

DEPARTMENT OF GRAPHIC ARTS TECHNOLOGY AND APPLIED PHOTOCHEMISTRY

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Associate Professors:
Michal Ceppan, PhD.; Milan Mikula, PhD.; Ján Panák, PhD.;

Assistant Professors :
Bohuslava Havlíňová, PhD.; Viera Jancovicová, PhD.;

Research Fellows:
Vladimír Dvonka; Zuzana Jakubíková; Juraj Kíndermay, PhD. (till 31. 10. 2004); Milena Reháková, PhD.;

PhD Students:
Erika Hrehorová; Zdenka Klúciarová (since 1. 10. 2004); Iveta Mrláková (since 1. 11. 2004); Miriam Turanová (since 1. 10. 2004); Alexandra Valaseková (since 1. 10. 2004); Branislav Prosnan;

Technical staff:
Mária Bardúnová; Stanislava Kováčová;

II. TEACHING AND RESEARCH LABORATORIES

A. Teaching laboratories:

Laboratory of Printing Technology
Laboratory of Photochemistry and Photography
Laboratory of Optical Spectroscopy and Photometry
Laboratory of Thin Films and Plasma Technology
Laboratory of Rheology

B. Research laboratories:

Laboratory of Absorption Spectroscopy and Colorimetry

III. TEACHING

A. Undergraduate Study:

6. semester (Bc)	Paper and Printing, Graphic Arts	2/2	Krkoška, Panák
	Term Project	0/4	Mikula and other members of the academic staff
1. semester (MSc)	Colloids Systems and Interfaces	2/1/0	Bakoš, Jakubíková, Mikula
	Polymer and Paper Physics	0/2/0	Jancovicová
	Photochemistry and Photography I.	2/1/0	Ceppan
	Surface and Thin Film Technology	2/0/0	Mikula
1. semester (MSc)	Advanced Laboratory Course I.	0/0/9	Havlíňová, Jancovicová, Mikula
	Typography and Text Processing	0/2/0	Dvonka
2. semester (MSc)	Photochemistry and Photography II.	2/0/0	Ceppan
	Printing Technology I.	2/0/0	Panák
	Advanced laboratory Course II.	0/0/7	Ceppan, Dvonka, Havlíňová, Jancovicová
	Planning for Printing Production	0/2/0	Panák, Dvonka
2. semester (MSc)	Text and Image Processing	1/1/0	Ceppan, Dvonka

3. semester (MSc)	Printing Technology II.	2/0/0	Panák
	Repronics	1/3/0	Mikula, Dvonka
	Advanced Laboratory Course III:	0/0/10	Panák, Dvonka
4. semester (MSc)	Diploma Thesis	0/0/27	members of the academic staff

IV. CURRENT RESEARCH PROJECTS

A. 5th Framework Programme of European Commission: High Productivity and Low Cost for the Encapsulation of Thin Film Solar Cells (NAS-HIPROLOCO) (Milan Mikula).

Development of new, material savings, energy savings, automated and cost effective encapsulation systems and processes for thin film solar cells.

Structural analysis of multilayer system based on polymer foil substrate and inorganic and polymeric layers. The quality of interfaces and their role in adhesion and long term stability of the system.

The study of the barrier properties against the permeation of oxygen and water vapour, the permeation mechanism water through inorganic and organic barrier layers. Ageing of the barrier properties. Detailed physical and chemical analysis of the high barrier layer system.

Project duration: from 01. 09. 2002 to 31. 08. 2004

B. VEGA Project No 1/9146/02 Preparation and Modification of Thin Surface Layer Properties of Image-Generating Structures and Their Substrates (Milan Mikula).

New type of atmospheric surface discharge treatment of polymer foil substrates considering printability, metalization, lamination, adhesion, mechanical and optical properties of this system in comparison with still-in-use barrier discharge ("corona").

New polymers and copolymers preparation by means of photoinitiated polymerization in thin layers with wanted physical and chemical properties. New information about photochemical reactions of selected photopolymer systems. Photochemical modification of water-soluble based polymers layers, changing their hydrophilic, optical and permeation properties with reference to the imaging technology.

