

NIP22 TECHNICAL SCHEDULE

MONDAY SEPTEMBER 18, 2006

For a schedule of plenaries, see DF program page v.

TRACK 1

Centennial Ballroom H

Photo-electronic Materials and Devices

Session Chairs: Hans-Josef Humpert, AEG-Elektrophotographie GmbH, and Michel Molaire, Kodak Digital Printing Solutions

9:25 am – 2:50 pm

- 9:25 **A High-Endurance Organic Photoreceptor Having a Filler-Reinforced Layer (Focal)**, Shinji Nohsho, Ryohichi Kitajima, Takaaki Ikegami, Tetsuro Suzuki, Tatsuya Niimi, and Narihito Kojima, Ricoh Co., Ltd. (Japan)
- 9:55 **Field Emission with High Performance from MgO-Coated Carbon Nanotubes**, Yoshikazu Nakayama, Lujun Pan, Yasumoto Konishi, and Hiroyoshi Tanaka, Osaka Prefecture University; and Supriya Chakrabarti, Osaka Science and Technology Center (Japan)
- 10:15 – 10:40 Coffee Break
- 10:40 **Newtonian, Colloidally Stable, Ultrasonic-Insensitive, Charge Generating Layer Dispersion Compositions with Instantly Tunable Photosensitivity**, Michel F. Molaire, Lloyd Lobo, Theodore Zubil, Lori VanEpps, and Michael Sykes, Eastman Kodak Co. (USA)
- 11:00 **The Optical-Drive Type Organic Field Effect Transistor Utilizing the Organic Photoreceptor**, Norio Nagayama, Jin Yoshikawa, and Masaaki Yokoyama, Osaka University (Japan)
- 11:20 **Novel Aromatic Amines for Photoconductor and Organic Electronic Applications (Focal)**, Peter Strohriegel, Markus Bäte, Christian Neuber, Klaus Kreger, Hans-Werner Schmidt, and Martin Sonntag, University of Bayreuth, (Germany)
- 11:50 **Indirect Charge Generation in OPC**, Saburo Yokota, Samsung Electronics Co., Ltd. (Korea)

12:10 – 1:30 Lunch Break

- 1:30 **A Study on Positive Hole Injection from Electrode to Liquid-Crystalline Semiconductor**, Tohru Toda, Jun-ichi Hanna, and Tadaaki Tani, Tokyo Institute of Technology (Japan)
- 1:50 **Strikingly Different Luminescent Properties Arising from Single Crystals Grown from Solution or from the Vapor Phase in a Diketopyrrolopyrrole Analog**, Tomohiko Imoda and Jin Mizuguchi, Yokohama National University (Japan)
- 2:10 **Polymorph of 2,9-Dichloroquinacridone and Their Electronic Properties**, Takatoshi Senju, Naoko Nishimura, and Jin Mizuguchi, Yokohama National University (Japan)
- 2:30 **Cohesion of Y-Quinacridone and 2,9-Dimethylquinacridone in the Solid State**, Takatoshi Senju and Jin Mizuguchi, Yokohama National University (Japan)

2:50 – 3:20 Coffee Break

Nanoparticles in Imaging

Session Chairs: Norio Nagayama, Osaka University, and Sanjay Monie, Grace Davison

3:20 – 4:20 pm

- 3:20 **Nano Particle Application in Material Development of Fusing Members for Non-Impact Printing: A Preliminary Study (Focal)**, Keith Murphy and Wade Eichhorn, 7-SIGMA, Inc.; and Dehua Yang and Thomas Wyrobek, Hysitron, Inc. (USA)
- 3:50 **Application-Optimized Processing of Nano-Dispersions with Micro Beads (Focal)**, Norbert Stehr, Bühler GmbH (Germany)

TRACK 2

Centennial Ballroom F

Ink Jet Printing: Processes

Session Chairs: Werner Zapka, Xaar; Mineo Kaneko, Canon Inc.; and Yong Zhou, Trident

9:25 am – 4:55 pm

- 9:25 **The Practical Relevance of Solid State UV LED's for the Curing of Inks in Contemporary Ink Jet Applications (Focal)**, Adrian Lockwood, Integration Technology, Ltd. (UK)
- 9:55 **Alternative UV Radiometry and Exposure Verification for UV Ink Jet Printing**, R. W. Stowe, Fusion UV Systems, Inc. (USA)
- 10:15 – 10:40 Coffee Break
- 10:40 **Effects of Thin Film Layers on Actuating Performance of Micro Heaters**, Min Soo Kim, Bang Weon Lee, Yong Soo Lee, Dong Sik Shim, and Keon Kuk, Samsung Advanced Institute of Technology (Korea)
- 11:00 **Cross-Talk of Multi-Nozzle in Electrostatic Ink Jet System**, Shinjiro Umezu, Ryosuke Nakazawa, and Hiroyuki Kawamoto, Waseda University (Japan)
- 11:20 **Minimizing Residual Vibrations and Cross-Talk for Ink Jet Printheads Using ILC Designed Simplified Actuation Pulses**, M.B. Groot Wassink, and O.H. Bosgra, Delft University of Technology; and S.H. Koekebakker and M. Slot, Océ-Technologies B.V. (The Netherlands)

