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In cooperation with

The European Coating Symposium

The Japan Coating Symposium

Facilitated by

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ISOST

International Society of Coating Science & Technology

*14th International Coating Science
and Technology Symposium*

September 7-10, 2008

Marriott Hotel

Marina del Rey, California

ISOST

International Society of Coating Science & Technology

THE TIARA GROUP, LLC

530 W. Ojai Avenue, Suite 108
Ojai, California 93023-2471

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Who Should Attend:

This Symposium is designed for coating engineers and scientists in both industry and academia. It will provide both practical and fundamental understanding of the coating process as well as networking opportunities. Past industrial participants have mainly come from the imaging, electronics, medical/life sciences, metal coil coating, paper, printing, information storage, automobile, chemical, computer, and textile industries. However, participants from other industries, in which coating is a key technology, will also benefit from this Symposium.

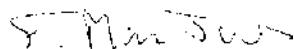
Dear Colleagues,

The ISCST Symposium provides a forum for researchers, with both academic and industrial perspectives on coating applications, to discuss the latest developments in the application and solidification of thin liquid films. The Symposium features contributions on both fundamental and applied research and development from many experts in coating process science and technology. This forum is designed to provide mechanisms for the exchange of information between academia and industry.

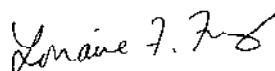
The 2008 Symposium will feature two special technical sessions. The first, *Coating Challenges in the Display Industry*, explores potential applications of coating and drying methodologies and processes to the rapidly growing display industry. The second special session is a *Tribute to Professor L.E. Scriven's Contributions to Coating Science*. Here, presenters will show the far reaching influence of the late Professor "Skip" Scriven's work (and that of members of his research group) on the understanding of coating science and chemical process engineering. Prior to the symposium, the ISCST will be hosting two short courses: *Science & Technology of Coating and Drying Processes*, September 6-7, which has been totally revised with new presenters and materials; and, *The Role of Modeling & Visualization in the Coating Process*, September 7. Outlines for these courses are included in this brochure.

We hope that you will participate in this event. Please visit our website www.iscst.org for up-to-date information on the program.

Sincerely



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 Michael Savage, *University of Leeds*
 P. Randall Schunk, *Sandia National Labs*
 Leonard Schwartz, *University of Delaware*
 Peter Schweizer, *Polytype Converting AG*
 Takeaki Tsuda, *Dai Nippon Printing*
 Steven Weinstein, *Rochester Institute of Technology*

SYMPOSIUM PROGRAM AT A GLANCE

	SATURDAY SEPTEMBER 6	SUNDAY SEPTEMBER 7	MONDAY SEPTEMBER 8	TUESDAY SEPTEMBER 9	WEDNESDAY SEPTEMBER 10
7:15 AM			Speakers' Breakfast	Speakers' Breakfast	Speakers' Breakfast
7:30 AM	Short Course Registration Continental Breakfast	Short Course Registration Continental Breakfast	Continental Breakfast Networking Opp.	Continental Breakfast Networking Opp.	Continental Breakfast Networking Opp.
8:30 AM	Short Courses 1	Short Courses 1 & 2	Welcome Special Technical Session 1	Technical Session 3	Special Technical Session 2
11:25 AM					Adjourn
12:00 M		General Registration	Luncheon Tallmadge Award	Luncheon L.E. Scriven Award	
1:15 PM			General Poster Session	General Poster Session	
2:30 PM			Technical Session 1 & 2	Technical Sessions 4 & 5	
4:00 PM		Networking Session			
6:00 PM		Welcome Reception	Cocktail Reception		
7:00 PM			ISCST Board Meeting		

ISOST 2008

These short courses are being held prior to and in conjunction with the 14th International Coating Science and Technology Symposium.

Science & Technology of Coating and Drying Processes **September 6 & 7, 2008**

The Role of Modeling & Visualization in the Coating Process **September 7, 2008**

Fee includes the lectures, course materials, lunches, refreshments and snacks during breaks. The course fee does not include the Symposium registration.

Please make your hotel reservation as soon as possible, to guarantee room availability.

Science & Technology of Coating and Drying Processes
September 6 & 7, 2008 - Course Fee \$1,095

Minimum registration to hold course: 15

Purpose

This course will cover scientific, technological and practical aspects of continuously coating and drying flexible substrates. The focus will be on the underlying physical concepts that govern coating and drying processes, starting with fluid conditioning and delivery, including liquid distribution and coating, and ending with solidifying the coated film.

Intended Audience

The course is designed for coating engineers, technologists, and machine operators working with precision coating processes.

Format

Each subject will be lectured by an experienced and renowned expert by way of PowerPoint presentations.

Materials

Each course attendee will receive a folder containing copies of the PowerPoint slides, as well as a list of the course participants.

Program

Introduction (Peter Schweizer)

Overview of the coating industry, major components of industrial coating machines, concepts for pilot coating machines, difference between a coating machine and a coating process, overview of different coating methods, criteria for selecting the best possible coating method.