Project duration: from 01. 01. 2002 to 31. 12. 2004

C. 5th Framework Programme of EU: Thematic Network /EVK4-CT-2002-20010 Transitional Metals in Paper (MIP), (Michal Ceppan).

Transitional metals may cause an accelerated ageing of historic paper documents, drawings and other cellulose containing objects. The aim of the network MIP is to exchange present knowledge related to the effects and on how to reduce the effects of transitional metals in paper and how to fit in these results to innovative conservation strategies consisting of assessments methods and treatment technologies.

Project duration: from 01. 03. 2003 to 01. 03. 2006

D. Vega project No 1/9145/02 Properties of Materials, Constituents and Structures of Printed Images on Polymeric Substrates (Michal Ceppan).

Development and implementation of the methods of imaging photometry and image analysis of printed images structures on polymeric. Development of method for accelerated light ageing of paper, printing inks, and prints using metal-halogen and fluorescent lamps. Construction of laboratory system for accelerated light ageing using metal-halogen and fluorescent lamps, its basic characterization and calibration. Evaluation of methods and mechanism of printing inks conservation against ageing and attaining new knowledge about relation between various types of paper and inks during ageing of graphic structures on polymeric substrates. Study of influence of fountain solution composition and amount of emulsified fountain solution on rheological properties of offset printing inks. Explaining the influence of printing inks on the emulsions printing ink – fountain solution.

Project duration: from 01. 01. 2002 to 31. 12. 2004

E. Project of ME SR No 661/2003 Preservation, Stabilization and Conservation of Traditional Information Supports in the Slovak Republic (Dušan Bakoš, Milena Reháková)

This project covers programme of saving, stabilization and conservation of traditional holders of information (books, archival documents etc.). Big portion of cultural heritage stored in historical books and archival documents is endangered

with destructive impacts of abiotic and biotic factors. This can cause irretrievable loss of cultural heritage of Slovak Republic. Solving of this problem is divided into two time steps. First includes years 2003 - 2005 and its subject covers basic research. Except of this, second step will also include applied research and development.

Project duration: from 01.10. 2003 to 31.10. 2005

F. APVT Project No. 20-034202 The Deterioration of Historical Manuscripts and Documents Related to Transitional Elements in Writing Inks (Michal Ceppan)

In overall there are 13.1 mil. pieces of threatened documents and manuscripts destined for preservation in the Slovak Republic. Hand written documents (letters, letter sets, drawings, book pages etc.) often contain transitional elements (mainly copper and iron) in their inks which cause and promote destruction and degradation processes of supporting lignocelluloses materials.

This project is focused on investigation of ageing process reactions and kinetics by modern optical and spectral methods.

Gathered knowledge should contribute to material and method selection positively affecting the durability and capacity of historical documents and manuscripts preservation in feasible economical and ecological conditions.

Project duration: from 01. 01. 2004 to 31. 12. 2006

G. 6th Framework Programme of European Commission: Innovation and Sustainable Development in the Fibre Based Packaging Value Chain. (SUSTAINPACK) (Dušan Bakoš, Milan Mikula).

The participation is based on the study of the deposition kinetics of polymer emulsion particles to the pulp fibers, rate of deposition, degree of cover, retention, retention agents – polyelectrolytes and characterization of materials.

Particularly, it includes photo- and plasmochemical activation, modification and/or covering of cellulose fibres in suspension or in a paper-like material, and characterization of materials and activation/deposition kinetics by FTIR spectroscopy, UV Vis. spectral and colorimetry analysis, wetting, adsorption, mechanical and barrier properties measurements.

Project duration: from 01. 06. 2004 to 31. 5. 2008

H. APVT Project No 26-038602 The Influence of Fiber Net and Fiber Properties on Transfer and Qualitative Paper Parameters. Phase 6 – Study of the Printing Quality Evaluation (Juraj Gigac, Ján Panák)

The printing characteristics of selected offset printing papers samples – Transfer curves measurements and determination of Walker-Fetsko and Tolnauer-Oittinen equations parameters and their correlation with some paper parameters. Study and comparison of the current print quality evaluation methods. Development of a new evaluation method for the missing screen dots based on an image analysis. Optimization of the fractal analysis for the characterization of the printing paper properties and prints printed on them. Evaluation of the screen dots and details reproductions using modulatory transfer function.