11:40 – 1:30 Lunch Break

- 1:30 **Acoustic Analyses of Oscillatory Behaviors in Piezoelectric Ink Jet Printhead**, Shin Ishikura, Kyocera Corp. and Manabu Hibi, Brother Industries, Ltd. (Japan)
- 1:50 **Manipulating Drop Formation in Piezo Acoustic Ink Jet**, Herman Wijshoff, Océ-Technologies B.V. (The Netherlands)
- 2:10 **Jetting and Imaging Performance of Spectra M-300/10 Jet Module**, Will Letendre, Shaurabh Halwawala, and Bailey Smith, Dimatix, Inc. (USA)
- 2:30 – 3:00 Coffee Break
- 3:00 **Simulations of Viscoelastic Ink Droplet Ejections Using the Finite Difference Level Set Method and Equivalent Circuit**, Jiun-Der Yu,

Epson Research and Development, Inc. and Shinri Sakai, Seiko Epson Corp., Inc. (USA)

- 3:20 **High-Speed Imaging and Analysis of Jet and Drop Formation**, Ian M. Hutchings, Graham D. Martin, Stephen D. Hoath, and Rhys H. Morgan, University of Cambridge (UK)
- 3:40 **Jet Formation and Late-Stage Ligament Instability in Drop-on-Demand Printing**, Graham D. Martin, Ian M. Hutchings, and Stephen D. Hoath, University of Cambridge (UK)
- 4:00 **Improving Quality of Ink Jet Printed Metal Nano-Particle Conductors**, Liisa Hakola, VTT – Technical Research Centre of Finland (Finland)
- 4:20 **Addressable Waveform Modulation for Ink Jet Printing Realized by Electrical Close Loop Feedback Circuit (Interactive)**, Hsiang-Pei Ou, Chih-Jian Lin, Chieh-Yi Huang, and Kevin Cheng, Industrial Technology Research Institute (Taiwan)
- 4:25 **The Mechanical Design Concerning for Multiple Print Heads in Ink-Jet Printing System (Interactive)**, Cheng-Yi Wang, Kevin Cheng, Wanda W.W. Chiu, and Chen-Chu Tsai, Industrial Technology Research Institute (Taiwan)
- 4:30 **Polymeric Film Technology for the Jettable Fluid Delivery Assembly and Harsh Environment Protection (Interactive)**, Susan Krawiec, Vivian Chan, Robert Frimanson, and Robert Palmer, Emerson & Cuming, Inc. (USA)
- 4:35 **Continuous Pattern Transfer and Arbitrable Piping Process for Ink Jet Fabrication (Interactive)**, Hung-Pin Shih, Chieh-Yi Huang, Chen-Chu Tsai, and Kevin Cheng, Industrial Technology Research Institute (Taiwan)
- 4:40 **Dynamic Management for Multiple Rotation Print Heads with Interlace Printing: Part I: Flow & Memory Arbitration (Interactive)**, Chia-Ming Chang, Chih-Jian Lin, and Kevin Cheng, Industrial Technology Research Institute (Taiwan)
- 4:45 **Dynamic Management for Multiple Rotation Printheads with Interlace Printing: Part II: Patterning Algorithm (Interactive)**, Chia-Ming Chang, Chih-Jian Lin, and Kevin Cheng, Industrial Technology Research Institute (Taiwan)
- 4:50 **Test Pattern and Drop Tracing for Nozzle Healthy Diagnostic (Interactive)**, Chen-Chu Tsai, Chih-Hsuan Chiu, Chih-Jian Lin, Cheng-Yi Wang, Wanda W. W. Chiu, and Kevin Cheng, Industrial Technology Research Institute (Taiwan)

TRACK 3

Centennial Ballroom A

Toner Based Printing Materials: Quality Upgrade and Evaluation

Session Chairs: Detlef Schulze-Hagenest, Kodak Digital Printing Solutions; Manabu Takeuchi, Ibaraki University; and Scott Silence, Xerox Corp.

9:25 am – 2:30 pm

- 9:25 **Understanding the Influence of Surface Acid and Base Properties and Water on Work Functions and Triboelectric Charging Using Inverse Gas Chromatograph (Focal)**, Rick Veregin, Maria McDougall, Mike Hawkins, Cuong Vong, and Vlad Skorokhod, Xerox Research Centre of Canada; and Henry Schreiber, École Polytechnique, Université de Montréal (Canada)
- 9:55 **Treated Colloidal Silica Particles for Toner Formulations**, Joachim Floess, Dmitry Fomitchev, Adam MacKay, Hairuo Tu, Doug West, and William Williams, Cabot Corp. (USA)

10:15 – 10:40 Coffee Break

- 10:40 **Treated Fumed Alumina Particles for Toners**, Dmitry Fomitchev, Casey Whicher, Adam MacKay, Larry Flowers, and William Williams, Cabot Corp. (USA)
- 11:00 **Superior Technology to Make the Advanced Full-Color Toner for Fine Image Quality**, Shinichiro Omatsu, Shunji Arita, Akihiro Eida, and Jun Shimizu, Kao Corp. (Japan)
- 11:20 **Toner Particle Shape Characterization by FE-SEM Image Analysis**, Dustin M. Earnhardt, Mark R. Cummings, and Kenzo Ogata, Mitsubishi Kagaku Imaging Corp. (USA)
- 11:40 **Study of Possibility to Realize Long Life and Low Energy Fusing Toner Predicted from Highly Safe Cyclic Olefin Copolymer Resin**, Atsuo Miyamoto and Nobuyuki Aoki, Tomoeagawa Paper Co., Ltd. (Japan)

