

13TH TAPPI ADVANCED COATING FUNDAMENTALS SYMPOSIUM

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

Symposium Program

(subject to change)

Tuesday October 7th

7:00 - 8:00 **Breakfast**

8:00 - 9:30 **S1 Keynote Presentation**

Session Chair: **Al Osgood**, *SAPPI*

"Commercialization of Innovation at 3M"

Tony Clinch, *Technical Director Abrasive Systems Division, 3M*

9:30 - 10:00 **Break**

10:00 - 11:30 **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 - 12:50 **Lunch**

1:00 - 3:00 **S3- Modelling**

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 - 5:30 **Laboratory Tours of the University of Minnesota Characterization Facilities**

6:30-7:30 **ACFS Reception**

Featuring a live University of Minnesota Student jazz ensemble

7:30 **ACFS Dinner**

"New Printing Technology & Trends"

Jim Niemiec, *NewPage*

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Wednesday October 8th

- 7:00 - 8:00** **Breakfast**
- 8:00 - 10:00** **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"
Christina Dahlstrom, 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 - 10:30** **Break**
- 10:30 - 12:00** **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- 12:50** **Lunch**
- 1:00 - 3:00** **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
- 3:00 - 4:30** **Poster Session**
Session Chair: **Shri Ramaswamy**, University of Minnesota
Posters will be a collection of work done and presented by students, professors and companies
- 4:30-5:30** Coating Fundamentals CIG Meeting

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Thursday, October 9

7:00 - 08:00 **Breakfast**

8:00 -10:00 **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 - 10:30 **Break**

10:30 - 11:30 **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 **Tour of MoCon facilities**

Meet in the Lobby