Project duration: from 01. 02. 2004 to 30. 6. 2006

V. CURRENT EDUCATION PROJECTS

VI. COOPERATION

A. Cooperation in Slovakia

Institution	Type of cooperation	Responsible person	Duration
Purgina	Investigation and evaluation of printing colouring for different printing technologies	Krcňavý Rastislav, technologist, Pri Šajbách 1, 831 06 Bratislava	01. 10. 2003 -
Slovak National Archives	Study of ageing of printed documents	Hanus Jozef, head of the Department of archival preservation, Drotárska cesta 42, 817 01 Bratislava	01. 01. 2000 -
Institute of Physics SAS	Amorphous a-Si:H structures for solar cells (VEGA project) Study of barrier layers (EC project)	Pincík Emil, Dúbravská cesta 9, 845 11 Bratislava	01. 01. 2001 -

Faculty of Mathematics, Physics and Informatics, CU, Bratislava	Polymer surface treatment by atmospheric discharges	Cernák Miroslav, Mlynská dolina, 842 48 Bratislava	01. 09. 2000 -
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B. International Cooperation

Institution	Type of cooperation	Responsible person	Duration
Departement de Photochimie Generale, Université de Haute Alsace, Mulhouse, France	UV curing reaction of waterbased clearcoats	Decker Christian, professor, 3 rue Alfred Werner, Mulhouse Cedex, France	01. 09. 2002 -
Fraunhofer Institute Process Engineering and Packaging (IVV), Freising, Germany	Research of barrier layers on flexible foils (EC project)	Noller Klaus, dr., Fraunhofer Inst. IVV, 853 54 Freising	01. 09. 2002 -
Fraunhofer Institute for Silicate Research, Wurzburg, Germany	Properties of Ormocer lacquer layers (EC project)	Amberg-Schwab Sabine, dr., Fraunhofer Inst. ISC, 970 82 Wurzburg	01. 09. 2002 -
Faculty of Chemistry, Technical University Brno, Czech Republic	Photochemical properties of light sensitive layers	Michal Veselý, Purkynova 118, 612 00 Brno	01. 09. 2001 -
State Central Archives in Prague, Czech Republic	Longlasting measurements of nonaged and aged papers	Durovic Michal, head of department, Archivní 4, 149 01 Praha 4 - Chodovec	01. 01. 2001 -
Pulp and Paper Institute Ljubljana, Slovenia	Analysis of coatings of paper for ink jet printing	Hladnik Ales, Bogiščeva 8, SI-1000 Ljubljana	01. 09. 2004 -
Netherlands Institute for Cultural Heritage	Analysis of spectra of historical documents	Han Neevel, 1070 KA Amsterdam, Netherlands	01. 09. 2004 -

C. Membership in Domestic Organizations and Societies

Name	Organisation or Society	Position	Valid date
Ceppan Michal	Slovak Union for Industrial Chemistry	member	1980 -
Dvonka Vladimír	Slovak Union for Industrial Chemistry	member	1996 -
Havlíková Bohuslava	Slovak Union for Industrial Chemistry	member	1980 -
Jancovicová Viera	Slovak Union for Industrial Chemistry	member	1999 -
Mikula Milan	Slovak Union for Industrial Chemistry	member	1980 -
Panáč Ján	Slovak Union for Industrial Chemistry	member	1978 -
Reháková Milena	Slovak Union for Industrial Chemistry	member	2001 -

D. Membership in International Organisations and Societies

Name	Organisation or Society	Position	Valid date
Ceppan Michal	European Photochemistry Association	member	1990 -
Ceppan Michal	International Society of Imaging Science and Technology, Springfield, USA	member	1985 -