12:00 – 1:30 Lunch Break

- 1:30 **Periodic Development of Xerographic Background: A Case History (Focal)**, Robert J. Nash, Bruce E. Cray, Leonard E. Brendlinger, Mary L. Ott, and Richard J. Hodgson (deceased), Xerox Corp. (USA)
- 2:00 **Time Discrimination of Coulter Recount Artifact**, Kevin Lofftus, Eastman Kodak Co. (USA)
- 2:20 **Evaluation of Toner Charging Capability of Trianilino-Triphenylmethane (TATpm) Coating Layer on Toner or Carrier Surface (Interactive)**, Atsushi Suka and Manabu Takeuchi, Ibaraki University; and Keiki Suganami and Toshihiko Oguchi, Morimura Chemicals Ltd. (Japan)
- 2:25 **Tribo-Charging Characteristics on Pulverized Toner Particles in Two-Component Developer (Interactive)**, Youichi Nakamura and Yutaka Terao, Nippon Institute of Technology (Japan)

2:30 – 3:00 Coffee Break

Toner Based Printing Materials – Innovative Processes

Session Chairs: Gerhard Bartscher, Böttcher Systems; Shunji Nakamura, Canon Inc.; and Grazyna Kmiecik-Lawrynowicz, Xerox Corp.

3:00 – 4:30 pm

- 3:00 **Polyester vs. Styrene: Binder Choice for Toners in Digital Printing (Focal)**, Dinesh Tyagi, Eastman Kodak Co. (USA)
- 3:30 **Electrostatic Manipulation of Particle**, Hiroyuki Kawamoto, Hiroki Ando, and Shinjiro Umez, Waseda University (Japan)
- 3:50 **Advantages of Form Adjustment in Xeikon FA-Toner for High-Speed Digital Color Printing**, Lode Deprez, Sabine Vanhee, and Dirk Gijsbrechts, Punch Graphix International (Belgium)
- 4:10 **Development of Chemically Prepared Toner Using Macromonomers**, Chang Kook Hong, Min Young Cheong, Yoda Shin, and Kyung-Yol Yon, Samsung Electronics (Korea)

TUESDAY SEPTEMBER 19, 2006

3:00 – 3:20 Coffee Break

TRACK 1

Centennial Ballroom A

Ink Jet Printing: Materials

Session Chairs: Hugh Allen, Coates; Shinichi Kato, Epson Research and Development Inc.; and Caroline Hayes, Cabot Corp

9:25 am – 12:05 pm

- 9:25 **The Effect of Properties of Encapsulated Pigment Inks on Optical Density**, Yasuhiro Doi, Hiroyuki Yoshida, and Isao Tsuru, Kao Corp. (Japan)
- 9:45 **Basic Concepts of Stability and Instability in Water Based Inkjet Pigment Dispersions**, Hernán Murúa, Ink Press do Brasil (Brazil)

10:05 – 10:40 Coffee Break

- 10:40 **Pigment Surface Modification via Nucleophilic Treating Agents**, Yuan Yu, Cabot Corp. (USA)
- 11:00 **A New Water-Based Ink Jet Ink for Plain Paper Printing**, Hirotaka Iijima, Atsushi Tomotake, and Yasuhiko Kawashima, Konica Minolta IJ Technologies, Inc. (Japan)
- 11:20 **Balancing Stability and Cure in Cationic UV Jet-Inks**, Alexander Grant, SunJet (UK)
- 11:50 **Stacking Behavior of Carbon Black on Cellulose Surface (Interactive)**, Jong In Lee and Seung Min Ryu, Samsung Electronics Co., Ltd.; and Hyuk Soon Choi, Kwang Hee Kim, Hyo Sug Lee, and Jai Kwang Shin, Samsung Advanced Institute of Technology (Korea)
- 11:55 **The Optimization of Pigment Ink Set for Large Format Printer (Interactive)**, Tsuyoshi Sano, Shinichi Kato, Shuichi Kataoka, and Kiyohiko Takemoto, Seiko Epson Corp. (Japan)
- 12:00 **New Black Dye for Ink Jet Application (Interactive)**, Hsiao-San Chen and Jeng-Fang Lin, Everlight Chemical Industrial Corp. (ECIC; Taiwan)

12:05 – 1:30 Lunch Break

Image Permanence

Session Chairs: Alan Hodgson, Alan Hodgson Consulting; Takao Abe, Shinshu University; and Mark Mizen, Creative Memories

1:30 – 4:10 pm

- 1:30 **Pigment Selection for an Ink Jet Ink Set with Balanced Lighfade Performance (Focal)**, Howard Doumaux, Katie Burns, and David Mahli, Hewlett-Packard Co. (USA)
- 2:00 **Effects of Molecular Substituents of Copper Phthalocyanine Dyes on Ozone Fading**, Fariza B. Hasan, Michael P. Filosa, and Zbigniew J. Hinz, ZINK Imaging, LLC (USA)
- 2:20 **Effect of Optical Brightening Agents and UV Protective Coating on Print Stability of Fine Art Substrates for Ink Jet**, Veronika Chovancova-Lovell, Sun Chemical Corp., and Paul D. Fleming III, Western Michigan University (USA)
- 3:00 **Correlation of Ozone Test Chamber Data with Real-Life Permanence of Ink Jet Prints**, Juerg Reber and Rita Hofmann, ILFORD Imaging Switzerland GmbH (Switzerland)

