

13TH TAPPI ADVANCED COATING FUNDAMENTALS SYMPOSIUM

**Commons Hotel - University of Minnesota
Minneapolis, MN • October 7-9, 2014**

PAPER AND BOARD COATING: *NOT JUST FOR PRINTING*

The program will include presentations covering:

- Drying of Paper Coatings
- Modelling
- New and Emerging Coating Products
- Coating Structure
- Barrier Coating Technologies
- Coating Rheology
- Analytical Techniques
- Poster Session



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13TH TAPPI ADVANCED COATING FUNDAMENTALS SYMPOSIUM

MINNEAPOLIS, MN • OCTOBER 7-9, 2014

The 13th TAPPI Advanced Coating Fundamentals Symposium is a presentation and networking forum for paper coating professionals to share their research findings or leading edge developments relating to paper surface treatment, converting and printing operations with the world's experts.

WHY ATTEND?

For over twenty years, the TAPPI Advanced Coating Fundamentals Symposium (ACFS) has been the preeminent forum to present and discuss leading edge, fundamental research in paper coating, surface properties, converting and printing operations. Participants include the world's leading experts including suppliers, university researchers, paper manufacturers, product development and technical service professionals and printing and graphic arts specialists.

SYMPOSIUM LEADERSHIP

Alonzo K. Osgood

Program Co-Chair
Sappi NA

Shri Ramaswamy

Program Co-Chair
University of Minnesota



CONFERENCE TECHNICAL PROGRAM COMMITTEE:

Doug Bousfield

University of Maine

Gregg Reed

Imerys

Christina Dahlstrom

Mid Sweden University, Sweden

John Roper

DOW Chemical

Lars M. Jarnstrom

Karlstad University

Joachim Schoelkopf

OMYA Development AG

Anthony V. Lyons

Imerys

Martti Toivakka

Abo Akademi University,
Finland

Jim Niemiec

NewPage



KEYNOTE PRESENTATION:

“COMMERCIALIZATION OF INNOVATION AT 3M”

TONY CLINCH

TECHNICAL DIRECTOR

3M



Tony Clinch has been the Technical Director of 3M's Abrasive Systems Division since 2014. He has an M.S. in Chemical Engineering from the University of Wisconsin-Madison and B.S. in Chemical Engineering from Montana State University. He started his 31 year career at 3M working on novel processes to make fluoropolymers, polyolefins and reactive graft blends. This led to four patents and to his recognition as Minnesota's Young Chemical Engineer of the Year in 1995. Clinch later managed a technical team in 3M's Industrial Adhesives and Tapes Division that developed new masking tapes with a patented, solvent-less process. He is a certified Six Sigma black-belt. He joined Office Supplies Division (now SOSD) in 2006, and helped champion numerous new products and environmental efforts including the launch in 2010 of Post-it® Greener Notes which use an adhesive that is made from plant based materials. In 2011, Tony joined Corporate Research Process Laboratory which focuses on innovations in processes including coating, extrusion, nonwovens, and vapor deposition.

TOUR OF MOCON FACILITIES

(Separate registration and \$20 fee required; limit 50 guests)

Join your fellow delegates Thursday, October 9 for a tour of MOCON, the premier provider and innovator of solutions for measuring the permeation of gases and water vapor through barriers and films, determining package performance and integrity, shelf-life, package improvement, cost reduction, sustainability, and product safety. MOCON provides instruments, services, consulting and laboratories worldwide.

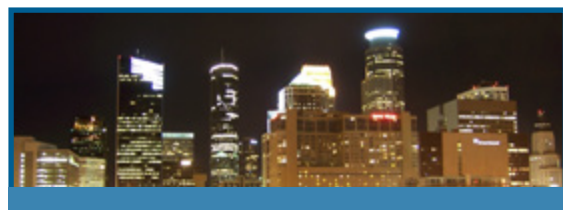


ADVANCED COATING FUNDAMENTALS DINNER

Tuesday October 7 at the Commons Hotel

Reception at 6:30 • Dinner at 7:30

Enjoy a memorable evening with your coating colleagues featuring live music from University of Minnesota students.