Michal Ceppan	Graphic Arts Technical Foundation, Sewickley, USA	member	1988 -
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E. Visitors from abroad

Name	Organisation or Institution	State	Date / Duration
Amberg-Schwab, S.	Fraunhofer Institute for Silicate Research, Würzburg	Germany	March 2004 (2 days)
Erlor, B.	Isovolta AG, Werndorf	Austria	March 2004 (2 days)
Förster, J.	Klöpper Mechanical Engineering Technics, Stuttgart	Germany	March 2004 (2 days)
Kessler, F.	Centre for solar energy and hydrogen resear Baden Wuttenberg, Stuttgart	Germany	March 2004 (2 days)
Lohwasser, W.	Alcan Packaging Service, Neuhausen	Switzerland	March 2004 (2 days)
Noller, K.	Fraunhofer Institute Process Engineering and Packaging, Freising	Germany	March 2004 (2 days)
Plessing, A.	Isovolta AG, Werndorf	Germany	March 2004 (2 days)
Schroeder, S.	Centre for solar energy and hydrogen resear Baden Wuttenberg, Stuttgart	Germany	March 2004 (2 days)
Vaško, K.	Fraunhofer Institute Process Engineering and Packaging, Freising	Germany	March 2004 (2 days)
Van der Vleuten, P.	Free Energy International, Eindhoven	Netherland	March 2004 (2 days)
Weber, U.	Fraunhofer Institute for Silicate Research, Würzburg	Germany	March 2004 (2 days)
Hladník, A.	Pulp and Paper Institute, Ljubljana	Slovenia	May 2004 (2 days)
Kaplanová, M.	University of Pardubice, Pardubice	Czech Republic	June 2004 (2 days)
Lapčík, L.	Tomas Bata University, Zlín	Czech Republic	June 2004 (2 days)
Veselý, M.	Brno University of Technology, Brno	Czech Republic	June 2004 (2 days)

F. Visits of Staff Members and Postgraduate Students in Foreign Institutions

Name	Organisation / Institution / Conference	State	Date / Duration
Ceppan, M.	Museu Molí paper de Cappelades	Spain	February (6 days)
Ceppan, M.	Tomas Bata University, Zlín	Czech Republic	February (1 day)
Jancovicová, V.	Weilburger Graphics GmbH, Gerhardshofen	Germany	February (3 days)
Panáč, J.	DRUPA 2004, Düsseldorf	Germany	May (5 days)
Havlínová, B., Turanová, M., Hnojčíková, A.	State Central Archives in Prague	Czech Republic	March (5 days)
Ceppan, M.	University La Rochele	France	July (7 days)
Reháková, M.	Royal Institute for the Study and Conservation of Belgium's Artistic Heritage, Brussel	Belgium	September-December (4 monts)
Míkula, M., Ceppan, M., Jancovicová, V.	Fraunhofer Institute for Silicate Research, Würzburg	Germany	August (4 days)
Ceppan, M.	TNO Building and Construction Research, Haag	Netherland	September (5 days)
Panáč, J.	University of Pardubice, Pardubice	Czech Republic	September (3 days)
Panáč, J.	7 th Meeting of Graphic Arts Engineers in Czech and Slovak Republics	Czech Republic	October (2 days)
Ceppan, M., Havlínová, B., Turanová, M.	Int. Conference Durability of Paper and Writing, Ljubljana	Slovenia	November (6 days)
Ceppan, M.	Brno University of Technology	Czech republic	December (1 day)
Ceppan, M.	Tomas Bata University, Zlín	Czech Republic	December (1 day)

VII. THESES AND DISSERTATIONS

A. Graduate Theses (Bc Degree) for state examinations after three years of study

Name	Title of Thesis	Supervisor
Bražinová, V.	The enhancement of print stability in the ageing process	Reháková, M.
Klásková, Z.	The influence of curing degree on the acrylate UV varnish gloss	Jancovicová, V.
Kovašicová, Z.	The influence of light sensitive layer composition on the photopolymerization course	Kindemay, J.
Lendacký, M.	The fractal measurement of ink-jet samples	Dvonka, V.
Mináriková, K.	Contact angle measurement and its interpretation	Jakubíková, Z.
Polková, A.	The influence of layer thickness on the gloss of UV cured photopolymeric system	Kindemay, J.
Raková, S.	The influence of oxygen on photopolymerization in thin layer	Jancovicová, V.
Stolárik, I.	The influence of temperature on offset ink transfer	Panáč, J.
Šátková, B.	The study of ink stability influenced by germicide and ageing	Havlíňová, B.