- 3:20 **Further Investigations into Accelerated Light Fade Reciprocity of Inkjet Photographic Prints**, Douglas E. Bugner and Brian L. Lindstrom, Eastman Kodak Co. (USA)
- 3:40 **Methods for Determining Solar Radiation Levels Based on End Use Location for Developmnet of Test Conditions in an Accelerated Weathering Device (Focal)**, George Coonley, KHS Lighting Systems and Matthew McGreer, Atlas Material Testing Technology, LLC (USA)

Color Science and Image Processing

Session Chairs: Joan Uroz, Hewlett-Packard Española SL; Yasushi Hoshino, Nippon Institute of Technology; and Chai Wah Wu, IBM,

4:10 – 5:35 pm

- 4:10 **Fast Error Diffusion and Digital Halftoning Algorithms Using Look-up Tables**, Chai Wah Wu, Mikel Stanich, Hong Li, Yue Qiao, and Larry Ernst, IBM Corp. (USA)
- 4:30 **Comparative Study of Search Strategies for the Direct Binary Search Image Halftoning Algorithm**, Sagar Bhatt and John Sabino, Rice University; John Harlim, University of Maryland; Joel Lepak, University of Michigan; Robert Ronkese, University of Delaware; and Chai Wah Wu, IBM T. J. Watson Research Center (USA)
- 4:50 **Hybrid Error Diffusion Scheme by Mask Perturbation**, Jun-Hak Lee, Takahiko Horiuchi, and Hiroaki Kotera, Chiba University (Japan)
- 5:10 **Reflection Microdensitometry in the Digital Age**, Alan Hodgson, Alan Hodgson Consulting (UK)
- 5:30 **Wavelet-Based Document Enhancement (Interactive)**, Mohamed N. Ahmed, and Ahmed Eid, Lexmark International (USA)

TRACK 2

Centennial Ballroom F

Thermal Printing

Session Chairs: Ian Stephenson, ICI Image Data; Hirotooshi Terao, Alps Electric Co., Ltd.; and Wendell Brattlie, Eastman Kodak Co.

9:25 am – 2:15 pm

- 9:25 **Recent Developments in Thermal Dye Transfer Prints (Focal)**, Masafumi Hayashi and Kazuya Yoshida, Dai Nippon Printing Co., Ltd. (Japan)
- 9:55 **Importance of Dye Partition Coefficient in Thermal Dye Transfer Printing Efficiency**, Dennis J. Massa, Eastman Kodak Co. (USA)

10:15 – 10:40 Coffee Break

- 10:40 **New Intelligent Thermal Printing Technology**, Itaru Fukushima, Cyber Imaging Corp. (Japan)
- 11:00 **Correction of High Frequency Smear in Thermal Printers**, Raymond W. Ptucha, Eastman Kodak Co. (USA)
- 11:20 **Development of Low-Power Thermal Printing Technology**, Hisashi Hoshino and Hirotooshi Terao, Alps Electric Co., Ltd. (Japan)
- 11:40 **Model and Temperature Measurement of Dye-Diffusion Thermal-Transfer Media Scanning Past a Resistive Printhead**, Daniel D. Haas, Consultant and David A. Johnson, Eastman Kodak Co. (USA)

12:00 **D₂T₂ Printing after Two Decades**, Richard P. Henzel, Eastman Kodak Co. (USA)

12:20 – 1:30 Lunch Break

- 1:30 **Technological Direction for Thermal Print Head**, Yoshinori Muya, Masato Ooba, and Tadahiro Fukazawa, Toshiba Hokuto Electronics Corp. (Japan)
- 1:50 **Coupled Thermal-Structural Nip Analysis of Thermal Dye Transfer Printing**, Pojen Shih and Teh-Ming Kung, Eastman Kodak Co. (USA)
- 2:10 **New Erase Head for Thermal Rewritable Media (Interactive)**, Jiro Oi and Hideo Taniguchi, HIT Devices Ltd. (USA and Japan)

Digital Art

Session Chair: Michael Berger, Imaging Solutions

2:15 – 5:40 pm

- 2:15 **The Diversity of Digital Print Technologies Used in the Creation of High Quality Fine Art (Focal)**, Stephen Hoskins, University of the West of England (UK)
- 2:45 **A 15-Year History of Digital Technology and Print Permanence in the Evolution of Digital Fine Art Photography: From 1991-2006 (Focal)**, Henry Wilhelm, Wilhelm Imaging Research, Inc. (USA)

3:15 – 3:40 Coffee Break

- 3:40 **Digitally Print Technologies and Their Relation to Vitreous Enamel on Metal for the Visual Artist (Focal)**, Stephen Hoskins and Elizabeth Turrell, University of the West of England (UK)
- 4:10 **Digital Art Studio: Techniques for Combining Inkjet Printing with Traditional Art Materials (Focal)**, Dorothy Simpson Krause, Digital Atelier (USA)
- 4:40 **The Future is Here: UV Flatbed Printing for Fine Art (Focal)**, Bonny Pierce Lhotka, Digital Atelier (USA)
- 5:10 **Substrate Developments in Fine Art Media (Focal)**, Ray A. Work, III, Work Associates, Inc. (USA)

WEDNESDAY SEPT. 20, 2006

TRACK 1

Centennial Ballroom A

Color Science and Image Processing (con't from Tues.)

