

“Advancing through cooperation” in Printing and Graphic Arts

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The 1994 International Printing and Graphic Arts Conference was held in October in Halifax, NS, Canada. The event was cosponsored by the Technical Section, CPPA, and TAPPI. Over 170 attendees from all over the world helped make the conference a success.

Program highlights

The Print Equipment Suppliers and Services forum provided the unofficial opening of the conference. This was a break with the generally academic tradition of the conference, but was well received and attended. Five presenters spoke on diverse topics ranging from the establishment of the Quebec Institute of Graphic Communications (ICGQ) to new flexo attachments to Reprotest and heat-set attachments to Prufbau and IGT. The session was chaired by John Mercer, U.S. Department of State.

This session was followed up by a meeting of the TAPPI Printing and Imaging Committee, which included a standing-room-only presentation by John Lind, GATF, on stochastic screening.

Conference Chairman Joseph S. Aspler, Paprican, officially opened the conference by offering a welcome to attendees and introducing Joseph Mort, Xerox Corp., Webster Research Center, the keynote speaker. In his address entitled “Innovations and the printing industry,” Mort described the notions of innovation and gave an evolutionary history of xerography.

Coated paper

Susan Robie, S.D. Warren Co., chaired this session. Dave McAuley, ECC International Ltd., led off with “A comparison of European, U.S., and Japanese coated papers,” indicating differences in raw materials technology, markets, and costs. Y.H. Zang, Paprican, followed with “The influence of coating structure on the ink receptivity and print gloss development of model clay coatings.” Patrick Gane, ECC International, presented “Some novel aspects of ink/paper interaction in offset printing.” Mike MacGregor, Voith Corp., concluded with “Small-scale gloss variation in printed paper:

Patrice J. Mangin (left) and the students responsible for the poster sessions



paper topography explains much of the variation,” including the interesting observation that increased gloss variation isn’t always perceived negatively, if the accompanying gloss increase is sufficient.

Runnability

There were several sessions of three papers or less. Session II, led by Hans Heintze, Domtar, Inc., was the first of these. Hannu Linna, VTT Information Technology, presented “Measuring methods to control web handling during printing,” in which he argued for the inclusion of web handling into the overall printing-press control system. Lennart Malmqvist, TFL (Swedish Newsprint Research Centre), spoke on “On-line monitoring of the runnability in the printing press,” in which he used a web-stability diagram to portray the on-line working conditions of a paper web on press. The diagram was particularly exciting, since the price of deviation from the robust central area of good web control is a web break.

Specialty papers

T. Sarada chaired the afternoon session on Non-Impact and Specialty Papers. Sara Church, U.S. Bureau of Engraving and Printing, led off the session with “Security printing and specialty papers,” a well-received talk on the role of substrates and materials in the ongoing fight against counterfeiting.

Conference Report

Mary Walters, Spectra, Inc., provided a good survey of the thermal ink jet printing with "Hot-melt ink: advantages and applications." Chuck Murphy, Pitney Bowes, presented "Ink jet dry time, ink absorbency, and print quality on envelope papers," including the observation that the United States Postal Service is working to establish a maximum drying time for envelope stock. Judith Auslander, Pitney Bowes, spoke on "Print quality analysis of thermal transfer ribbons on unrestricted media," which demonstrated a strong correlation between paper roughness and thermal transfer print quality. Bob Proverb, Cytec Industries, concluded the session with "Contribution of surface and internal size treatments to performance in black and color ink-jet printing of plain paper," in which the title says it all.

Water and heat

Alan Godfrey, Reichhold Chemicals Inc., chaired the Wednesday morning session on Water and Heat Effects on Offset Printing. Pierre LePoutre, University of Maine, opened with "ESEM examination of the roughening of paper in high-moisture environment." Lois Settlemeyer, Dow Chemical Co., continued her contributions to the IPGAC with "Mechanism and testing of web offset blister resistance," in which she described a rapid, informative method for measuring blister resistance. Pia Wagberg, SCA Research AB, presented "A method for simulating fiber puffing on LWC paper," which identifies increased moisture and temperature as factors in fiber puffing. Per-Olov Trollsas identified factors that contribute to "Water uptake in newsprint in offset printing." C. David Niles, S. D. Warren Research, concluded the session with "The impact of web oven parameters on 20-degree print gloss," which supports the idea that a high-gloss film can be created by driving out moisture prior to setting the ink film.

