Designed for research and development professionals, chemists, and technical service managers from pulp and paper companies and chemical suppliers

- Discover new advances in paper/ink interactions
- Hear the latest on coating fundamentals and potentially new technologies
- Meet and interact with coating experts from around the world

Key Topics:
- Recent progress and future opportunities for using modeling and numerical simulations
- Newest tools to increase understanding of coating structure and chemistry
- Novel surface treatment processes and related raw materials
- Organic starch based pigments

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Symposium Overview

The 10th Advanced Coating Fundamentals Symposium serves as a presentation forum for knowledgeable coating professionals to volunteer and present their findings with other colleagues about coating fundamentals or leading edge developments relating to paper surface treatment, converting and printing operations.

The Symposium includes presentations around the following topics:

- Barrier and bioactive coatings
- Structured coatings for printing electronics
- Fundamentals of coating, calendering, converting and printing processes
- Role of fluid dynamics and rheology in coating, converting and printing operations
- Chemistry and interactions of coating components
- Surface characterization of coating/ink structures
- Fundamentals of paper/coating and coating/ink interactions
- Mathematical and computational modeling methods

Symposium Leadership

Coating Fundamentals CIG Chair
(Common Interest Group)
Dr. John Kettle, Oy Keskuslaboratorio

Conference Co-Chairs
David Vidal, FPInnovations (Paprican)
Dr. Patrice Mangin, Centre Intégré en Pâtes et Papiers (Pulp and Paper Integrated Centre)

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The Paper Technology Specialists
Welcome Reception

Come join us for a night of elegance and great culinary delights in TOUR de VILLE, downtown Montreal’s only revolving rooftop restaurant-perched high atop the Delta Centre-Ville. Witness a breathtaking 360-degree panoramic view of this fabulous city. See its beauty and feel its energy. Then savor the specialty creations created especially by Chef Hervé Dumont for this special “Signature Night” event. It will be an evening to remember.

Cocktails will be 6:00–7:00 PM on June 11 in the La Terrasse Atrium and dinner begins at 7:00 PM. Join us and be part of the scene!

Keynote Speaker, Dr. Robert Pelton
Wednesday June 11, 2008, 8:30 – 9:30 am

Robert Pelton is a Professor of Chemical Engineering at McMaster University and holds the Canada Research Chair in Interfacial Technologies. He is the Founding Director of the McMaster Centre for Pulp and Paper Research. Pelton is also the Scientific Director of SENTINEL – The Bioactive Paper Network, a newly formed Canadian research network involving 10 Universities, 24 academics and 9 industrial partners. Pelton leads a large research group investigating the impact of polymers and biopolymers on the properties of paper. He received his Ph.D. from Bristol University in Colloid Science and has industrial experience at Uniroyal, Paprican and Union Carbide.

Pelton has published more than 200 peer reviewed papers and is particularly well known for inventing poly(N-isopropylacrylamide) temperature sensitive microgels as well as for the pioneering work on PEO as a retention aid. More recently his research has focused on the adhesion of wet cellulose to a variety of materials, including biomacromolecules.

Register Early and Save

Members of TAPPI, PAPTAC, PIMA, or PTS can register for just US $895 each before 14 May 2008. Non-members can register for US $1,345 or simply add $174 for TAPPI membership dues and earn the TAPPI member rate. To register, complete the enclosed form or call TAPPI’s member connection at 1-800-332-8686 (US), 1-800-446-9431 (Canada), or 770-446-1400. Online registration is available at www.tappi.org/08adgctg.

Conference Venue: Delta Centre-Ville

Based on feedback from the successful 2006 Symposium, event planners have located the session rooms in the host hotel to expedite attendance by registrants. Delta Centre-Ville is located in the heart of downtown, where Old Montreal and new Montreal blend seamlessly. Adjacent to vibrant nightlife, boutique shops and eclectic cuisine, Montreal’s famous joie de vivre can be found only steps away from the Delta’s central location.

Special room rates have been arranged at the hotel. Details follow:
CAD $175.00 per night plus taxes (about CAD $28.88 per night) until 14 May 2008

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Contact summary: call TAPPI at 1-800-332-8686 (US), 1-800-446-9431 (Canada), or 770-446-1400.
Wednesday June 11, 2008

8:30 - 9:30 AM
Session 1 - Keynote Address
Robert Pelton, McMaster University and Director of SENTINEL – The Bioactive Paper Network

10:00 - NOON
Session 2 - Poster Session
Session Chair: David Vida, FPInnovations - Paprican

Latest findings on the correlation of paper properties and printability
John Du, BYK USA

Effects of atmospheric plasma treatment on surface properties and digital print quality of extrusion coated packaging materials
Johanna Lahti, Tampere University of Technology

Effects of atmospheric plasma treatment and its suitability for industrial process
Mikko Tuominen, Tampere University of Technology

Effect of pre-coat and substrate porosity on conventional barrier coatings performance
Friedrich Kendel, Australian Pulp and Paper Institute

Numerical modeling of optical coatings using coupled dipole approximation
Sergey Sukhov, University of Central Florida

How latex distribution is affected by changes in coating structure – results from a pilot study
Eija Kenttä, KCL

