weyerhaeuser and Katja Sipi, Helsinki University of Technology*

Wednesday, October 2, 1:50 to 4:20 pm

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:50</td>
<td>(Focal) Photomedia for Digital Minilabs</td>
<td>Aidan Lavery, Felix Schoeller Imaging (UK); and Harald Siegers (Germany)</td>
</tr>
<tr>
<td>2:20</td>
<td>Fastness Properties of Ink Jet Prints on Modified Conventional Coatings</td>
<td>Katri Vikman, Helsinki University of Technology (Finland)</td>
</tr>
<tr>
<td>2:40</td>
<td>Application of Ultrasonic and Porometric Techniques to Measure Liquid Penetration in Digital Papers</td>
<td>John F. Oliver, Alberta Research Council (Canada); Errol D’Souza and Robert E. Hayes, University of Alberta (Canada)</td>
</tr>
<tr>
<td>3:00</td>
<td>Coffee Break</td>
<td></td>
</tr>
<tr>
<td>3:20</td>
<td>Lightfastness Studies of Water-based Inkjet Inks on Coated and Uncoated Papers</td>
<td>Russell H. Tobias, Scitex Digital Printing Inc. (USA); Eric T. Everett, Q-Panel Lab Products (USA)</td>
</tr>
<tr>
<td>3:40</td>
<td>Comparison of Photograde Media for Wide Format Ink Jet Poster Printing</td>
<td>M. Graindourze, H. Kanora, L. Oelbrandt and H. Friedel, Agfa-Gevaert N.V. (Belgium)</td>
</tr>
<tr>
<td>4:00</td>
<td>Dry Toner Based Electrophotographic Printing of Extrusion Coated Packaging Boards</td>
<td>Johanna Lahti, Tampere University of Technology (Finland); and Jari P. Räsänen and Tapani Penttinen, Stora Enso Öyj (Finland)</td>
</tr>
</tbody>
</table>

### Specialty Printing Applications

*Session Chairs: Paul Morgavi, GEMPLUS; and Yee Ng, NexPress Solutions, LLC*

Thursday, October 3, 9:20 to 10:50 am

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:20</td>
<td>(Focal) Industrial Digital Color Printing Press for the Plastic Card Industry</td>
<td>Paul Morgavi, Gemplus (France)</td>
</tr>
<tr>
<td>9:50</td>
<td>Metal Printing - A Strategic Research Program Transforming Your Designs to Physical Objects and Beyond…</td>
<td>Øyvind Kolnes, SINTEF Electronics and Cybernetics (Norway)</td>
</tr>
</tbody>
</table>
10:10 am  **Thermally Stable Aqueous Pigmented Inks for Printing on Vinyl,**
Dheya M. Alfekri, Encad, Inc., A Kodak Company (USA)

10:30 am  **Emerging Applications for Inkjet Technology,**
Carl Thomas Ashley, BIBLIO-tec (USA)

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**Digital Printing/Quality Control Instrumentation**

*Session Chairs: Eric Zeise, NexPress Solutions, and Marcel Slot, Oce*

Thursday, October 3, 11:00 to 11:40 am

11:00 am  **Simulation of Print Quality Defects,**
Woonyoung Jang and Jan P. Allebach, Purdue University (USA)

11:20 am  **A Comparative Study on Analog and Digital Printing Systems Performances,**
Jean-Pierre Gervasoni, Eliane Rousset and Gerard Baudin, Française de Papeterie et des Industries Graphiques (France)

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**Digital Printing/Quality Control Instrumentation (continued)**

Thursday, October 3, 1:00 to 2:50 pm

1:00 pm  **(Focal) Capacitance Based Scanner for Thickness Mapping of Thin Dielectric Films,**
John Graham and Zoran Popovic, Xerox Research Centre of Canada (Canada)

1:30 pm  **Electrostatic Defect Mapping of Xerographic Photoreceptors with a Capacitive Probe,**
Zoran Popovic, Steven Dejak, Philip Waldron, Johann Junginger, and John Graham, Xerox Research Centre of Canada (Canada)
        Satchidanand Mishra, Xerox Corporation (USA)