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SYMPOSIUM PROGRAM

Tuesday, October 7th *(Tentative. Subject to change.)*

**Sponsorship Opportunities
are available.**

Visit www.tappi.org/14acfs
for details.

7:00 am - 8:00 am Breakfast

8:00 am- 9:30 am..... S1 Keynote Presentation

Session Chair: Al Osgood, SAPPI

Commercialization of Innovation at 3M

Tony Clinch, Technical Director Abrasive Systems Division, 3M

9:30 am - 10:00 am Break

10:00 am - 11:30 am S2 Drying of Paper Coatings

Session Chair: Tony Lyons, Imerys

Binder Migration in Paper Coatings- a Review

Xuejun Zou, FPIInnovations

Measurement of Coating Layer Bending Modulus and Application to Overall Coated Product Stiffness

Tony Lyons, Imerys

CryoSEM of Coating Microstructure Development During Drying

Lorraine F. Francis, University of Minnesota

11:30 am - 12:50 pm Lunch

1:00 pm - 3:00 pm S3- Modeling

Session Chair: Doug Bousfield, University of Maine

Modelling Spontaneous Imbibition in Porous Media Using a Fractal Pore Wall Rugosity

Patrick Gane, OMYA

Micro and Nano Scale 3D Structure of Biomaterials and their Relationship to Material Properties

Shri Ramaswamy, University of Minnesota

A Novel Coating Binder Technology on Ultra Fine Particle Size Technology has been Developed

Bob Hardy & Chris Lewis, Kemira

Fluid Structure Interaction Model to Predict z-directional Tack Test on Tensioned Web

Harrison Gates, University of Maine Paper Surface Science Program

3:30 pm - 4:30 pm..... Tours of the University of Minnesota Characterization Lab Facilities

6:30 pm -7:30 pm ACFS Reception

Music provided by jazz ensemble from University of Minnesota

7:30 ACFS Dinner

New Printing Technologies & Trends

Jim Niemiec, NewPage

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Wednesday, October 8th

7:00 am - 8:00 am Breakfast

8:00 am - 10:00 am **S5 New Coated Products**

Session Chair: Joachim Schoelkopf, OMYA

Abrasion and Compression Resistance of Liquid Flame Spray Deposited Functional Nanoparticle Coatings on Paper

Martti Toivakka, Abo Akademi University

Coating Uniformity and its Effect on Supercapacitor Capacitance

Britta Andres, Mid Sweden University

The Challenge of Coating Cracking on Multicoated Substrates designed for Digital Printing: Developing Novel Interlayer Construction Strategy

Catherine Ridgway, OMYA International

Fabrication of Paper Based Microfluidics Channels by UV Irradiation

Joel Songok, Abo Akademi University

10:00 am - 10:30 am **BREAK**

10:30 am - 12:00 pm **S6 Coating Structure**

Session Chair: John Roper, Dow Chemical

Rheology & Microstructure of Coatings

John Roper, Dow Chemical

A New Paradigm for Coating Pigment Blend Color Calculation and Coated Paper Color Prediction

Dan Ma, Kamin

Mechanical Properties of Pigmented Coating Composites Containing Starch

Zhengjun Zhu, Pekka Salminen, Martti Toivakka, South China University, Styron, & Abo Akademi University

12:00 pm - 12:50 pm **Lunch**

1:00 pm - 3:00 pm **S7 - Barrier Coating Technologies**

Session Chair: Al Osgood, SAPPI

Cross Linked Starch Films for Barrier Coatings

Lars Jarnstrom, Karlstad University

Water Repellent Paper Coating from Silylated Soybean Oil

Chetan Tambe, Michigan State University

The Route from Science to Industrial Application: Experiences in Upscaling Coating and Printing Trials