Fluid mechanics of coating flows (Steven Weinstein)

Basic principles governing fluid flows including conservation of mass and force balance on fluids (viscous, pressure, gravity, inertia), force implication in simplified coating process, physics of fluid-fluid interfaces, molecular origin of surface tension, force balance at interface (interfacial curvatures and flow, surfactant and temperature-induced flows), contact angles and air entrainment.

Physical fluid properties and measurement methods (Kenneth Ruschak)

Introduction (Coating flows, relevant properties and phenomena of liquids, complications of coating practice, the purposes of measurements), bulk and component densities (relevance, measurements), surface tension and energy (interfacial phenomena, relevance, static surface tension, dynamic surface tensions and their differences, contact angle and spreading, diagnostic coatings), rheology (rheological phenomena, relevance, generalized Newtonian constitutive equations, viscometers and rheometers, index measurements), other useful measurements.

Fluid conditioning and delivery (Peter Schweizer)

Major processes and components of delivery systems, including pumps, flow meters, filters, degassing and bubble removal, temperature control, on-line injection and in-line mixing, contamination and cleaning, criteria for configuring delivery systems.

Die Design (Kenneth Ruschak)

Introduction (functions, general requirements), geometric elements (slots, cavities, inlets, external flow surfaces, lips), general principles and considerations (flow resistance partitioning, flow patterns, mechanical distortions, displacing air, displacing one liquid with another, flow on external surfaces), internal design space (dimensionless groups of parameters, general options and tradeoffs), external design space (slot exits, flow surface inclination and length, die height), mechanical tolerances and distortions.

Self-metered coating methods (Marcio Carvalho)

Overview of self metering coating methods, introduction to roll coating methods, forward roll coating, reverse roll coating, roll coating with deformable rolls, roll coating systems.

Pre-metered coating methods (Peter Schweizer)

Overview of premetered coating methods, attractiveness of simultaneous multilayer coating applications, introduction to slot, slide and curtain coating, explanations of operating boundaries.

Drying and curing (Brent Bell)

Brief review of the drying industry, drying of coated webs, drying process basics, heat and mass transfer concepts, essential psychrometrics, key process parameters, key product parameters, drying regimes, product examples (aqueous, solvent), UV curing, drying equipment/dryer types, energy input, air handling schemes, air impingement and conveyance methods, process sensors, auxiliary equipment, drying model as a tool (drying curves), description of common drying tasks, optimum dryer setup, evaluation of the effects of product changes on process operation, evaluation of dryer limitations, reduction of dryer energy usage, dryer design, common drying defects and problems (orange peel, convection cells, Benard cells, mottle, blush, haze, patterns, drying stresses (curl, cracking, delamination), skinning).

Faculty

Dr. Brent C. Bell

Brent received his PhD in Mechanical Engineering from the University of Kansas in 1993 and then spent one year in post-doctoral study in the Department of Chemical Engineering at the University of Minnesota in 1994. During his graduate and post-graduate studies, he developed computer models for both coating and drying processes.

Brent's first industrial position was with Eastman Kodak Co. where he worked for 21 years in R&D of coatings and coating and drying processes. He was responsible for the development of the company's drying modeling tools and for the design and optimization of both aqueous and solvent drying processes. Brent won Kodak's highest research award, the CEK Mees award, in 2001 and also the company's Software Excellence award in 2004.

Currently, Brent works for Isoflux Biomed in R&D of coatings for biomedical devices. In addition, he is also an Adjunct Professor of Chemical Engineering at the University of Rochester.

Professor Marcio Carvalho

Marcio has been active in coating research and development for more than 15 years. He received his PhD in Chemical Engineering from the University of Minnesota in 1995, with a thesis on the basic mechanisms, experiments, theory and computer aided analysis of roll coating processes that make use of deformable rolls. He worked as Senior Process Development Engineer at 3M Company and

Imation Corporation in the areas of pre-metered coating, roll coating and drying technologies. Now Marcio is an Associate Professor in the Department of Mechanical Engineering at Pontificia Universidade Catolica do Rio de Janeiro, in Brazil. Marcio is a member of the Graduate Faculty in the Department of Chemical Engineering & Materials Science at the University of Minnesota. His research is focused on several aspects of coating process, non-Newtonian fluid mechanics and micro scale flow of emulsions.

Marcio received the Young Investigator Award from the International Society for Coating Science and Technology (ISCST) in 2004. He consults in coating and drying processes for different companies in Brazil, USA, Japan and Europe.

Dr. Kenneth J. Ruschak

Ken has a B.S. degree from Carnegie-Mellon University and a Ph.D. degree from the University of Minnesota in Chemical Engineering. His thesis, Coating Flows, was under the direction Prof. L. E. Scriven.