Session Chairs: Joan Uroz, Hewlett-Packard Española SL; Yasushi Hoshino, Nippon Institute of Technology; and Chai Wah Wu, IBM

9:10 am – 4:40 pm

- 9:10 **Image-Processing for the Digital Consumer Market (Focal)**, Rodney Shaw and Paul Johnson, White Rose Digital (USA)
- 9:40 **Optical Simulation of Integral Photography Using Computer Graphics**, Kazuhisa Yanaka, Yuki Takahashi, and Hideo Kasuga, Kanagawa Institute of Technology (Japan)
- 10:00 **HDR Image Compression by Integrated Surround Retinex**

Model, Lijie Wang, Takahiko Horiuchi, and Hiroaki Kotera, Chiba University (Japan)

10:20 – 10:40 Coffee Break

- 10:40 **Improved Resolution Synthesis Algorithm for Image Interpolation**, Buyue Zhang, and Jan P. Allebach, Purdue University; and Jay Gondek and Morgan T. Schramm, Hewlett-Packard Co. (USA)
- 11:00 **High-Quality Raster Image Resizing Using Linear Weighted Manipulation (Interactive)**, Gian-Hung Liu, Xiao-Yu Han, Yung-Kuo Ho, Chieh-Yi Huang, Hung-Pin Shih, and Kevin Cheng, Industrial Technology Research Institute (Taiwan)
- 11:05 **Contour Perception Condition of Half-Toned Density Step Image (Interactive)**, Phichit Kajondecha, Hongmei Cheng, Su Huang, and Yasushi Hoshino, Nippon Institute of Technology (Japan)
- 11:10 **Print Color Reproduction for a Wide Gamut Source (Interactive)**, Yousun Bang, Minki Cho, Yun-Tae Kim, Se-Eun Kim, and Heui-Keun Choh, Samsung Advanced Institute of Technology (Korea)
- 11:15 **Optimal Reproduction of Spot Colors on a Digital Press**, John Setchell, Pantone, Inc. (USA)
- 11:35 **Quality Analysis of Spot Color Reproduction with an Ink Jet Printer**, Yu Ju Wu, Miro Suchy, Paul D. Fleming III, and Alexandra Pekarovicova, Western Michigan University (USA)

11:55 am – 2:00 pm Lunch Break

- 2:00 **Studies on Additivity Failure of Subtractive Primaries for Digital Printer Characterization**, Swati Bandyopadhyay, Tapan Paul, and Sivaji Bandyopadhyay, Jadavpur University (India)
- 2:20 **Optimization of Color Dyes for Spectral and Colorimetric Color Reproduction**, Takayuki Ogasahara, Canon Inc. (Japan)
- 2:40 **Developing Computational Radial Basis Function (RBFs) Architecture for Nonlinear Scattered Color Data**, Yue Qiao and Larry Ernst, IBM Corp.; and Michael Kirby, Colorado State University (USA)
- 3:00 **Scene Color Interchange Using Histogram Rescaling**, Ryoichi Saito, Takahiko Horiuchi, and Hiroaki Kotera, Chiba University (Japan)

3:20 – 3:50 pm Coffee Break

- 3:50 **Examination on Pseudo-Spectral Color Reproduction of Facial Image Using Spectral Skin Color Palette**, Sousuke Kagaya, Takahiko Horiuchi, and Hiroaki Kotera, Chiba University (Japan)
- 4:10 **Colorization for Monochrome Motion Pictures By Using Reliable Displacement Vectors**, Tomoyuki Murakami, Takahiko Horiuchi, and Hiroaki Kotera, Chiba University (Japan)
- 4:30 **Tone Reproduction of Displayed and Printed Images Predicted by Using CIECam02 (Interactive)**, Toyoshi Morioka, Masao Inui, Yoshihiko Azuma, and Tomotaka Hirokawa, Tokyo Polytechnic University (Japan)
- 4:35 **Color-Based Maximal GCR for Electrophotography (Interactive)**, L. Yang, Karlstad University; and Sasan Gooran, Magnus Eriksen, and Tobias Johansson, Linköping University (Sweden)

TRACK 2

Centennial Ballroom F

Toner Based Printing Processes

Session Chairs: Volkhard Maess, Océ Printing Systems GmbH; Yusuke Takeda, Ricoh Co.; Ltd., and Larry Schein, Consultant

9:10 – 11:15 am

- 9:10 **Some Fundamental Performance Aspects of the Xerox iGen3 Development System (Focal)**, Mark J. Hirsch, Xerox Corp. (USA)
- 9:40 **New Printhead Using LED Arrays Integrated with IC Drivers**, Mitsuhiro Ogihara, Hiroyuki Fujiwara, Masataka Mutoh, Takahito Suzuki, Tomohiko Sagimori, Hiroshi Kurokawa, Tomoki Igari, Taishi Kaneto, Hironori Furuta, Ichimatsu Abiko, and Masaaki Sakuta, Oki Digital Imaging Corp. (Japan)
- 10:00 **On Counter Charges in Development Rollers for Electrophotography**, Inan Chen and Ming-Kai Tse, Quality Engineering Associates, Inc. (USA)