Behudin Beko Mesic, Scion, New Zealand Forest Research Institute

Understanding the Barrier Performance of a Protein Based System

Doug Bousfield, University of Maine

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3:00 pm - 4:30 pm

Poster Session

Session Chair: Shri Ramaswamy, University of Minnesota

Posters will be a collection of work done and presented by students, professors and companies

4:30 pm - 5:30 pm Coating Fundamentals CIG meeting

Thursday, October 9

7:00 am - 8:00 am Breakfast

8:00 am - 10:00 am **S9 Coating Rheology**

Session Chair: Martti Toivakka, Abo Akademi University

On the Mechanism of Dynamic Wetting Failure and Air Entrainment in Coating Flows

Satish Kumar, University of Minnesota

Rheology and Spreading of Coatings

John Roper, Dow Chemical

The Effect of Electrostatic Charge on the Leveling of Liquid Coatings

Aruna Ramkrishnan, University of Minnesota

Rheology and Slot Die Coating Technology

Mark Miller, Coating Tech Slot Dies

10:00 am - 10:30 am Break

10:30 am - 11:30 am **S10 Analytical Techniques**

Session Chair: Christina Dahlstrom, Mid Sweden University

Serial Sectioning of Fluorescent Coating Layers as a Tool to Analyze Binder Penetration"

Karin Hofer, Institute of Paper, Pulp and Fiber Technology, TU Graz

Dynamic Binder Migration Characterized by IR Measurement

Ritwik Chattopadhyay, University of Maine Paper Surface Science Program

12:30 pm Tour of MOCON facilities



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REGISTRATION

ACFS Registration Fees

| | Before Sept. 25, 2014 | After Sept. 25th & Onsite |
|------------------------------------|-----------------------|---------------------------|
| Member* | \$970 | \$1070 |
| Non-Member | \$1160 | \$1260 |
| Join/Renew & Save | \$1144 | \$1244 |
| Multi Group Discount 3+ Member* | \$730 | \$830 |
| Multi Group Discount 3+ Non-Member | \$860 | \$960 |
| Join/Renew & Save Multi Group 3+ | \$904 | \$1004 |
| Single Day Member* | \$535 | \$635 |
| Single Day Non-Member | \$710 | \$810 |
| Single Day Join/Renew & Save | \$709 | \$809 |
| Speaker Full Symposium | \$550 | \$650 |
| Student Member* | \$95 | \$115 |
| Student Non-Member | \$140 | \$160 |
| Student Join/Renew & Save | \$130 | \$150 |
| Retired Member* | \$550 | \$650 |
| MOCON Facility Tour | \$20 | \$20 |

All Fees are in US Dollars.

** Member rates apply for members in good standing of TAPPI, Japan TAPPI, or ISCST.*

CANCELLATION POLICY:

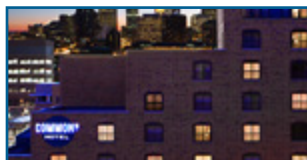
If you find that you have to cancel, your full registration fee will be refunded if TAPPI's Registration Department receives written notification (fax acceptable at +1.770.446.6947 by September 5, 2014. Please note: There will be a 50% refund for all written cancellations made after September 5, 2014 but no later than 5 business days prior to the start of the conference, October 2, 2014. Understandably, after this time, no refunds can be issued. Substitutions, however, will be accepted at any time without a penalty.

REFUND:

100% - Cancellation received by September 5, 2014

50% - Cancellations received after September 5, 2014 and no later than October 2, 2014.

NO REFUND - Cancellations received after October 2, 2014.



HOTEL INFORMATION

The Commons Hotel

615 Washington Avenue, Minneapolis, MN 55414

<http://www.commonshotel.com/>

Be sure to identify yourself as an attendee of the TAPPI Advanced Coating Symposium to receive the special rate of \$150, single and double occupancy, per night, plus tax. Reservations should be made by September 13, 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 prior to 72 hours before arrival will receive a full refund of first nights deposit. No-shows will be charged the first night room deposit.