In a 33 year career at Eastman Kodak Co., Ken worked on the research, development, implementation, application, and documentation of coating technology. Applications included photographic film and paper manufacturing, ink jet paper manufacturing, and dye sublimation film manufacturing. His interests include mathematical modeling in Newtonian and non-Newtonian fluid mechanics and capillary hydrodynamics, the rheology of polymer solutions and pigment dispersions, coating die and coating station development and design, and coating practice in simultaneous multilayer curtain and slide bead coating, slot die coating, gravure coating, and rod and blade coating. He has 29 Eastman Kodak Co. Technical Reports, 33 patents, and 30 external publications. At Kodak he received the Distinguished Inventors' Award, the Eastman Innovation Award, and the C. E. K. Mees Award. He also received the John A. Tallmadge Award for Contributions to Coating Technology from the AIChE.

Currently he is a part-time research professor in the Kate Gleason College of Engineering at the Rochester Institute of Technology where he is helping to start a program in liquid films and promoting industrial collaborations.

Dr. Peter M. Schweizer

Peter received his PhD in Mechanical Engineering from the Swiss Federal Institute of Technology in 1979, and he did post-doctoral research in coating flows at the University of Minnesota with Prof. Scriven in 1979 - 1980. From 1981 - 1986, Peter worked in the Coating Flow Research Group at Kodak in Rochester, New York.

From 1987 - 1996, he worked at ILFORD in Fribourg, Switzerland, where he assumed responsibilities for Process Technology and Engineering. From 1997 - 2000, Peter was Managing Director of TSE Troller Schweizer Engineering in Switzerland, one of the leading manufacturers of coating dies. Since 2001, Peter works for Polytipe Converting in Fribourg, Switzerland, a supplier of coating and drying processes and a manufacturer of coating machines, where he is responsible for Process Development.

Peter is co-editor of the book entitled Liquid Film Coating, which appeared in 1997. In 2006, he received the John A. Tallmadge Award for Contributions to Coating Technology from the International Society for Coating Science and Technology (ISCST).

Prof. Steven Weinstein

Steve received his PhD in Chemical Engineering from the University of Pennsylvania in 1988.

Steve worked for Eastman Kodak Company for 18 years after receiving his PhD. His areas of expertise are interfacial fluid mechanics, transport phenomena, and applied mathematics. He has published over 25 refereed articles in the field of coating, and he has 7 patents in these areas. Steve has won the CEK Mees award for excellence in research and technical writing (1992; honorable mention 1998), the highest research award bestowed by Eastman Kodak Company.

While at Kodak, Steve was also an Adjunct Professor of Chemical Engineering at the University of Rochester, and he was an Adjunct Professor of Mechanical Engineering at the Rochester Institute of Technology. Moreover, he is also an Adjunct Professor of Chemical and Biomolecular Engineering at Cornell University, and has co-advised students there for their PhD.

In 2000, Steve was the recipient of the Young Investigator Award from the International Society of Coating Science and Technology. He has served on the board of directors of this society since 2004.

In 2007, Steve joined the faculty in the Department of Mechanical Engineering

at Rochester Institute of Technology. His teaching activities include core graduate mathematics for engineers, graduate convective phenomena, and undergraduate fluid dynamics. In addition, he has developed an undergraduate minor in Chemical Engineering Systems Analysis and is responsible for teaching its core courses including material balances in reactive systems, reaction engineering, and mass transfer operations.

The Role of Modeling & Visualization in the Coating Process

Sunday, September 7, 2008 - Course Fee \$795

Minimum registration to hold course: 6

Coating industry today often requires production improvements and quick development of new products. Thinner and thinner liquid layers are now more frequently applied to substrates as multilayer coatings at tight thickness tolerances and at higher and higher line speeds, and less production waste. Complete understanding of the different processes help coating professionals to meet the product development and production challenges they face everyday. It is important to analyze the physical mechanisms that determine the success or failure of a process. Flow visualization and computer aided modeling are priceless tools available to coating professionals today. Methods, techniques and modern equipment developed at the University of Minnesota (Minneapolis), Pontificia Universidade Catolica (Rio de Janeiro) and other places, used in successful visualization and modeling of roll, slot, slide, curtain, and other types of coating techniques are discussed in this course. The ways how both of these approaches (experimental and theoretical) interact and complement each other leads to better process understanding is also presented along with several examples.

Program

1. Overview of fundamental analysis of coating processes.
2. Special coating equipment designed for visualization: transparent rolls, glass shoes, coating dies, and others.
3. Proper selection of lenses, cameras, recording equipment and lighting
4. Visualization techniques most useful in coating and solidification processes.
5. Numerical Methods for Modeling Coating Processes: Viscocapillary and Navier-Stokes models of free surface flows.
6. Experiments and Theory: Examples of combined experimental and theoretical analysis in slot, slide, curtain, tensioned web, roll, gravure and other coating techniques.

Faculty

Professor Marcio Carvalho

Marcio's career development is presented together with those of the faculty of the Short Course "Science and Technology of Coating and Drying Processes". Please see opposite page.

