

Monday September 4

09:00 START

Welcome from the Chair

Keynote Address

Supramolecular engineering strategies of biomaterials
*Professor Alvaro Mata, Director of the Institute of Bioengineering,
Queen Mary University of London*

Session 1: Paper mechanics

Experimental and numerical verification of 3D forming
*A. Hagman, B. Timmermann, M. Nygård, C. Barbier, M. Fredlund,
and S. Östlund.*

Enhanced test devices for the development of novel paper-like
materials for sandwich-structures
A. Bugiel, F. Hähnel, J. Strauss and T. Kuntzsch.

10:45 – 11:15 COFFEE

Prediction of curling behaviour
A.-L. Erkkilä, T. Leppänen, J. Sorvari and T. Tuovinen.

Review: Creasing and folding
D. Coffin and M. Nygård

12:30 – 13:45 LUNCH

Session 2: Preparation of pulp for papermaking

Development of cellulose nanofibre quality with mechanical energy:
effect of starting chemical composition
*T. Gunawardhana, P. Raj, S. Varanasi, G. Garnier, A. Patti, W.
Batchelor.*

Flow Rheology of Fibre-Laden Aqueous Foams
A. Jäsberg, A. Koponen, and P. Selenius.

15:00 – 15:30 COFFEE

Refining impulse controls the morphological modifications of fibers
J.-C. Roux, J.-F. Bloch and K. Olejnik

A new representation for low consistency refining data
W. Batchelor, A. Elahimehr, M. Martinez and J. Olson

Fractionation of Pulp in a Hydrodynamic Fractionation Device:
Influence of Reynolds Number and Accept Flow Rate
J. D. Redlinger-Pohn, J. König, W. Bauer and S. Radl

17:30 CLOSE

Tuesday September 5

09:30 START

Session 3: Manufacture and process

The effect of microfibrillated cellulose on the strength and light scattering of highly filled papers

J. Phipps, T. Larson, D. Ingle and H. Eaton

Experimental study of filtration of fiber suspensions

G. Bellani, F. Lundell, L. D. Söderberg

10:30 – 11:00 COFFEE

Characterization of fiber and fines quality and their independent effect on sheet properties

M. Mayr, A. Thaller, R. Eckhart and W. Bauer

The effect of press nip geometry on dryness, density and paper properties

P. Krochak and C. Östlund

12:15 – 13:45 LUNCH

How to make paper suitable for sheet forming processes?

M. Zahel, S. Möckel and T. Arndt

Control of porous structure of fibrous material in a continuous process

C. Mair

15:00 – 15:30 COFFEE

Simulation of the sloshing of condensate water inside a drying cylinder using the particle finite element method

T. Tuovinen, P. Becker and J. Jeronen

Quantitative studies of ambient gases in pulp and paper mills and their degradations with photo-catalytic oxidation technology

X. Tong, W. Shen and X. Chen

Prediction of mineral deposits in kraft pulp bleaching lines through chemical process simulation

P. Huber, S. Nivelon, P. Ottenio, M. Schelcher and A. Burnet

17:15 **FUNDAMENTAL RESEARCH COMMUNICATIONS**
POSTER SESSION

Wednesday September 6

09:00 START

Session 4: Paper structure

Focused ion beam tomography as a means for characterization of CNF in a paper matrix

V. Ottesen, E. Roede, K. Syverud and Ø. W. Gregersen

4D imaging of softwood paper using X-ray synchrotron tomography: a novel tool to study deformation and failure mechanisms in NBSK

F. Golkhosh, Y. Sharma, D. M. Martinez, W. Tsai, L. Courtois, D. Eastwood, P. D. Lee, and A. B. Phillion

A micro-mechanical modelling study of drying restraint effects on the hygro-mechanics of paper sheets

E. Bosco, R. Peerlings and M. Geers

10:45 – 11:15 COFFEE

Computational design of fibre network by discrete element method

S. Hossain, P. Bergström, S. Sarangi and T. Uesaka

Linking paper structure to damage distribution and fracture initiation

J. Lahti, M. Dauer, D. S. Keller and U. Hirn

The effect of geometry changes on the mechanical stiffness of fiber-fiber bonds

A. Brandberg and A. Kulachenko

13:15 – 14:30 LUNCH

SOCIAL PROGRAMME

Thursday September 7

09:00 START

Session 5: Functional properties

Review: Forming of advanced structures in paper – three-dimensional deformation and damage mechanism

S. Östlund

Silver nanowires: a versatile tool for conductive paper

C. Czibula, C. Ganser, M. Kratzer, C. Teichert, R. Schennach, M. Penn, M. Ebner, M. Pramstrahler, F. Pilat, T. Chien and B. Friedel

Paper-based electronics and sensors fabricated by using printing technology

T. Enomae

10:45 – 11:15 COFFEE

Paper-based chemical detecting sensors for surface-enhanced Raman scattering

K. Oh, M. Lee, H. Jung Youn, D. Hong Jeong and H. Lae Lee

Frugal innovations in paper through surface and interface engineering

S. Oyola-Reynoso, J.-F. Bloch and M. Thuo

12:30 – 13:45 LUNCH

Session 6: Nanocellulose

Developments of manufacturing techniques and applications of cellulose nanofibers

H. Konno, T. Fujii, K. Ishizuka and M. Kawasaki

Preparation of nanocrystalline cellulose by complex enzymatic hydrolysis

X. Chen, W. Shen and D. Xueyan

15:00 – 15:30 COFFEE

Determination of length and width of nanocelluloses from their dilute dispersions

A. Isogai

Friday September 8

Preparation and utilization of highly transparent and viscous dispersion of phosphorylated cellulose nanofibers

Y. Noguchi, I. Homma, Y. Matsubara, H. Fushimi and G. Banzashi

Engineering silica nanoparticle structures in nanocellulose films

U. Garusinghe, P. Raj, V. Raghuwanshi, G. Garnier and

W. Batchelor

17:30 CLOSE

09:00 START

Session 7: Fibre modification and functionality

Review: Fiber-fiber bond formation and failure: mechanisms and analytical techniques

U. Hirn and R. Schennach

Towards wet resilient paper – fiber modifications and test method development

E. Gustafsson, Z. Wang, O. Polat, W. W. Ostendorf, J. G. Sheehan and R. Pelton

Adsorption of (Bio) macromolecules at the cellulose interface

V. Raghuwanshi, Z. Huang, C. Garvey and G. Garnier

10:45 – 11:15 COFFEE

The evaluation of pulp reactivity with a rheology-based technique

S. Ceccherini and T. C. Maloney

11:50 CLOSING REMARKS

12:00 LUNCH AND END OF SYMPOSIUM