

# Intense scientific exchange



The second Coatings Science International conference 2006 in Noordwijk

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From 26 to 30 June, 110 coatings scientists from 17 countries at the second CoSI conference in Noordwijk, Netherlands, engaged in high-level discussions about new developments in the world of coatings and surface sciences.

Much to the satisfaction of the organisers, Coatings Science International, which, according to its mission statement, aspires to be the leading European conference on coatings science and technology, this year attracted 10% more participants to Noordwijk than it did in its successful inaugural year 2005.

On the basis of nationalities, the conference plenum had roughly the same composition as in 2005: like then, Dutch and German delegates (43 and 18, respectively) were in the majority, followed by Belgium and the USA with 8 each; a somewhat wider geographical spread of participants therefore remained desirable. For the first time, though, there were also delegates from Japan and South Korea present, presumably as a consequence of the fact that the conference's Organising Committee had been enlarged to also represent the Far East: For CoSI 2006, Prof. *Masamitsu Shirai* (Osaka Prefecture University, Japan) was welcomed in the OC, together with two more new members: Dr. *Joseph Keddie* (University of Surrey, UK) and Prof. *Douglas A. Wicks* (University of Southern Mississippi, USA), succeeding *George A. Pilcher* (Akzo Nobel), who stepped down in 2005.



Focused attention in the conference plenum at CoSI 2006 in Noordwijk

## Stronger academic presence

As in the previous year, the conference brought together a very good mix of eminent academic and industrial participants. University and other research institutes' delegates slightly outnumbered their industrial counterparts (academia: 56; 2005: approx. 40 / industry: 54, of which 30 were coating raw materials producers, 14 were formulators and 5 were coatings users; 2005: approx. 60 industrial participants). The greater representation on the part of the institutes mirrored the scientific content of the conference programme in which, other than at the first CoSI in 2005, university and other research institutes also outnumbered industry, with 22 presentations coming from academic research groups, and 14 industrial papers (2005:

academia 15, industry 18). In particular, the first two conference days, with technical sessions on "Nanotechnology", "Special Properties" and "Electrochemistry and Corrosion", were quite academic in nature, and, sporadically, industrial participants said that the papers should have had more relevance to industrial applications. Yet, on the other hand, it is precisely this emphasis on the science of coatings and the lively exchange between academic and industrial coatings experts which CoSI is seeking to promote, in accordance with its claim to be not "just another coatings conference."

Prof. *Bert de With* (TU Eindhoven), along with Prof. *Rolf van Benthem* local organiser of the conference, told ECJ, that the Organising Committee intends to elicit greater industrial representation for CoSI

2007, but also emphasised that there seems to be a regrettable trend within the industry not to report scientific work at conferences – even work that has not yet reached the competitive stage or has no such bearing at all.

## Lively debates in a stimulating ambience

In the best-possible academic tradition, the technical papers presented to the conference plenum were queried and intensely debated in detail – certainly a characteristic of the conference. The plenary room was higher and more spacious than in the inaugural year and featured an excellent acoustic, which also contributed to a stimulating atmosphere. With many helping hands, the conference was also very well organised, so that the discussions and changes between speakers went very smoothly.

The well attended poster session comprised 20 topics, providing good insights into ongoing or recently completed research projects by various university institutes and provoking very animated debates and explanations.

Overall, as in 2005, the preponderance of conference papers were of a very high technical and scientific level. Since it is not possible to do justice to the many very interesting papers delivered, a few representative highlights that received special recognition by the organising committee at the end of the conference are reviewed here:

## Polymer films built up selectively by electrografting

The “Science Award” for the best scientific paper went to Prof. *Christine Jérôme* from the University of Liège, who presented new ways of electrografting thin polymer films onto conductive substrates. The method involves taking a finely adjusted cationic potential to electrograft (meth)acrylate monomers chemically to the surface, and then building up polymers in a controlled fashion on top of these grafts. This allows the properties of the metal surfaces to be modified very selectively and the technique can be used to bestow properties such as protein repulsion, extreme hydrophobicity and temperature switchability.



Intense debates on current research projects during the well-attended poster session

## New photoinitiator concepts

The paper delivered by Dr. *Kurt Dietliker* (Ciba Specialty Chemicals) illustrated Ciba's ideas for various new photoinitiators (PIs) for radiation curing, which earned him the “Innovation Award” for the most interesting new development. More precisely, Dietliker presented new multifunctional PIs, which on one hand have such a high molecular weight that they undergo very little migration within the coating or out of the coating, but on the other are just as highly reactive as conventional types. Candidate applications are food packaging coatings. Dietliker also discussed a new class of  $\alpha$ -ketooxime PIs that facilitate radiation curing of highly pigmented blue and even black formula-

tions for the colour filters of LCD displays. Lastly, he presented Ciba's photolatent bases, which afford the possibility of an alternative radiation-curing mechanism, namely the initiation of a base-catalysed curing reaction in which the base catalyst is released only under irradiation. The concept has been pushed for about two years, and applications in automotive and repair coatings are currently being tested.

## Ice-repellent surfaces

The committee handed over the “Creativity Award” for the best poster presentation to *Stefan Holberg* from the Danish Technology Institute in Aarhus, who is working on ice-repellent surfaces of the kind needed in containers for ice slurries in modern refrigeration plants, on the rotor blades of wind-energy plants or on aircraft wings. Holberg obtained his inspiration from a biological model involving bacteria living in polar regions: these bacteria generate hydrophilic proteins on their cell membrane which function extremely well as nucleation seeds for ice crystals, but which are surrounded by hydrophobic regions. Although ice crystals form on the surface, they can only adhere to the small hydrophilic contact points there and so readily fall off again. Holberg tried successfully to furnish an appropriate hydrophobic coating with nanometre-size hydrophilic nucleation seeds – the resultant coatings actually did exhibit a level of ice-repulsion superior to that of purely hydrophobic coatings.

*The Conference Proceedings of CoSI 2006 will be published in autumn 2006 as a special volume of the journal Progress in Organic Coatings.*

*CoSI 2007 will take place, as usual, in Noordwijk in the last week of June (26 to 29 June 2007).*

*A call for papers will be issued in the next weeks, updated detailed information is available on the conference's website at*

[www.coatings-science.com](http://www.coatings-science.com)