Wieslaw J. Suszynski

Wieslaw is the Research Engineer in charge of the Coating Process Fundamentals Laboratory at the University of Minnesota. He is responsible for the design and operation of the experimental coating equipment and associated instrumentation as well as scientific visualization, photography, standard and high-speed video imaging. Wieslaw has participated in the development of coating and drying visualization technology in the Coating Process Fundamentals Program for more than 17 years since its early stages. Wieslaw has done work within the University and in collaboration with several Interfacial and Materials Research Center Member Companies. He graduated from the Cracow University of Technology, Poland, where he received his MSChE degree.

John A. Tallmadge Award for Contributions to Coating Technology

This is the preeminent award for engineers and scientists in the international coating community. It recognizes an individual's significant contributions to the understanding or improvement of the technology of the coating of continuous webs. The award is presented biannually, in even numbered years.

Sponsored by: International Society of Coating Science and Technology, and AIChE.

Award: A plaque and \$1,000.

Previous Recipients of the John A. Tallmadge Award

- 1992 L. E. Scriven, Dept. of Chemical Engineering,
Univ. of Minnesota-Twin Cities
- 1994 E. B. Guttoff, Consultant
- 1996 J. E. Hens, retired, AGFA
- 1998 Kenneth J. Ruschak, Eastman Kodak Co., Rochester, NY
- 2000 Edward D. Cohen, retired, DuPont Fellow
- 2002 Terrence D. Blake, Kodak Ltd., Harrow, Middlesex, UK
- 2004 Brian G. Higgins, University of California, Davis
- 2006 Peter M. Schweizer, Polytype Converting, Switzerland

L.E. Scriven Young Investigator Award

This award is given in recognition of outstanding sustained achievements or one-time breakthroughs in the area of continuous liquid film coating science and technology. Those nominated for this award must be 40 years old or younger. The award will be presented at the Symposium.

Sponsored by: International Society of Coating Science and Technology

Award: A plaque and \$500.

Past Recipients of the Young Investigator Award

- 1998 Cyrus Aidun, Institute of Paper Chemistry,
Georgia Institute of Technology-Atlanta
Dennis Coyle, General Electric Company, Niskayuna, NY
- 2000 Steven J. Weinstein, Eastman Kodak Co., Rochester, NY
- 2002 Andrew Clarke, Kodak Ltd., Harrow, Middlesex, UK
W. Blake Kolb, 3M, St. Paul, Minnesota
- 2004 Marcio D. Carvalho, Pontificia Universidade Catolica
do Rio de Janeiro, Brazil
- 2006 Richard A. Cairncross, Drexel University, Philadelphia, PA

Tabletop Exhibits

This Symposium is expected to attract 200-300 engineers and scientists from the world's leading manufacturers of coated products and academic programs in coating science. It is an ideal opportunity for companies to reach individuals who improve and scale-up new coating processes, new coated products and those who are likely to do so in the future.

Companies offering products or services that may be of interest to the attendees are encouraged to participate at this Symposium. In past Symposia exhibitors have included representatives from companies offering specialized mixers, dies, coating applicators and other coating and drying equipment; companies offering coating services (toll coaters); companies offering software that predict coating flows and film drying; and companies offering instrumentation useful in the coating and drying processes.

The Exhibit Hall will be open each day of the Symposium and will be located adjacent to the General Session meeting room, in the area where all scheduled breaks, as well as the Monday & Tuesday Night Reception, are held. The fee for exhibiting is \$995, which includes one registration fee. Your display will be a true tabletop exhibit in which all materials must fit safely on a 6 foot table.

For further information please contact:

Terry Gorka, The Tiara Group

Email: tgorka@thetiargroup.com

Phone: (805) 659-2298

Technical Sessions

Coating Application Processes

A hallmark of the ISCST meeting is this session on the engineering and science of coating application methods, either conventional or novel. Presentations cover topics of a fundamental, experimental, numerical or analytical nature that are related to liquid flows and rheology; defects and stability; air entrainment; wetting; continuous and discontinuous coating processes; and other application related issues.

Solidification and Microstructure Development

After the application process, coatings are solidified and coating microstructures are established. Possible subtopics in this session are drying, curing, coalescence (film formation), particle aggregation, phase separation, convective assembly and gelation. Presentations on both experimental and numerical/computational approaches are covered.

New Directions in Coating and Drying

With the help of members of academia, many companies are developing new coating processes for producing new types of coated products or discovering new materials to be coated for advanced applications. Both coating and drying processes are addressed here, with examples of applications in photovoltaics, LCD displays, and even glass; other papers focus on leading edge advances in computational methods; and one on the challenges of maintaining pristinely clean the surfaces of webs in the display and electronic printing industries. This session is intended to be a forum for: introducing and educating the ISCST community about these novel applications and identifying their challenges; and, expanding beyond the traditional coating applications frequently discussed at the ISCST Symposium.