10:20 – 10:40 Coffee Break

- 10:40 **The Relationship Between Paper Properties and Fuser Oil Uptake in High-Speed Xerographic Printing**, Patricia Lai and Ning Yan, University of Toronto; Gordon Sisler, Xerox Research Center of Canada (Canada); and Jay Song, International Paper (USA)
- 11:00 **Analysis of the Magnetic Force Acting on the Toner in the Black Image Area and White Image Area in Longitudinal Recording Magnetography (2) (Interactive)**, Norio Kokaji, Meisei University (Japan)
- 11:05 **Control Characteristic of Conductive Toner Cloud by an Aperture Electrode (Interactive)**, Toshinori Seki, Ye Zhou, Hong Wu, and Yasushi Hoshino, Nippon Institute of Technology (Japan)
- 11:10 **Corona Discharge Characteristics in Several Humidity Conditions and in Airflow Containing Siloxane Vapor (Interactive)**, Song Jiang, Xiaoxian Wang, Tsunenori Nakanishi, and Yasushi Hoshino, Nippon Institute of Technology (Japan)

11:15 – 2:00 Lunch Break

Security and Forensic Printing

Session Chairs: Gaurav Sharma, University of Rochester, and Annette Jaffe, Annette Jaffe Consulting

2:00 – 4:40 pm

- 2:00 **Ink Jet Printing for Anti-Counterfeit/Brand Protection Applications (Focal)**, Long Lin and Weidong He, The University of Leeds (UK)
- 2:30 **Ink Jet Printing Discrimination Based on Invariant Moment**, Vanessa Talbot, Patrick Perrot, and Cyril Murie, Institut de Recherche Criminelle de la Gendarmerie Nationale (France)
- 2:50 **Extrinsic Signatures Embedding and Detection in Electrophotographic Halftone Images through Laser Intensity Modulation**, Peiju Chiang, Aravind K. Mikkilineni, Edward J. Delp, Jan P. Allebach, and George T.-C. Chiu, Purdue University (USA)

3:10 – 3:40 Coffee Break

- 3:40 **Printer Mechanism – Level Data Hiding for Halftone Documents**, Sungjoo Suh, Jan P. Allebach, George T.-C. Chiu, and Edward J. Delp, Purdue University (USA)
- 4:00 **Ink-Specific Handheld Readers and Security Variable Data Printing (SVDLP)**, Steven J. Simske, Hewlett-Packard Laboratories; John R. Hattersley, InData Systems; Galia Golodetz, Hewlett-Packard Indigo Ltd.; and James Stasiak, Hewlett-Packard Co. (USA)
- 4:20 **Data Hiding Capacity and Embedding Techniques for Printed Text Documents**, Aravind K. Mikkilineni, Peiju Chiang, George T.-C. Chiu, Jan P. Allebach, and Edward J. Delp, Purdue University (USA)

THURSDAY SEPT. 21, 2006

TRACK 1

Centennial Ballroom A

Print and Image Quality

Session Chairs: Martin Smallegange, Stork; Koji Hirakura, Ricoh Co. Ltd.; Chunhui Kuo, Kodak Digital Printing Solutions

9:10 – 11:40 am

- 9:10 **Influence of Paper Structure on Printability: Characterisation Using X-Ray Synchrotron Microtomography**, J.F. Bloch,¹ S. Rolland du Roscoat,^{1, 2} C. Mercier,³ P. Verhnes,¹ B. Pineaux,¹ and A. Blayo,¹ and P. Mangin,³ ¹Ecole Française de Papeterie et des Industries Graphiques (France), ²European Synchrotron Radiation Facility (France), and ³Université du Québec à Trois-Rivières (Canada)
- 9:30 **The Impact of Halftone Screen on Color Graininess**, Chunhui Kuo and Yee Ng, Eastman Kodak Co. (USA)
- 9:50 **A New Approach to Image Fixing Quality Assessment – A Pen Offset Apparatus and Image Processing Analyzer**, Charlie M. Mao and Alex Ozerov, Research Laboratories of Australia (Australia)
- 10:10 **Improvement of Digital Print in Preference by Adding 1/f^α Noise (Interactive)**, Takehiko Ogihara, Naokazu Aoki, and Hiroyuki Kobayashi, Chiba University; and Masao Inui, Tokyo Polytechnic University (Japan)

10:15 – 10:40 Coffee Break

- 10:40 **A Web-Based Self-Diagnosis Tool to Solve Print Quality Issues (Focal)**, Hector Santos-Villalobos, Hyung Jun Park, Chulwoo Kim, Pilsung Choe, Roy Kumontoy, Kainlu Low, Kristian Oldenberger, Maria Ortiz, Xinran Lehto, Mark Lehto, and Jan Allebach, Purdue University, Hewlett-Packard (USA)
- 11:10 **High Image Quality Achieved through High-Precision Measurements (Focal)**, Howard Mizes, Xerox Corp. (USA)