An extension of Lepoutre mechanism for the consolidation of the structure of latex-pigment coatings
Hua Zang, Tianjin University of Science & Technology, China

Quantitative method for determining blocking of coated paperboard
Patrice C. Hartmann, University of Stellenbosch, South Africa

Relation between surface energy, topography, wettability and detailed surface chemistry by spectroscopy for coated printing papers
Rauni Seppänen, YKI

3:30 - 5:00 PM
Session 4 - Coating Structure & Uniformity Fundamentals
Session Chair: Tony Lyons, IMERYS Pigments To Paper Business Group

Comparison of Young-Laplace pore size and microscopic void area distributions in topologically similar structures: a new method for characterising connectivity in pigmented coatings
Patrick A.C. Gane, Omya Development AG

Base sheet structures that control coating uniformity: effects of length scale
Christina Dahlström, Mid Sweden University

Moisture pickup in calcium carbonate coating structures: role of surface and pores structure geometry
Cathy Ridgway, Omya

Effects of the partial replacement of SB latex with dextrin starch on the thickness distribution of coating layers
Micael Ragnarsson, Karlstad University

Thursday, June 12, 2008

8:00 - 10:00 AM
Session 5 - Inkjet Printing Fundamentals
Session Chair: John Kettle, KCL, Oy Keskuslaboratorio

Fundamental considerations in developing high-performance inkjet receptive coatings
Wei Li, Nekoosa Coated Products

The use of silica pigments in coated media for inkjet printing: Effects of absorption and porosity on printing performance and depth-profiling using confocal Raman spectroscopy
Agne Swerin, YKI

Short-time water absorption by model coatings
Goran Ström, STFI-Packforsk

1:30 - 3:00 PM
Session 3 - Offset Printing Fundamentals
Session Chair: Patrice Mangin, Centre Intégré en Pâtes et Papiers

10:00 AM - 12:00 PM
Session 6 - Strength and Mechanical Properties of Coatings
Session Chair: Doug Bousfield, University of Maine
Thursday, June 12, 2008

Mechanistic insights into the weakening effect of water and oils on latex-bound coatings during printing
John Husband, IMERYS

Characterization of ink adhesion failure; effect of predampening of carbonate containing coatings
Hajer Kamel, STFI-Packforsk AB

A theoretical approach to understanding microstructure-tensile modulus relations in paper coatings
Parvez Alam, Åbo Akademi University

Preparation and investigation of unsupported multilayer coating composites concerning their in-plane stress-strain and bending characteristics
Markus Wildberger, Sappi Fine Paper Europe

1:30 - 3:00 PM
Session 7 - Modeling of Coating Consolidation & Compression
Session Chair: Martti Toivakka, Åbo Akademi University

Prediction of coating structure change during calendering
Deqiang Ma, Huber Engineered Materials

Modeling the compression of particle packings using the discrete element method
Grégoire Pianet, École Polytechnique de Montréal

Small particle migration mechanisms in consolidating coating layers
Anders Sand, Åbo Akademi University

3:30 - 5:30 PM
Session 8 - Impact of Coating Structure on Physical & End-use Properties
Session Chair: Tony Hiorns, IMERYS Minerals Ltd.

Measurement and modeling of heat transfer in paper coating structures
Philip Gerstner, Helsinki University of Technology

Effect of particle size distribution and packing compression on fluid permeability: a comparison of experiments and lattice-boltzmann simulations
David Vidal, FPInnovations - Paprican & Ecole Polytechnique de Montréal

Developing optical efficiency through optimised coating structure
Benny Hallam, IMERYS Minerals Ltd.

Characterization of spatial coating layer formation - definition of a representative sample size.
Johannes Kritzinger, Institute for Paper, Pulp and Fiber Technology

Friday, June 13, 2008

8:00 - 9:30 AM
Session 9 - Coating Flow and Rheology
Session Chair: Al Osgood, Sappi

Models for the rheology of clay-GCC coating colors
Saeid Savarmand, FPInnovations-Paprican

Critical bubble size for curtain disruption
Yingfeng Shen, KCL Science and Consulting

Prediction of blade forces with viscoelastic coatings
Tamijiro Kaneyuki, Nippon Paper Industries

10:00 AM - 12:00 PM
Session 10 - New Techniques & Materials
Session Chair: Reinhard Sandl, PTS, Papiertechnische Stiftung

Determination of particle shape distribution of clay using an automated AFM image analysis method
Véronique Gélinas, FPInnovations - Paprican

Characterization of coating pigments comparing acoustics spectroscopy with dynamic laser scattering and sedimentation techniques.
A.S. Dukhin, Dispersion Technology Inc.

Short time coating dewatering: a novel test method and model
Teppo Sahlberg, University of Maine

Latex dispersions as carriers for glucose oxidase oxygen scavenging systems
A. Nestorson, Swedish Institute for Food and Biotechnology

12:30 - 6:30 PM, Coating Research Tour
Session 11 - See inset above.
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Optional visit to Pilot Coating Facilities in Trois-Rivières (12:00-6:30pm, Fri., June 13) 65 65

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