Special Technical Sessions

Coating Challenges in the Display Industry

The display industry is a rapidly growing sector. As the demand for displays of larger surface area grows, manufacturers must work to reduce cost while maintaining the quality of their products. Part of the process techniques and methodologies are transferable from the liquid coating and drying industry to the display industry. This forum, which includes invited presentations from members of the display industry and academia, will offer opportunities for interactions between the coating and display communities.

Tribute to Prof. L.E. Scriven's Contribution to Coating Science

The late Professor L. E. ("Skip") Scriven's and his students' work has figured prominently at the ISCST symposia, ever since they were inaugurated twenty six years ago, then under the auspices of the American Institute of Chemical Engineers. While direct evidence is clear in presentations and publications by individuals in his recent and past research groups (including those from former colleagues in academia and industry), his influence is far broader in the engineering and science communities. This special session highlights some of these broader impacts with contributions from scientists and engineers, including many invited speakers.



Sunday**Networking Session**

4:00 PM The Networking session is a forum for people interested in showcasing areas of interest in which collaboration is actively being sought. This collaboration may take the form of direct industrial support, joint research proposals, internships, etc. As such, this session's presentations are intended to be far less formal and not expected to be as fully developed as presentations at the technical sessions. All attendees and speakers are invited.

MONDAY**Special Technical Session 1: COATING CHALLENGES IN THE DISPLAY INDUSTRY**

8:30 AM WELCOME

8:35 AM **COATING DEFECTS IN ROLL-TO-ROLL PRINTED ELECTRONICS**,
Eitan Zeira, Jeremiah Mwaura,
Konarka Technologies

9:00 AM **DRYING ISSUES AND PROCESS SCALE UP OF SOLVENT CASTED FILMS FOR FLAT PANEL DISPLAYS AND ORGANIC ELECTRONICS**,
Wilhelm Schabel, Philip Scharfer, M Müller, J Krenn, B Schmidt-Han,
Karlsruhe Inst. Tech.

9:25 AM **CONTINUOUS COATING OF DISCRETE AREAS OF A FLEXIBLE WEB BY A ROLL-TO-ROLL PROCESS**,
Terence Blake, Christopher Bower, Elizabeth Simister,
Kodak European Research

9:50 AM **DEVELOPMENT OF A HIGH-SPEED PATTERN-COATING TECHNOLOGY: "AIR-BUBBLE COATING"**,
I-Chun Lin, An-Bang Wang,
National Taiwan University

10:35 AM **TOTAL SIMULATION OF MESO-SCALE STRUCTURE FORMATION OF COATING PROCESS FOR COLLOIDAL SOLUTIONS**,
Yukio Yamaguchi, Masahiro Fujita,
The University of Tokyo

11:00 AM **SIMULATION OF CONCENTRATED COLLOIDAL NANOPARTICLES IN SIMPLE SHEAR BETWEEN PARALLEL FLAT PLATES**,
Masahiro Fujita, Osamu Koike, Yukio Yamaguchi,
The University of Tokyo

General Poster Session - 1:15 to 2:15 PM

RELATIONSHIP BETWEEN AGGREGATE STRUCTURES AND SETTLING FOR COLLOIDAL SILICA PARTICLES IN AQUEOUS ELECTROLYTE SOLUTION,

Keisuke Oku, Susumu Inasawa, Yukio Yamaguchi,
The University of Tokyo

SENSITIVITY ANALYSIS OF SLOT-COATING FLOWS,

Bo Kyung Ryu, Dong Mye Shin, Je Hoon Lee, Hyun Woo Jung, Jae Chun Hyun,
Korea University

DYNAMICS OF SINGLE POLYMER MOLECULE IN SLOT COATING FLOW,
Joo Sung Lee, Jeong Yo Lee, Hyun Woo Jung, Jae Chun Hyun,
Korea University

SIMULATION OF STRUCTURE FORMATION AND PHYSICAL PROPERTIES OF COLLOIDAL ROD-LIKE NANOPARTICLES IN DRYING,
Seiichi Ohta, Osamu Koike, Masahiro Fujita, Yukio Yamaguchi,
The University of Tokyo

SURFACE PROPERTIES OF THE SILICON STEEL COATED WITH METAL PHOSPHATE AND COLLOIDAL SILICA SOLUTION,

Min Soo Han, Jung Woo Kim, Min Serk Kwon, Jae Kwan Kim,
Technical Research Laboratories / POSCO

SURFACE PATTERNING VIA CONTINUOUS COATING OF COLLOIDAL SUSPENSIONS,

Benson Tsai, Wieslaw Suszynski, Marcio Carvalho, Satish Kumar,
University of Minnesota

MAPPING SLIDE COATING WINDOW VIA FLOW VISUALIZATION,

Kristian Tjiptowidjojo, Wieslaw Suszynski, Marcio Carvalho,
University of Minnesota

MID-GAP INVASION IN TWO-LAYER SLOT COATING,

Jaewook Nam, Marcio Carvalho,
University of Minnesota/PUC-Rio

RESIDUAL STRESS AND ADHESIVE FORCE OF NANOPARTICLE FILMS FABRICATED BY INKJET PRINTING,

Hiroaki Nakatsu, Susumu Inasawa, Masahiro Fujita, Yukio Yamaguchi,
The University of Tokyo