B. Graduate Theses (MS Degree) for state examinations after five years of study

Name	Title of Thesis	Supervisor
Gašparík, M.	Colour management in ink-jet printing	Karpinský, L.
Hergottová, Z.	Physico-chemical properties of hybrid varnish layers on the polymer substrate	Mikula, M.
Hnojčíková, A.	The stability of newspaper inks on Whatman paper	Havlíňová, B.
Kelemenová, K.	Preparation and properties of layers on the base of modified watersoluble polymers	Jancovicová, V.
Lathová, D.	The ageing of historical documents caused by iron-gall inks	Ceppan, M.
Masaryk, V.	Physico-chemical and optical properties of PP foil surface treated in atmospheric discharge	Mikula, M.
Šarkózi, Š.	The influence of new type papers on the printing image properties	Panáč, J.
Turanová, M.	The study of resistance and stabilization of graphical information in the ageing process	Havlíňová, B.
Uhrín, L.	The study and optimization of UV flexo ink proofing	Panáč, L.
Valovicová, M. rod. Valková	Methodology, proposal and verification of quantitative classification criterion of historical prints	Reháková, M.
Zacharová, J.	The study of colouring in flexography and letterpress printing	Reháková, M.

C. Dissertations (PhD)

D. Dissertations (DSc)

E. Habilitation Theses

VIII. PUBLICATIONS

1. Brezová, V., Pigošová, J., Havlíňová, B., Dvoranová, D., Durovic, M.: EPR study of photochemical transformations of triarylmethane dyes. *Dyes and Pigments* 61, 177-198 (2004)
2. Havlíňová, B., Mináriková, J., Švorcová, L., Hanus, J., Brezová, V.: Influence of Fixation and Deacidification upon Stability of Arylmethane Dyes. *RESTAURATOR V tlaci*
3. Pincik, E., Kobayashi, H., Takahashi, M., Fujiwara, N., Brunner, R., Gleskova, H., Jergel, M., Mullerova, J., Kucera, M., Falcony, C., Ortega, L., Rusnak, J., Mikula, M., Jurani, R., Kral, M.: Photoluminescence, Structural and Electrical Properties of Passivated a-Si:H Based Thin Films and Corresponding Solar Cells. *Applied Surface Science* 235, 351–363 (2004).
4. Decker C., Lorinczova I.: UV-Radiation Curing of Waterborne Acrylate Coatings. *JCT Research* 1, 247-256 (2004)
5. Cedzová, M.*, Tino, R., Reháková, M., Vizárová, K., šutý, Š.: Influence of light on the change of properties of copy paper and of sulphate kraft pulp during accelerated ageing. *Papír a celulóza* 59 (10), 298-299 (2004)

