ADVANCES IN PRINTING SCIENCE AND TECHNOLOGY

Proceedings of the 22nd Research Conference of the International Association of Research Institutes for the Graphic Arts Industry, Munich, Germany, Sept. 5-8, 1993

Edited by W.H. Banks for the International Association of Research Institutes for the Graphic Arts Industry

PENTECH PRESS Publishers: London
Contents

KEYNOTE ADDRESSES

1. German efforts in graphic arts research after the reunification of the country
   B. Fuchs, IARIGAI Chairman, IFRA Darmstadt

2. The future of printing technologies
   J. Schneider, MAN Roland, Augsburg, Germany

3. Crystal raster technology
   F.L. Schelft, AGFA-GEVAERT NV, Mortsel, Belgium

4. An outline history of the development of FM-screening
   B. Fuchs, IFRA, Darmstadt, Germany

MATERIALS

5. Ageing resistance of books
   M. Gomer, G. Lindholm, A. Bovin, GRL, and F.-A. Abadie-Maumert, Norwegian Pulp and Paper Research Institute, Oslo, Norway

6. Ageing test with magneto-optical storage media
   M. Dätwyler, Swiss Federal Laboratories for Materials Testing and Research, St. Gallen, Switzerland

7. Comparison of colour monitor and European process inks
   N. Sulzhenko, A. Fjodorov and I. Chestjakova, VNII, Polygrafii, Moscow

8. Water miscible cleaning fluids for offset printing
   W. Rauh, FOGRA, Munich

9. Influences on the quality of prints finished with UV-curable varnishes
   T. Kuen, FOGRA, Munich

10. Photoacoustic and photocalorimetric study of UV-curable inks and varnishes
    M. Kaplanová and J. Černý, University of Chemical Technology, Pardubice, Czech Republic
11. Substitution of IPA in fountain solutions – technical and environmental consequences
   U. Lindqvist, J. Virtanen, VTT Graphic Arts Laboratory, Finland, J. Korostenski, PALAB, Taby, Sweden and E. Wallström, Enpro Aps, Copenhagen, Denmark


13. Three-dimensional evaluation of paper surfaces using confocal microscopy: research and development applications
   P.J. Mangin and M.-C. Béland, PAPRICAN, Pointe-Claire, Quebec

**PRODUCTION SYSTEMS**

14. Fundamentals of linking-up machines to flowlines in the graphic arts industry
   R. Ruder and R. Störr, Institut für Polygrafische Technik, TU Chemnitz-Zwickau

15. Automation of materials handling in the book bindery
   H. Juhola, P. Korpipajarju, A. Bäck, Technical Research Centre of Finland and A. Tuukkanen, Helsinki University of Technology

16. New press/bindery interface – possible replacement of the function of the traditional folder
   W. Weide and T. Billeb, ERA, Munich

17. The use of simulation for time scheduling and production optimization in the graphic arts industry
   F. Schumann, Hochschule, Leipzig, Germany

18. Systems integration in newspaper printing – the goals and the tools
   J. Stenberg and S. Karttunen, Royal Institute of Technology, Stockholm

19. Global production management for integrating prepress, press and postpress systems in newspapers
   S. Nordqvist and N. Enlund, Royal Institute of Technology, Stockholm, Sweden
COLORIMETRY AND DENSITOMETRY

20. Colour variations and deviations in newspaper printing
   N. Ruokosuo, IFRA, Darmstadt 295

21. The comparison of color gamuts
   J.A Bristow, STFI, M. Klaman, GFL and M. Hoc, STFI, Stockholm, Sweden 311

22. The dependence of grey color balance in multicolor printing
    on the variation of solid ink densities
   A.J. Veitsman, VNII Poligrafii, Moscow, Russia 333

23. The 3-colour CCD camera as a densitometer for measuring
    density of cyan, magenta and yellow in printed solid areas
    and in screen areas
   K. Malmqvist, L. Bergman, Halmstad University and
   H. Buck, L. Malmqvist, Swedish Newsprint Research
   Centre, Sweden 342

24. Colorimetric tolerances on packaging for medicine
   P.H. Sørensen and H.O. Jørgensen, Den Grafiske Højskole, Denmark 352

25. Image analysis for the development of multicolour print
    quality in newspaper printing
   H. Busk, L. Malmqvist, Swedish Newsprint Research Centre and
   K. Malmqvist, L. Bergman, Halmstad University, Sweden 369

PRINTING

26. Print-through of halftone prints: an optical study
   G. Baudin, EFPG, France 379

27. Trapping of the superimposed ink-film regarded as a halftone
   A. Ritz, FHD, Stuttgart 393

28. Print mottle evaluation by band-pass image analysis
   P.-A. Johansson, STFI, Stockholm, Sweden 403

29. Ink control in sheet-fed offset printing
   M. Has, FOGRA, Munich, Germany 414

30. Heat balance in web offset printing units
   K. Traber, M. Has and F. Dolezalek, FOGRA, Munich, Germany 433

31. Development of publishing systems for preparation of book,
    magazine and newspaper production in Russia.
   V.S. Doubrovin, VNII Poligraphii, Moscow 453
ELECTRONIC PREPRESS

32. The information content of images
   K. Schläpfer and E. Widmer, EMPA/UGRA, St. Gallen, Switzerland

33. Automatic evaluation of two aspects of scanner quality
   H. Rönngren, The Swedish Graphic Arts Research Laboratory, Stockholm, Sweden

34. A study of image colorimetric and tonal changes when transferred from one imaging media to another
   R.S. Fisch, Colour and Image Reproduction Centre, 3M Centre, St. Paul, Minnesota, USA

35. On-line control of the colour print quality guided by the digital page description
   C. Södergård, M. Kuusisto, Y. Xiaohan and K. Sandström, VTT, Graphic Arts Laboratory, Finland

36. Device-independent colors in office technology and in the graphic arts industry
   W.F. Steiger, EMPA/UGRA, St. Gallen, Switzerland

37. Evaluation of postscript level 2 for color reproduction
   C. Handler, VFG/GLV, Vienna