Surface analysis

Debora Jeske, Champion International Corp., chaired the Instrumental Methods of Surface Analysis. Willy Persson, Lund Institute of Technology, led off with "Identification of different substances in paper using fluorescence spectroscopy," with the idea that knowing the sources of fluorescent components can help understand the distribution of material in paper. Nigel Sanders, Specialty Minerals Inc., followed with "Application of UHV surface analysis to understanding paper/press interaction problems," which uses sophisticated techniques to address basic printing problems. Lennart Malmqvist, TFL, presented his second paper, this one on "Micro-distribution of news ink within fulltone prints on newsprint." Robert Bassemir, Sun Chemical, then spoke on "The use of atomic force microscopy in graphic arts problem solving." Torbjorn Helle, University of Trondheim, presented "Small-scale topographical variations of paper surfaces and their effects on printing ink transfer distribution," in which he notes that the topography of paper compressed in the print nip is critical. Marie-Claude Beland, Paprican, concluded this stimulating session with "Paper surface compressibility and printing."

Christine Antoine (left) gives Theodore G. Waech (center) and Susan Robie (right) an overview of her poster.



Uncoated offset

Mark Recher, Domtar, Inc., chaired the session on Uncoated Offset. Hans Heintze, Domtar, led off the session with "Hardwood vessel picking in the offset printing of uncoated fine papers," and John Wood, Paprican, concluded the session with "Evaluation of the MacMillan-Bloedel on-line lint test."

Ink behavior

John Lind, GATF, chaired the session on Ink Behavior in Printing. Shem-Mong Chou, Rockwell Graphics, began with "A study of ink formulation vs. ink properties." M.S. Carvalho, University of Minnesota, presented "Capillary and viscoelastic effects on elastohydrodynamic lubrication flow and film-splitting in roller nips." M. Bruce Lyne, International Paper, concluded the session with "Measuring the extensional rheology of printing inks."

Halftones

Nam Nguyen, Paprican, chaired the session on Quality of Halftones. Kerstin Malmqvist, University of Halmstad, opened the session with "Automatic system for measurement of screen dot distributions printed on newsprint." Stefan Gustavson, Linköping University, presented "Signal modeling of half-tone prints." Roger Danby, Weavexx Corp., spoke on "Print quality advancement through cooperation (partnerships)." Kerstin Malmqvist returned to conclude the session by speaking on "Image analysis and artificial neural network for color classification in multicolor newspaper printing."

Test methods

Bob Bergmann, Engelhard Corp., chaired the final session of the conference, on Test Methods. Nam Nguyen, Paprican, opened with an "Overview of print sharpness algorithms by image analysis." Peter Lim, Union Camp Corp., contributed "Application of fuzzy mathematics to the analysis of human perception of brightness of office papers." Joe Aspler, Paprican, concluded the session and conference by presenting "Relation between the K & N test and printability tests," in which he concluded that the K & N test is of limited use in predicting the print properties of newsprint testing.

Student sessions

Several students conducted poster sessions during the breaks between sessions. This event was coordinated and chaired by Patrice J. Mangin, Paprican, Pointe Claire, PQ, Canada. Eight posters were available for review, and five students attended the conference to answer questions about their posters. The five students that were available to answer questions and explain their posters were frequently inundated with visitors during the breaks. C. Antoine of the Université du Québec à Trois-Rivières (UQTR), Trois-Rivières, PQ, Canada; C. Barratte, also from UQTR; I. Heikkila of the Helsinki University of Technology, Helsinki, Finland; V. Lanet of École Française de Papeterie et des Industries Graphiques, St. Marin d'Hères, France; and M. Majava, also of the Helsinki University of Technology, all proudly discussed their work. Abstracts of the students' work are printed in the conference preprints.

Make plans for 1996

The 1996 International Printing and Graphic Arts Conference will be held in Minneapolis, MN, Sept. 16–19, 1996, at the Hyatt Regency (downtown). Theodore G. Waech, Beloit R&D, 1165 Prairie Hill Rd., Rockton, IL, 61072-1595, is the conference chairman and can be reached at (608) 364-8538, fax: (608) 364-8600. 

The conference preprints are available from the Publications Assistant, Technical Section, CPPA, 1155 Metcalfe St., Suite 1900, Montreal, PQ, Canada, H3B 4T6, (514) 866-6621, fax: (514) 866-3035. Tapes of the proceedings are also available. For more information please contact Catharine Findlay at (514) 866-6621.