DEPTH PROFILING OF MULTICOMPONENT COATINGS TO TEST THEORIES FOR DIFFUSION,

Rajkumar Arya, Madhu Vinjamur,
Indian Institute of Technology Bombay

APPLICATION OF INJET PRINTING ON PREPARATION OF ALL POLYMER THIN FILM TRANSISTORS,

Zhaomiao Liu, Huamin Liu and Tan Zhang,
Beijing University of Technology

INFLUENCE OF LOCAL GAS PHASE MASS TRANSPORT COEFFICIENTS ON THE DRYING RATE OF POLYMER FILMS – A FUNDAMENTAL STUDY

Philip Scharfer, Ying Zhou, Joachim Krenn, Matthias Kind, Wilhelm Schabel
Universität Karlsruhe / Karlsruhe Institute of Technology

Technical Session 1 - COATING APPLICATION PROCESSES I

2:30 PM **DYNAMICS OF COATING FLOWS WITH CHEMICAL REACTION**,
Brian G. Higgins
University of California, Davis

2:50 PM **BOUNDARY INTEGRAL SIMULATIONS OF LIQUID EMPTYING FROM MODEL GRAVURE CELLS**,
Nazish Hoda, Satish Kumar,
University of Minnesota

3:10 PM **SIMULATION FOR COATING PROCESS APPLYING CFD PACKAGES ON THE MARKET**,
Yamasaki Masanori, Masaru Yasuhara,
Hitachi Maxell/Mitsubishi Paper Mills

3:50 PM **UNCOVERING SLIDE COATING WINDOW WITH THEORETICAL MODELING**,
Kristian Tjiptowidjojo, Marcio Carvalho,
University of Minnesota

4:10 PM **OPERABILITY LIMITS OF CURTAIN COATING PROCESS**,
Melisa Becerra, Marcio Carvalho,
PUC-Rio

4:30 PM **SLOT DIE COATING TECHNOLOGY**,
Mark Miller,
Extrusion Dies Industries, LLC

4:50 PM **MAINTAINING VERY THIN COATER GAP UNIFORMITY IN MULTI-LAYER APPLICATIONS SUCH AS FLAT PANEL DISPLAYS AND SOLAR PANELS**,
Bryan Manning, Robert L. Foster,
Capacitec, Inc.

Technical Session 2 - SOLIDIFICATION AND MICROSTRUCTURE DEVELOPMENT I

2:30 PM **STRESS DEVELOPMENT IN NANO-COMPOSITE SILICA COATINGS**,
Karan Jindal, L.F. Francis, A.V. McCormick,
University of Minnesota

2:50 PM **ENHANCED SOLVENT DRYING IN SURFACTANT POLYMER BLEND COATINGS**,
Masato Yamamura, Hirokazu Yoshihara,
Kyushu Institute of Technology

3:10 PM **OPTICAL TECHNOLOGY TO ANALYSE FILM-FORMATION OF COATINGS**,
Helene Dihang, Laurent Brunel, Yoann Lefevre,
Formulation

3:50 PM **PERIODIC POROUS STRIPE PATTERNING IN A POLYMER BLEND FILM INDUCED BY PHASE SEPARATION DURING SPIN-CASTING**,
Jae-kyung Kim, Kentaro Taki, Shinsuke Nagamine, Masato Yamamura,
Masahiro Ohshima,
Kyoto University/Kyushu Institute of Technology

4:10 PM **SURFACE STRUCTURES DURING THIN FILM-DRYING CAUSED BY MARANGONI CONVECTION**,
Joachim Krenn, Matthias Kind, Wilhelm Schabel,
Universität Karlsruhe

4:30 PM **EFFECT OF HUMIDITY ON COATING SURFACE DEFORMATION**,
Hiroaki Kobayashi, Lorraine Francis,
Nitto Denko Corp./Univ. of Minnesota

4:50 PM **LIQUID FLOW IN ASSEMBLY OF ORDERED COLLOIDAL CRYSTALS**,
Damien Brewer, Michael Tsapatsis,
University of Minnesota