Interactive Previews

11:40 am – 12:00 pm

Electronic Paper and Paper-like Display

- 11:40 **Electrophoretic Characteristic of TiO₂ Particle in Melted Wax**, Takeshi Hasegawa, Ryusho Kumezawa and Yasushi Hoshino, Nippon Institute of Technology; and Takayuki Sano, Tomoeagawa Paper Co. (Japan)
- 11:45 **Reexamination of Origin of Electric Charge on Migration Particles Used for Electrophoretic Displays**, Kazuhiro Nakayama and Makoto Omodani, Tokai University (Japan)
- 11:50 **Behavior of Fine Particles Depend on Cell Structures in Mobile Fine Particle Display Cells**, Taiju Takahashi, Kazunori Shimoyama, and Susumu Saito, Kogakuin University; and Yasuo Toko, Stanley Electric Co., Ltd. (Japan)

Regulatory Issues: The Blue Angel and Green Manufacturing

- 11:55 **Deinking of Dry-Toned Prints from NexPress Digital Production Presses**, Detlef Schulze-Hagenest and Johann Weigert, Kodak Digital Printing Solutions (Germany)

Interactive Paper Session and Lunch

12:05 – 2:00 pm

Centennial Ballroom D/E

Print and Image Quality (continued)

2:00 – 3:00 pm

- 2:00 **Simulation of Prints Made with Océ's 7 Color Direct Imaging Printing Technology**, J. Brok, Océ Technologies B.V. (The Netherlands)
- 2:20 **A New Class of Print Quality Tests**, David A. Johnson, Consultant to QualityLogic, Inc. and Steve Kang, QualityLogic, Inc. (USA)
- 2:40 **Hardcopy Characterization of Banding in Secondary Colors in Color Electrophotographic Processes**, Mu-Chih Chen and George T.C. Chiu, Purdue University (USA)

Regulatory Issues:

The Blue Angel and Green Manufacturing

Session Chair: Eric Stelter, Kodak Digital Printing Solutions

3:00 – 5:50 pm

- 3:00 **Environmental and Regulatory Aspects of Dry Toners (Focal)**, Klaus Berger and Toru Nakamura, Topas Advanced Polymers (Germany)

3:30 – 3:50 Coffee Break

- 3:50 **Printing Systems: Meeting Market Demands for Healthy Indoor Environments (Focal)**, M.S. Black, Air Quality Sciences, Inc. (USA)
- 4:20 **What Makes a Digital Print Recyclable? Results of a European Survey (Focal)**, Axel Fischer, International Association of the Deinking Industry (INGEDE) (Germany)
- 4:50 **Optimization of Process Condition for Perfect Erasing Machine for Decolorable Toner (Focal)**, Takeshi Gotanda,

Satoshi Takayama, Kengo Furusawa, Yumiko Sekiguchi, and Kenji Sano, Toshiba Corp. (Japan)

- 5:20 **Ensuring Compliance to the RoHS & WEEE Directives (Focal)**, Todd Seeley, Intertek (USA)

TRACK 2

Centennial Ballroom F

Production Digital Printing

Session Chairs: Marcel Slot, Océ Printing Systems GmbH

9:10 – 11:30 am

- 9:10 **Realizing Digital Profitability with Unified Workflow (Focal)**, Chris Bondy, Kodak's Graphic Communications Group (USA)
- 9:40 **NexPress Moves to Modularity and Upgradeability and Improves Productivity (Focal)**, Detlef Schulze-Hagenest, Kodak Digital Printing Solutions (Germany)

10:10 – 10:30 Coffee Break

- 10:30 **Ultra-Slim Developing Unit Design for Continuous-Feed Production Laser Printers (Focal)**, Kaoru Kataoka, Yasuo Takuma, Heigo Ueki, Tomio Sugaya, and Teruaki Mitsuya, Ricoh Printing Systems, Ltd. (Japan)
- 11:00 **Digital Offset Printing – Going Beyond 4 Colors (Focal)**, Galia Golodetz, HP Indigo Division, (Israel) Ehud Chatow, Kok-Wei Koh and Ingeborg Tastl, Hewlett-Packard Laboratories (USA)

Interactive Previews

11:30 am – 12:05 pm

Printing Systems Engineering and Optimization

- 11:30 **Linear Dynamic for Refractive Index Material Compensation Film Thickness (Interactive)**, Chia-Fu Chang, Chia-Hi Chan, and Zou-ni Wan, Kun Shan University of Technology (Taiwan)
- 11:35 **Improving the Accuracy of Inexpensive Sensors for Optical Density Measurement (Interactive)**, Behnam Bastani and Bill Cressman, Hewlett-Packard Co. (USA)
- 11:40 **A Novel Image Trimming Algorithm for IJP Fabrication in Line Width and Layer Thickness Compromise (Interactive)**, Chih-Hsuan Chiu, Ming-Huan Yang, Chung-Wei Wang, Chih-Jian Lin, Wanda W. W. Chiu, and Kevin Cheng, Industrial Technology Research Institute (Taiwan)
- 11:45 **Low-Fluctuation Ink Supply & Maintenance for Pilot-Run IJP Platform (Interactive)**, Kuo-Hua Wu, Wanda W. W. Chiu, Chih-Jian Lin, Chien-Kai Chang, Cheng-Yi Wang, Chen-Chu Tsai, and Kevin Cheng, Industrial Technology Research Institute (Taiwan)