6. Buc, D., Mikula, M., Music, D., Helmersson, U., Jin, P., Nakao, S., Li, K.Y., Shum, P., W., Shou, Z., Caplovicová, M.: Ruthenium Oxide Films Prepared By Reactive Unbalanced Magnetron Sputtering. *J. Electric. Engineering* **55**, 1-2, 39-42 (2004).
7. Ceppan, M., Láthová, D., Hanus, J.: Deštrukcia historických dokumentov - korózia železodubienkových atramentov. *Papier a polygrafia*, 2 (4), 42-43 (2004)
8. Hanus, J., Mináriková, J., Havlínová, B., Švorcová, L., Brezová, V., Hanusová, E.: Changes of some arylmethany dyes on paper during conservation treatment. In: Proc. ICOM-CC Graphic Documents Meeting. Ljubljana (Slovenia), March. 11-12, 2004. (Pr)
9. Turanová, M., Havlínová, B., Ceppan, M.: Deacidification of Aged Nevvsprins In: Proc. Int. Conf. Durability of Paper and Writing. Ljubljana (Slovenia), Nov. 16-19, 2004. Ed.: Kollar, J., Strlic, M., Havermans, J.B.G.A., pp. 70-71 (2004). ISBN 961-6162-98-5. (Po)
10. Reháková, M., Vizárová, K.*, Janciová, D., Valovicová, M., Varga, Š.: Preselection of historical books in the process of their stabilization. In: Proc. Int. Conf. Durability of Paper and Writing. Ljubljana (Slovenia), Nov. 16-19, 2004. Ed.: Kollar, J., Strlic, M., Havermans, J.B.G.A., pp. 68-69 (2004). ISBN 961-6162-98-5. (Po)
11. Buc, D.*, Bello, I., Mikula, M., Kwok, D., T., K., Chu, P., K., Siu, G., G.: Removal of Oxide Ions from Ruthenium Oxide films by PIII Injection of Nitrogen. 5th Int. Conf. on Advanced Semiconductor Devices and Microsystems ASDAM 2004, Oktober 17-20, 2004, Smolenice, Slovakia, Proc. p. 127-130. FEEIT SUT Bratislava 2004 ISBN 0-7803-8535-7. (Pr)
12. Cernáková, L.*, Kováčik, D., Mikula, M., Cernák, M., Špírková, M.: Chitosan immobilization onto the atmospheric-pressure plasma-functionalized polypropylene nonwovens. 9th Int. Symp. on High Pressure Low Temperature Plasma Chemistry, Hakone IX, Padova, Italia, August 23.-27. 2004, Cont.pap. 30-01, 5 pages, (Pr).
13. Cernáková, L., Kováčik, D., Mikulášová, M., Mikula, M., Bucek, A., Cernák, M.*: Low-Cost Plasma Activation and Chitosan Immobilization onto PP nonwovens. 14th Annual Int. TANDEC Nonwovens Conf., Knoxville, Tennessee, Nov. 9.-11. 2004, Proc. 2.61-2.68. (Pr)
14. Jakubíková, Z., Mikula, M., Prosnan B.: Contact Angles and Surface Free Energy of Oxide Layers. Int.conf. Silicon - News in Science and Technology SNST 2004, Podbanske 29.2-3.3. 2004, Slovakia, Proceedings, p. 50-54, SAV Bratislava 2004, ISBN 80-89186-03-3. (Po)
15. Kopani, M.*, Rychly, B., Kristin, J., Jorik, V., Mikula, M., Jakubovsky, J., Kalina, P., Wlachowska, B., Zitnanska, I., Polak, S.: Dense particles in pons cerebrum of a patient with the neurological form of Behcet disease: physical-chemical properties of dense particles. 13th Europaen Microscopy Congress EMC 2004, 22.-27. august 2004, Antwerp. Cont. pap. 195-196. (Pr)
16. Mikula, M., Jakubíková, Z., Prosnan, B.: Surface Properties of Dielectric Barrier Discharge Treated Polypropylene in Air and Nitrogen. Solid State Surfaces and Interfaces IV, Smolenice 8.-11.11. 2004, Slovakia, Proc. p. 57-58, SAV Bratislava 2004. (Po)
17. Mikula, M.*, Vasko, K., Prosnan, B., Kúdela, P., Jakubíková Z.: SiO_x based permeation barrier layers on flexible polymer foils. Int.conf. Silicon - News in Science and Technology SNST 2004, Podbanske 29.2-3.3. 2004, Slovakia, Proceedings, p. 109-114, SAV Bratislava 2004, ISBN 80-89186-03-3. (Ppr)