TUESDAY

Technical Session 3 - NEW DIRECTIONS IN COATING AND DRYING

- 8:30 AM **TALE: AN ARBITRARY LAGRANGIAN-EULERIAN APPROACH TO FLUID-STRUCTURE INTERACTION PROBLEMS,**
P. Randall Schunk, Robert B. Secor,
Sandia National Laboratory/3M
- 8:50 AM **DYNAMICS OF DEWETTING AT THE NANOSCALE -- A LARGE SCALE MOLECULAR DYNAMICS STUDY,**
Emilie Bertrand, Terence Blake, Joel De Connick,
University of Mons-Hainaut
- 9:10 AM **ANALYSIS OF SPIN COATING FOR NON-IDEAL CONDITIONS,**
Leonard Schwartz,
University of Delaware
- 9:30 AM **COATING OF NARROW STRIPES,**
Ta-Jo Liu, Chi-Feng Lin, Yu-Chih Lin, David S. Wong, Shu-Heng Wen,
National Tsing Hua University/ITRI
- 9:50 AM **DIFFUSION OF NON-VOLATILE SPECIES DURING DRYING OF POLYMERIC COATINGS,**
Max Müller, Matthias Kind, Wilhelm Schabel,
Karlsruhe Institute of Technology
- 10:30 AM **PHASE SEPARATION DURING THE DRYING PROCESS OF THE PHOTOACTIVE LAYER IN POLYMER SOLAR CELLS,**
Benjamin Schmidt-Hansber, Matthias Kind, Wilhelm Schabel,
Universität Karlsruhe
- 10:50 AM **STRENGTHENING GLASS BY POLYMERIC COATINGS,**
Mei Wen, Stephen Carson,
Arkema Inc.
- 11:10 AM **ADVANCES IN CONTACT CLEANING FOR FLAT PANEL DISPLAY MATERIALS,**
Sheila Hamilton,
Teknek Limited

General Poster Session (Continued) - 1:15 to 2:15 PM

- MAINTAINING VERY THIN COATER GAP UNIFORMITY IN MULTI-LAYER APPLICATIONS SUCH AS FLAT PANEL DISPLAYS AND SOLAR PANELS,**
Bryan Manning, Robert L. Foster,
Capacitec, Inc.
- ADVANCES IN CONTACT CLEANING FOR FLAT PANEL DISPLAY MATERIALS,**
Sheila Hamilton,
Teknek Limited

Technical Session 4 - COATING APPLICATION PROCESSES II

- 2:30 PM **EXTENSIONAL DEFORMATION OF LIQUID BRIDGES NEAR GRAVURE CELLS,**
Shawn Dodds, Satish Kumar,
University of Minnesota
- 2:50 PM **THE INTERLAYER STABILITY IN TWO-LAYER SLOT COATING FLOWS,**
Jaewook Nam, Marcio Carvalho,
University of Minnesota/PUC-Rio
- 3:10 PM **ANALYSIS OF PERIODICAL THICKNESS VARIATION ON SLOT COATING,**
Eduardo Perez, Marcio Carvalho,
PUC-Ri
- 3:50 PM **PHOSPHATE MONOMERS AND SURFACTANTS, THE APPLICATIONS IN EMULSION POLYMERIZATION AND COATINGS FORMULATION,**
Zhengang Zong, Fabio Trezzi, Yizhong Li, Jose Ruiz, Jack Cui,
Rhodia
- 4:10 PM **SPREADING OF LIQUID STREAMS FED THROUGH FEED PORTS FLOWING DOWN AN INCLINED PLANE,**
Danmer Maza, Satish Kumar, Marcio Carvalho,
University of Minnesota/PUC-Rio
- 4:30 PM **INSTABILITY OF CONFINED THIN LIQUID FILM TRILAYERS WITH APPLICATION TO LITHOGRAPHIC PRINTING,**
Richard Lenz, Satish Kumar,
University of Minnesota
- 4:50 PM **DENSITY-DRIVEN PENCIL-LINE STREAKS IN SLIDE FLOWS,**
F.M. Joos, K.C. Ng, W.D. Devine,
Eastman Kodak Company

Technical Session 5 - SOLIDIFICATION AND MICROSTRUCTURE DEVELOPMENT II

- 2:30 PM **PROCESS WINDOWS FOR PATTERNED PARTICULATE COATINGS,**
Timothy Reynolds, L.F. Francis,
University of Minnesota
- 2:50 PM **STRUCTURED NANOPARTICLE ARRAYS: COATINGS BY CONTINUOUS CONVECTIVE ASSEMBLY WITH CONTROLLED EVAPORATION,**
J. Alex Lee, Michael Tsapatsis,
University of Minnesota
- 3:10 PM **CONTROL OF PARTICLE MICROSTRUCTURE IN THE COATING PROCESS,**
Hiroshi Yoshida,
Dai Nippon Printing Co., Ltd
- 3:50 PM **ADVANCED RADIACHROMIC RADIOMETRY FOR UV CURING PROCESS DESIGN AND PROCESS CONTROL,**
R. W. Stowe,
Fusion UV Systems, Inc.
- 4:10 PM **PRACTICAL CONSIDERATIONS OF REPLACING APE CONTAINING SURFACTANTS WITH APE FREE ALTERNATIVES,**
Celine Betton-Perez, Yizhong Li, Jose Ruiz, Jack Cui,
Rhodia
- 4:30 PM **MODELING VISCOELASTICITY AND STRESS GENERATION IN SOLIDIFYING COATINGS,**
Daniel O'Neal, A.V. McCormick,
University of Minnesota
- 4:50 PM **DRYING AND COLLAPSE OF HOLLOW LATEX,**
Christine Cardinal, L.F. Francis, L. E. Scriven,
University of Minnesota