1:50 pm  **On-line Vision System for Ink-jet Printed Media,**
D. Borman, F. Jahanshah, A. A. Dehghani, T. King, and P. Gaskell
        University of Leeds (UK)

2:10 pm  **On-Line Wide Format Printer Diagnostics,**
Yair Kipman and Kate Johnson, ImageXpert, Inc. (USA)

2:30 pm  **Image-based Cylinder Surface Inspection System,**
Yair Kipman and Kate Johnson, ImageXpert Inc. (USA)

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**Interactive Sessions**

Thursday, October 3, 3:40 to 6:30 pm

*The Interactive Papers Program begins on page xxvi.*
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<tr>
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<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 am</td>
<td><em>(Focal)</em> JPEG 2000: Get the Bit You Want,</td>
<td>Michael J. Gormish, Ricoh Innovations, Inc. (USA)</td>
</tr>
<tr>
<td>8:30 am</td>
<td>Nonorthogonal Halftone Screens,</td>
<td>Shen-Ge Wang, Zhigang Fan and Zhenhuan Wen, Xerox Corporation (USA)</td>
</tr>
<tr>
<td>8:50 am</td>
<td>Quasi-continuous Dot Position Error Diffusion,</td>
<td>Kazuhisa Yanaka and Hideo Kasuga, Kanagawa Institute of Technology (Japan)</td>
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<td></td>
<td></td>
<td>Yasushi Hoshino, Nippon Institute of Technology (Japan)</td>
</tr>
<tr>
<td>9:10 am</td>
<td>Multi-Scale Image Sharpening with Noise Reduction,</td>
<td>Hiroaki Kotera and Wang Hui, Chiba University (Japan)</td>
</tr>
<tr>
<td>9:30 am</td>
<td>A Simple Procedure for the Restoration of Shadows and Highlights in Digital Prints,</td>
<td>Rodney Shaw, Hewlett Packard Research Laboratories (USA)</td>
</tr>
<tr>
<td>9:50 am</td>
<td><em>(Focal)</em> Shutterfly’s Printing Infrastructure,</td>
<td>Dhiraj Kacker and Russell Muzzolini, Shutterfly, Inc. (USA)</td>
</tr>
<tr>
<td>10:10 am</td>
<td>Coffee Break</td>
<td></td>
</tr>
<tr>
<td>10:30 am</td>
<td><em>(Focal)</em> Image Appearance Improvement by Adaptive Scale-Gain Center/Surround Retinex Model,</td>
<td>Hiroaki Kotera and Masafumi Fujita, Chiba University (Japan)</td>
</tr>
<tr>
<td>11:00 am</td>
<td>3D Image-to-Device Gamut Mapping Using Gamut Boundary Descriptor,</td>
<td>Ryoichi Saito and Hiroaki Kotera, Chiba University (Japan)</td>
</tr>
<tr>
<td>11:20 am</td>
<td>Updating ICC Profiles With Ink Cartridge Characterization Data For Color Inkjet Printers,</td>
<td>Chia-Lin (Charlie) Chu, Alp Bayramoglu, Tam Duong and Henry D’Souza, Hewlett-Packard Company (USA)</td>
</tr>
<tr>
<td>11:40 am</td>
<td>A Three Dimensional Method for Gamut Mapping,</td>
<td>Swati Bandyopadhyay, Jadavpur University (India)</td>
</tr>
</tbody>
</table>
Tuesday Interactive Session  
3:40 to 6:30 pm  
Five minute oral previews will be given at the end of the oral sessions in the appropriate track rooms and followed by a conference-wide poster session. The poster presenters will be standing by their posters to discuss their work with participants.

