

Institute of Physics

LONDON AND SOUTH EASTERN BRANCH REMS SECTION &
IOP PRINTING, PACKAGING AND PAPERMAKING GROUP

At Home Thursday 12 January 2006 IOP HQ 76 Portland Place London W1B 1NT

This "At Home" has been organised by George Freeman

10.30-11.00	Arrive and coffee	
11.00-11.10	Welcome and REMS and PPP notices	
	Chairman - David Pick	
11.10-11.55	Modelling Stochastic Features of Paper Structure	Bill Sampson
11.55-12.40	Ink Jet printing	Will Eve
12.40-13.25	Plastics in the Packaging of Food	Richard Roberts
13.30-14.15	Lunch on site	
	Chairman - Bill Sampson	
14.15-15.00	e-Paper and Flexible Displays	Chris Williams
15.00-15.45	The Recycled Paper Industry	Anders Åström
15.45-16.30	Electronic journals publishing at Institute of Physics Publishing – past, present and future	Sharon Toop
16.30-16.45	General discussion/AOB	
16.45	Tea and disperse	

The cost to REMS members, their guests and members of the IOP Printing, Packaging And Papermaking Group is £18pp.

MODELLING STOCHASTIC FEATURES OF PAPER STRUCTURE: Paper exhibits stochastic nonuniformity in its structure at a range of scales from a few microns up to 10's of metres. This nonuniformity influences the behaviour of the sheet in converting, coating and printing operations and affects sheet appearance also. Here we will consider the nonuniformity of the mass and of voids in paper at scales up to a few fibre lengths and will discuss the manner in which these properties are influenced by the dimensions and morphologies of papermaking fibres. We will explore also the extent of correlation between structural features of the network and the manner in which these can be influenced in papermaking processes.

Bill Sampson is a Senior Lecturer in the School of Materials at the University of Manchester. He received his bachelors and doctoral degrees in Paper Science from UMIST where he began lecturing in 1992. His primary research interests are in the statistical geometry of fibre networks in two and three dimensions, the characterisation of stochastic textures and general problems of paper physics and paper manufacture. He has spent periods of study leave at the University of Toronto and at the Forest Research Institute in Rotorua, New Zealand.

INK JET PRINTING: This talk will address the following topics:

- Differences between inkjet and conventional printing
- Ink requirements for different kinds of inkjet
- Substrate surface energy effects
- Industrial inkjet printing
- Applications for inkjet – old and new
- What next?

Will Eve is one of the founders of Inca, a manufacturer of inkjet printers. He has been working on ink jet technology for over 20 years, initially continuous ink jet - he was a founder of Elmjet in 1985 - and more recently piezo drop on demand. He has a degree in mechanical engineering from Bristol University and a PhD in tribology from Cambridge University.

PLASTICS IN THE PACKAGING OF FOOD: A number of plastics are used in food packaging determined by a combination of factors including pack design, processing and shelf life requirements, and end use. The properties, and in particular oxygen and water vapour barrier, of the common packaging plastics will be discussed in relation to their uses, illustrated by some typical food packs. Mention will also be made of a few packaging areas such as Modified Atmosphere Packaging and microwave susceptors. Current developments in improving barrier such as metal oxide coatings and oxygen scavengers will also be summarised.

Richard Roberts has a degree in physics from Southampton University. He initially worked for Van Leer UK Ltd, a multi-national industrial packaging company. He is now a principal consultant at Pira International where he has worked for the last 23 years. At Pira he works with a small group of people on technical consultancies. In the past he has worked on a wide range of projects related to food packaging. He has presented papers at many conferences and seminars and regularly assists at packaging training courses.

E-PAPER AND FLEXIBLE DISPLAYS: The talk will consider the reasons - commercial and technical - why industry and commerce is so interested in wanting to move from paper as an information carrying medium over to electronic books, electronic newspapers and similar products. Pictures of futuristic examples of these products from a range of different manufacturers, targeted at different markets, will illustrate the text.

An overview of current research and development in this field in the UK will be presented, and will be benchmarked against similar global activities. The opportunity that is presented to UK plc to become a global manufacturing centre, and to break the expectation that all display products must be manufactured in the Far East will also be explored in detail.

THE RECYCLED PAPER INDUSTRY: Quality aspects and trends of recycled papers will be discussed from a newsprint production point of view. Different grades of recycled papers will be mentioned as well as the impact of general trends in the papermaking.

ELECTRONIC JOURNALS PUBLISHING AT INSTITUTE OF PHYSICS PUBLISHING – PAST, PRESENT AND FUTURE: The talk will begin by putting the current scale of IOP’s journal-publishing operation into context, and will spend a little time outlining the history of electronic journals production and publishing at IOP – from the first use of author files in 1989 through to the online version of Classical and Quantum Gravity in 1995, the first full-text physics journal on the Web. Some of IOP’s initiatives and innovations will be described covering the past ten years at all stages of the journals publishing process from submission through peer review and production to publication and beyond, and will also describe the features and benefits of online journals for both authors and readers. In conclusion, we’ll look at where we are now, and touch upon the challenges and opportunities that face IOP as an STM publisher as electronic journals publishing moves forward: the (eventual?) demise of print, open-access initiatives, new publishing models, etc.

Following a first degree in physics and an MSc in radiobiology (both from Birmingham University), Sharon Toop started work as an Editorial Assistant at Institute of Physics Publishing in January 1975. During the past 30+ years she has seen the Institute’s publishing division grow and gain in international stature as one of the world’s leading publishers of journals in physics and related subjects.

Speakers:

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