WEDNESDAY

- 8:30 AM **Special Technical Session 2 - TRIBUTE TO PROF. L.E. SCRIVEN'S CONTRIBUTION TO COATING SCIENCE**
- 8:35 AM **EVAPORATION INDUCED SELF-ASSEMBLY DURING THIN FILM COATING,**
C. Jeffrey Brinker,
Sandia National Laboratory
- 9:00 AM **L.E. SCRIVEN'S CONTRIBUTION TO THE COATINGS INDUSTRY: A BASF PERSPECTIVE,**
Jacob Wildeson, Koichi Takamura, Cheng-Le Zhao, Xiaobo Gong, H. Ted Davis,
BASF/University of Minnesota
- 9:25 AM **ANISOTROPIC PARTICLES AT FLUID INTERFACES: RULES FOR ORIENTED AGGREGATION BY CAPILLARY INTERACTIONS,**
Kathleen Stebe, Eric Lewandowski, Jorge Bernate, Peter Searson,
Johns Hopkins University
- 9:50 AM **LOCATING THE STATIC CONTACT ANGLE IN A TRANSITION REGION,**
Elena Diaz, Javier Fuentes, Michael Savage, Ramon L. Cerro,
University of Alabama in Huntsville
- 10:35 AM **ADVANCES IN THE STUDY OF DYNAMIC WETTING IN COATING FLOWS -- EXPERIMENTS WITH AIR AND OTHER GASES UNDER REDUCED PRESSURES,**
Hadj Benkreira, Bruce Ikin, Raj Patel,
University of Bradford
- 11:00 AM **MODELING LIQUID COATING FLOWS - RECENT PROGRESS AND MANY CHALLENGES,**
Andrew Hrymak,
McMaster University

About the 13th International Coating Science & Technology Symposium

The 13th International Coating Science and Technology Symposium was held at the Grand Hyatt in Denver, Colorado, September 10-13, 2006.

The Symposium was attended by 239 coating engineers and researchers from academia and industry. Both Europe and Asia were represented in significant numbers.

Some comments from participants ...

"Great opportunity to network. I met some great new contacts."

"The variety of presentations was excellent. A lot of good down-to-earth presentations."

"The exhibit session was especially valuable. Keep encouraging companies to exhibit."

"What I learned from this symposium will be a great asset to my company."

"I appreciated learning new technology, the opportunity to connect with potential solutions, and the opportunity to network with technology leaders and colleagues."

"I saw a snapshot of what coating practitioners and coating-oriented academics are interested in, which was my goal in attending."

"Learning the latest in my field of research was very valuable."

Go to www.iscst.org for up to date information

Message from the Symposium Chair

It is important that Symposium attendees make every effort to stay at the Marriot Marina del Rey, in order for the ISCST meet its commitment to the hotel. This facility was selected in part to provide the convenient informal networking environment that our Symposium participants have been asking for and the Marriot has offered the ISCST a special rate. Thank you.

– F. Miguel Joos, Symposium Chair

Symposium Registration

If you prefer not to register online at www.iscst.org, please complete and mail or fax to us the Registration Form below. Provide credit card information or enclose a check payable in the appropriate amount to The Tiara Group. You may also call Mr. Terry Gorka at 805-659-2298 to register over the phone.

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Important updated information is sent out by e-mail. If you have not received this information, please send your e-mail address to tgorka@thetiargroup.com.

Please place ISCST in the subject field.

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Registration (postmarked after August 10) \$695

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I do not plan to attend the opening reception on Sunday, Sept. 7

I would like vegetarian lunches.

Please do not include me on the registrant list for this Symposium for distribution to participants.

Cancellations: There is no charge for cancellations received in writing prior to August 7, 2008. After that date, no refunds will be given, but Symposium proceedings will be provided. If you cannot attend, you are welcome to send a replacement at no additional charge.

Location Information & Reservations

ISCST 2008 will be held at the Marriott Hotel, located in Marina del Rey, California.

To make a reservation go to <http://marriott.com/laxmb?groupCode=iscisca&app=resvlink>. You will be directed to the property's home page with the code already entered in the appropriate field. All you need to do is enter your arrival date to begin the reservation process. You may also call the Marriott Marina del Rey at 1-310/301-3000. Be sure to identify yourself as an attendee of the ISCST Symposium to receive the special rate of \$164, single and double occupancy, \$184, triple occupancy and \$204, quadruple occupancy, per night, plus tax. Reservations should be made by August 7, 2008 to receive this special rate. After this date reservations will be accepted on a space and rate available basis. You can reserve a room with a credit card or check (in U.S. dollars). A first night deposit is required at the time

of reservation. Room reservations cancelled later than 6:00pm, day of arrival will be charged one night's fee.

For more information about the Marriott Marina del Rey go to <http://www.marriott.com/hotels/travel/laxmb-marina-del-rey-marriott>

For Information Contact:

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