18. Müllerová, J.*, Šutta, P., Jurecka, S., Mikula, M.: Effect of Hydrogen Dilution on Optical and Structural Properties of PECVD Deposited a-Si:H Thin Films. 10th Int.Conf. on Applied Physics of Condensed Matter APCOM, Castá-Píla 16.-18.jun 2004, Slovakia, Proceedings, p. 173-176, FEEIT SUT Bratislava 2004, ISBN 80-227-2073-9. (Ppr)
19. Dvonka, V.*, Ceppan, M., Lendacký, M.: Využitie moderných meracích technológií na hodnotenie kvality tlace. In: Zborník Polygrafia Academica. Bratislava (Slovenská republika), 9.-10. septembra 2004. Vyd. Vydavateľstvo STU, str. 119-126 (2004). ISBN 80-227-2100-X. (Pr)
20. Gígac, J., Šutý, Š.*, Valáseková, A., Strežo, P.: Hodnotenie povrchových vlastností papiera a aplikácia obrazovej analýzy ofsetovej a ink jetovej tlace. In: Zborník Polygrafia Academica. Bratislava (Slovenská republika), 9.-10. septembra 2004. Vyd. Vydavateľstvo STU, str. 20 - 30 (2004). ISBN 80-227-2100-X. (Pr)
21. Havlínová, B.*, Hnojčíková, A., Turanová, M.: Vplyv urýchleného starnutia papiera na stabilitu ofsetovej farby na papierovej podložke. In: Zborník Polygrafia Academica. Bratislava (Slovenská republika), 9.-10. septembra 2004. Vyd. Vydavateľstvo STU, str. 176-183 (2004). ISBN 80-227-2100-X. (Po)
22. Jakubíková, Z.*, Mikula, M., Prosnan, B.: Hodnotenie hladkosti papiera pomocou lesku In: Zborník Polygrafia Academica. Bratislava (Slovenská republika), 9.-10. septembra 2004. Vyd. Vydavateľstvo STU, str. 127-136(2004). ISBN 80-227-2100-X. (Pr)
23. Jakubíková, Z.*, Prosnan, B., Mikula M.: Acidobázická interpretácia povrchových zmien korónou opracovaného polypropylénu In:Zborník Polygrafia Academica. Bratislava (Slovenská republika), 9.-10. septembra 2004. Vyd. Vydavateľstvo STU, str. 137-144 (2004). ISBN 80-227-2100-X. (Po)
24. Jancovicová, V.*, Kindernay, J., Raková, S., Richter, J.: Vytvrdzovanie UV lakov v inertnom prostredí. In: Zborník Polygrafia Academica. Bratislava (Slovenská republika), 9.-10. septembra 2004. Vyd. Vydavateľstvo STU, str. 191-196 (2004). ISBN 80-227-2100-X. (Po)
25. Kindernay, J.*, Jancovicová, V., Klásková, Z., Polková, A.: Vplyv podmienok vytvrdzovania na lesk UV lakov. In: Zborník Polygrafia Academica. Bratislava (Slovenská republika), 9.-10. septembra 2004. Vyd. Vydavateľstvo STU, str. 184-190 (2004). ISBN 80-227-2100-X. (Po)
26. Jakućewicz, S., Panál, J.*: Štúdium potlaciteľnosti nových typov nenatieraných papierov. In: Zborník Polygrafia Academica. Bratislava (Slovenská republika), 9.-10. septembra 2004. Vyd. Vydavateľstvo STU, str. 83 - 101 (2004). ISBN 80-227-2100-X. (Pr)

27. Reháková, M., Malec, B.*, Krchnavý, R., Zacharová, J.: Sledovanie vplyvu potlačaného materiálu a lakovania na farebnosť výtlakov zhotovených flexotlačou. In: Zborník Polygrafia Academica. Bratislava (Slovenská republika), 9.-10. septembra 2004. Vyd. Vydavateľstvo STU, str. 197-203 (2004). ISBN 80-227-2100-X. (Po)
28. Mikula, M.*, Ceppan, M., Jancovicová, V., Reháková, M.: Bariérové vrstvy, stabilita dokumentov a hodnotenie kvality tlače. Workshop 11.-13.2. 2004, Zborník, s. 66-67, FCHPT STU Bratislava 2004, ISBN 80-227-2023-2. (Pr)
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