## TRACK II

*Session Chairs: Patricia Burns, Xerox Corporation; Ian Neilson, Coates Electrographic; and Tsutomu Shohohji, Nippon Institute of Technology*

### Textile and Fabric Printing

**Situation and Vision of Using Digital Inkjet Printer to Print on Fabrics,**  
Thomas Poetz, 3P InkJet Textiles AG (*Germany*)  

**Interactions of a Single Ink jet Droplet with Well-Characterized Surfaces,**  
H. Park and W. W. Carr, Georgia Institute of Technology (*USA*)  
J. Zhu, Institute of Paper Science and Technology (*USA*)

### Toner Based Printing Materials

**Two Component Electrophotographic Developer Time Dependent Charge Properties,**  
Robert D. Fields and Jason Morgan, Heidelberg Digital LLC (*USA*)  

*(NIP17) Standardization of the Blow-off Charge Measurement Procedure and Standard Developer,* Toshihiko Oguchi, Morimura-Chemicals Ltd.; Masatoshi Kimura, Fujitsu Ltd.; Noboru Sawayama, Ricoh Co. Ltd.; Chiaki Suzuki, Fuji Xerox Co. Ltd.; Yasusuke Takahashi, Tokai University; Manabu Takeuchi, Ibaraki University; Tatsuya Tada, Canon Inc.; Katsuyoshi Hoshino, Chiba University (*Japan*)  

**Compact Draw-off Type Instrument for Measuring Toner Charge,** Akira Shimada and Toru Miyasaka, Hitachi, Ltd. (*Japan*) Toshio Uehara, TREK Japan K.K. (*Japan*)  

*(NIP17) Effect of CCA Particle Configuration on the Charging Behavior of CCA/Binder Matrix Film Surface,* Keiki Suganami and Manabu Takeuchi, Ibaraki University (*Japan*) Toshihiko Oguchi, Morimura Chemicals Ltd. (*Japan*)  

**Analysis of Tribo-charging Characteristics on Toner Particles in Two-component Developer via Shaker with Different Arm Length,** Youichi Nakamura, Zhou Ye, Hironori Hayashi, Pranchalee Rattanasakornchai, Yasushi Hoshino, Yutaka Terao and Yasuyuki Suzuki, Nippon Institute of Technology (*Japan*)  

**Possibility of Long Life Developer by Using Cyclo Olefin Copolymer Resin,**  
Nobuyuki Aoki and Shunji Konda, Tomoegawa Paper Co. Ltd. (*Japan*)  

**Fluorescent Staining Technique for Visualizing Thin Films,**  
Thomas J. Budny, Xerox Corporation (*USA*)  

**Sediment Studies of Magnetic Dispersions,** Iryna Ye. Opaynych, Igor I. Maleyev, Anatoli S. Voloshinovskii, and Mykola S. Tsvetkov, Ivan Franko L’viv National University (*Ukraine*)  

**Silica Adhesion on Toner Surfaces Studied by Scanning Force Microscopy,**  
Sabine Hild, Sigrid Koening and Carl Stefan Imhof, University of Ulm (*Germany*)  
Mario Heinemann, Ute Voelkel and Herbert Barthel, Wacker-Chemie GmbH (*Germany*)
Advanced and Novel Imaging

Estimation Method of Rotation Characteristic of a Ball for Electrical Twisting Ball Display, Ryushi Ishikawa and Makoto Omodani, Tokai University (Japan)

Organic Electronics

Local Similarity Between Mixed Crystals of Two Components and Crystals of Their Hybrid Single-Component in Pyrrolopyrrole Compounds, H. Shikamori and J. Mizuguchi, Yokohama National University (Japan)

Structural Characterization of Y-like Titanylphthalocyanine, Hideki Yamakami and Jin Mizuguchi, Yokohama National University; Yuko Kojima, Chiduko Sasaki and Yasuko Osano, Center for Analytical Chemistry and Science, Inc. (Japan)

Photoelectrochemical Stability of Layered OPC Drums, Konstantin K. Kochelev, Vladimir N. Bulavka, Vladimir E. Golovin, and Galina A. Kocheleva, Scientific Research Phototechnical Institute on Slavich Company (NIFTI) (Russia); Alexander E. Gekhman, N. S. Kurnakov Institute of General and Inorganic Chemistry RAS (Russia)

Novel Hole Transport Materials and their Application for Electrophotography, Nusrallah Jubran, Kam Law, Zbig Tokarski, Ron Moudry and James Baker, Samsung Information System America (USA); Hwan-Koo Lee, Samsung Electronics Co. (Korea); Valentas Gaidelis, Jonas Sidaravicius, and Edmundas Montrimas, Vilnius University (Lithuania)