Media for Digital Printing

- 11:50 **The Effect of Cross-Linking Agent on the Image Quality of Alumina Sol Coated Ink Jet Paper (Interactive)**, Tai Sung Kang, SNS Photo Co., Ltd. and Myung Cheon Lee, Dongguk University (Korea)
- 11:55 **Optimization of Vaterite Synthesis for Application to Coating Pigment of Ink Jet Paper (Interactive)**, Yohta Mori, Toshiharu Enomae, and Akira Isogai, The University of Tokyo (Japan)

Industrial and Textile Printing

- 12:00 **From Die- to Dye-Cutting: Bringing Cheap Laser Cutting Power Into Printing Terminals (Interactive)**, O. Acher, CEA Le Ripault (France); D. Persico and A. Bobrow, HWV Sands Corp. (USA)

Interactive Paper Session and Lunch 12:05 – 2:00 pm

Printing Systems Engineering and Optimization

Session Chairs: Xavier Bruch, Hewlett-Packard Española SL;
Teruaki Mitsuya, Ricoh Printing Systems, Ltd.; and
George T.-C. Chiu, Purdue University

2:00 – 5:20 pm

- 2:00 **Coupled Analysis of Toner Charging and Development (Focal)**, A. Ecer, V. Rubek, and K. Arican, Technalysis, Inc. (USA)
2:30 **Control Analysis of a Hybrid Two-Component Development Process**, Feng Liu and George T.-C. Chiu, Purdue University; and Eric S. Hamby and Yongsoon Eun, Xerox Corp. (USA)
2:50 **A Technical Overview of Optical Unit for Tandem Color Laser Printer**, Kohji Sakai, Ricoh Co., Ltd. (Japan)
3:10 **High Image Quality and Stability of Full Color Digital Electro-photographic System**, Masumi Sato, Jun Shiori, Megumi Ohtoshi, Nobuyuki Koinuma, and Kazuhiko Yuuki, Ricoh Co. Ltd. (Japan)

3:30 – 3:50 Coffee Break

- 3:50 **State of the Art in Elastomeric Rollers for Printing (Focal)**, Gerhard Bartscher, Johann Weinert, Uwe Zettl, and Barbara Loebich, Felix Boettcher GmbH & Co. KG (Germany)
4:20 **Study on Modeling of Fuser-Generated Curled Sheets and a Prediction of Dog-Ear Defect in a Sheet-Feeding Unit Using a Three-Dimensional Sheet Feeding Simulation**, Shogo Matsumoto and Hiroyuki Seki, Ricoh Printing Systems, Ltd. (Japan)
4:40 **Optimal Time-Sequential Sampling of the Color Reproduction Characteristic Function**, Teck Ping Sim and Perry Y. Li, University of Minnesota (USA)
5:00 **A Large MEMS Scanning Mirror for Laser Printing Application**, Yee-Chung Fu, Advanced Numicro Systems (USA)

FRIDAY SEPTEMBER 22, 2006

TRACK 1

Capitol Ballroom 1

Electronic Paper and Paper-like Display

Session Chairs: Makoto Omodani, Tokai University
9:40 – 11:40 am

- 9:40 **Color Toner Display Based on Control of Particle Movement (Focal)**, Takashi Kitamura, Tetsuya Yamamoto, and Sakiko Nakamura, Chiba University (Japan)

- 10:10 **Electro-Optical Characteristics of Mobile Fine Particle Display with Liquid Crystal (Focal)**, Yasuo Toko, Stanley Electric Co., Ltd., and Taiju Takahashi, Kogakuin University (Japan)
10:40 **Optimization Phenomenological Quasielastic Isotropic Medium Simulation for Phenomenal Liquid Crystal (Focal)**, Chia-Fu Chang, Wi-Ci Chen, and Zouni Win, Kun Shan University (Taiwan)
11:10 **Electronic Materials for Flat Panel Display and Passive Component Manufacture (Focal)**, Klaus Kunze and Karel Vanheusden, Cabot Corp. (USA)

TRACK 2

Capitol Ballroom 2

Media for Digital Printing

Session Chairs: Petri Sirviö, StoraEnso, and
Toshiharu Enomae, University of Tokyo
9:40 – 10:40 am

- 9:40 **Micro Liquid Absorbency of Ink Jet Media**, Toshiharu Enomae, Yohta Mori, and Akira Isogai, The University of Tokyo (Japan)
10:00 **Novel Inkjet Coating Alumina**, Arnold Storeck, and Christoph Batz-Sohn, Degussa AG; and Knut Hornig, Felix Schoeller (Germany)
10:20 **Effect of Silica Pore Characteristics on Ink Jet Print Attributes**, Sanjay A. Monie, Beate C. Stief, and Natalia V. Krupkin, Grace Davison (USA)

TRACK 3

Capitol Ballroom 3

Industrial and Textile Printing

Session Chairs: Ramon Borrell, Hewlett-Packard Española SL;
Hiroyuki Kawamoto, Waseda University; and
Peter Roth, Epic Research
9:40 – 10:30 am

- 9:40 **From Application to Resolution (Focal)**, Eyal Gargir, HP-Scitex (Israel)
10:10 **Jettability and Stability of Ink Jet Inks for Textile Printing**, Hitoshi Morimoto, Kei Kudo, Atsushi Tomotake and Yasuhiko Kawashima, Konica Minolta IJ Technologies, Inc. (Japan)