Print and Image Quality

Dependence of Image Quality on the Degree of Edge Enhancement, Hironori Hayashi, Pranchalee Ratanasakornchai, Hu Mei, and Yasushi Hoshino, Nippon Institute of Technology (Japan)

Visual Comparison of Screening Quality in Digital Printing Systems, Christian K. Schowalter, University of Applied Science, Munich (Germany)

Estimation of Basic Structural Elements of an Imaging of Digital Printing, Oleg R. Kharin, NIFTI (Russia); and Emilis Suveizdis, UAB (Lithuania)

(NIP17) Comparative Study Between Different Digital and Offset Litho Printing Systems, George Nubar Simonian, Helwan University (Egypt)

Does the Halftone Print Still Need a Photographic Quality?, Yuri V. Kuznetsov and Paul A. Wolneykien, Saint-Petersburg State University of Technology and Design (Russia); David J. Flanagan, Campridge Colorspace, Inc. (USA)

Standardization of Perceptually Based Image Quality for Printing Systems (ISO/IEC XJTC1 SC28 and INCITS/W1.1), Eric Zeise, NexPress Solutions, LLC (USA); Norman Burningham, Hewlett Packard Company (USA)
Thursday Interactive Session
3:40 to 6:30 pm
Five minute oral previews will be given at the end of the oral sessions in the appropriate track rooms and followed by a conference-wide poster session.
The poster presenters will be standing by their posters to discuss their work with participants.

TRACK I

Session Chairs: Diane Herrick, NexPress Solutions; Domingo Rohde, NexPress, GmbH; and Kogi Hirakura, Ricoh

Printing Systems Engineering/Optimization

Improvement of Reliability of Electronic Components of Photocopying Machines and Facsimiles, Toshinori Watabe, Ibaraki University (Japan); Norihiko Okada, Canon Inc. (Japan); Manabu Takeuchi, Ibaraki University (Japan) 703

Hardware Accelerator Component for Image Processing in Industrial Printer Applications, Marc De Pauw, Koen Vande Velde, Luc Minnebo, Erick Van geel, and Paul A. Delabastita, Agfa-Gevaert N.V. (Belgium) 707

Production Digital Printing

Finishing of Digital Prints - A Failure Mapping, Johan Eklund, Bertil Österberg, and Lars Eidenvall, Mid Sweden University; Lars Eriksson, M-real Technology Center (Sweden) 712

Thermal Printing

(NIP17) Study of 1200dpi High Resolution Thermal Print Head, Hirotoshi Terao, Toshifumi Nakatani, Noboru Tsushima and Ikuo Hibino, Alps Electric Co., Ltd. (Japan) 716

(NIP17) Compact and Low Power-consuming Thermal Transfer Printer Unit for Built-in Use in Mobile Devices, Shin’ichi Sagawai, Alps Electric Co., Ltd. (Japan) 717

Metallic Donor for Direct Digital Halftone Proofing, David A. Niemeyer, Eastman Kodak Co. (USA) 718

Direct Plate-making for Lithography by Laser Heating, Takashi Kitamura, Shigeru Morito, Sakiko Nakamura and Katsuyoshi Hoshino, Chiba University (Japan) 723

Toner Based Printing Processes

Gray Level and DMA Estimation in Monocomponent Development Systems, Jang H. Yi and Richard B. Wells, University of Idaho (USA); Tom Camis, Hewlett Packard Company (USA) 726

Study on Magnetic Force Acting on the Magnetic Toner in the High Pixel Density Magnetic Printer with Longitudinal Recording (2), Norio Kokaji, Meisei University (Japan) 732

(NIP17) Analysis on Stick and Slip Behavior of Cleaning Blades, Kuniki Seino and Shizuo Yuge, Minolta Co., Ltd. (Japan); Masao Uemura, Toyohashi University of Technology (Japan) 736
Numerical Simulation of Charging Characteristics under the Influence of Photoreceptor Defects, Satoshi Hasebe and Nobuyuki Nakayama, Fuji Xerox Co., Ltd. (Japan)

Surface-Potential-Decrease Phenomenon of Photoreceptor in Electrophotographic Monocomponent Impression Development Process, Shougo Sato and Manabu Takeuchi, Ibaraki University (Japan)

Statics of Electromagnetic Bead Chains in Electromagnetic Field, Nobuyuki Nakayama, Hiroyuki Kawamoto, Satoshi Yamada and Akiko Sasakawa, Waseda University (Japan)

TRACK II

Session Chairs: Henry Wilhelm, Wilhelm Research, and Dieter Reichel, Celfa/Folex AG

Image Permanence

Simplified Apparatus and Techniques for Evaluating the Stability of Color Imaging Materials to Environmental Pollutants, Peter H. Roth, Applied Technology Consultants (USA)

Role of Media Polymer Chemistry on Dye/Polymer Interactions and Light Stability of Ink Jet Graphics, Andrew Naisby, Joseph Suhadolnik, Anthony Debellis, Donna Pennant, and Walter Renz, Ciba Specialty Chemicals Corporation (USA)

Correlating Changes in Densitometry and Colorimetry in the Context of the Light-Induced Fade of Inkjet Photographic Prints, Douglas E. Bugner and Cory McWilliams, Eastman Kodak Company (USA)

The Effect of High and Low Humidity on the Quality and Stability of Inkjet Images, Mark B. Mizen and Christopher M. Mayhew, Creative Memories (USA)

Ink Jet Materials

Crystal Engineering of Pigments for Permanence, Helen Skelton, Mark Vincent and Justin Yee, Dominion Colour Corporation (Canada)

Developing Pigmented Inks for Thermal Ink Jet, Chieh-Min Cheng, Garland J. Nichols and Min-Hong Fu, Xerox Corporation (USA)

Polymeric Material Solutions for Jetable Fluid Delivery Assembly and Harsh Environment Protection, Susan Krawiec, Chih-Min Cheng and Robert Palmer, Emerson & Cuming (USA)

Media for Digital Printing

Dielectric Variation in Paper and Its Effects on Electrophotographic Printing, Nikolas Provatas1,2,3, Andrew Cassidy2 and Mitsuo Inoue1; 1McMaster University (Canada); 2McGill University (Canada); 3PAPRICAN (Canada)

Focusing on Paper Properties in Color Characterization of Printing Situations, Ole Norberg and Mattias Andersson, Mid Sweden University (Sweden)

Inkjet Printing: Effect of Paper Properties on Print Quality, Gerard Baudin and Eliane Rousset, Ecole Française de Papeterie et des Industries Graphique (France)
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Session Chairs: Eric Zeise, NexPress LLC; Shigeru Kitakubo, Nippon Institute of Technology

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Integration of Image Quality Inspection Equipment into Production, 787
Scott Cole, Kate Johnson and Yair Kipman, ImageXpert, Inc. (USA)

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Decoded Image by Using Epsilon Filter, Tsutomu Shohdohji and Yasushi Hoshino,
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Epson Palo Alto Laboratory (USA)

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Wide Format Raster Compression Applied to a Printing Environment, 811
Cédric Sibade, Stéphane Barizien, Mohamed Akil, and Laurent Perroton,
Océ Print Logic Technologies and Laboratoire A’SI, ESIEE (France)

A Modified Fuzzy C-Means Algorithm for Document Image Segmentation, 815
Mohamed Nooman Ahmed, Lexmark International Inc. (USA)

Characteristics of the Shapes of Printed Dots, 819
Shigeru Kitakubo, Yasushi Hoshino and Shi-Biao Xu, Nippon Institute of Technology (Japan)

Estimation of Actual Image in a Brain Using Measured Results of Distributions of the 823
Color Sensitivity and the Resolution in the Human Vision,
Hideaki Takamiya*, Makoto Omodani*,**, Yasusuke Takahashi,*
*Department of Electro-Photo-Optics, Tokai University (Japan)
**Tokai University Future Science Technology Joint Research Center (Japan)

Color Performance of Dye-based and Pigment-based Color Toners, 827
Jongkwan Kim, Chul-Hwan Kim, Eui-Jun Choi, and Hyun-Nam Yoon,
DPI Solutions, Inc. (Korea)