

# Brief Update on Latest Technologies

SEVEN PRE-CONFERENCE TUTORIALS LAUNCHED THE AMERICAN COATINGS CONFERENCE AND SHOW YESTERDAY

★ Prior to the start of the main conference, seven pre-conference tutorials updated attendees on important coatings technologies and applications. Offered for the second time, the workshops were once again a great success, with all seven sessions entirely sold out.

The tutorials on radiation curing, corrosion protection, antimicrobial surfaces, polyurethanes, easy-to-clean coatings, waterborne clearcoats and smart coatings were hosted by renowned industrial and academic experts.

Michael J. Dvorchak of Bayer MaterialScience, who presented a tutorial on radiation curing, was especially enthusiastic about the high level of interest in his workshop. "UV is growing with a lot of application areas," he said. "The attendees have diverse backgrounds, from paper to metal and wood."

The tutorial on corrosion protection was designed in collaboration with the Society for Surface Protective Coatings (SSPC) and was led by Greg Girard of Sherwin-

Williams. "The tutorial was very helpful for me," said Leah Leavitt of NIC Industries, Inc. "There were many people from different sectors, which led to collaborative discussions."

Melinda Wales of Reactive Surfaces Ltd. presented a review of the different technologies in the field of antimicrobial surfaces, providing an outline of current state-of-the-art applications. "I gained new insights and learned about enzymes and how they work," said participant Rienzie Machado of DGL International.

## POLYURETHANE AND EASY-TO-CLEAN COATINGS

Myron Shaffer of Bayer MaterialScience led a tutorial on PU coatings and their typical components. His presentation included a discussion of the various PU coatings technologies in use and their advantages and limitations.

W. Marshall Ming, University of New Hampshire, presented assorted easy-to-



Yesterday's pre-conference tutorials provided the attendees with concise overviews on latest coatings technologies

clean coatings concepts and reviewed these systems in practice.

In the tutorial on waterborne clearcoats, lecturers Ivan Tyre of Alberdingk Boley and Tim December of BASF discussed the application possibilities for waterborne clearcoats for different substrates.

Finally, in the seventh tutorial focusing on smart coatings, Jamil Baghdachi, Eastern Michigan University, gave a detailed overview of the latest technologies involved in the development of smart coatings. Below you can read how tutorial attendees evaluated the workshops.

**EC** European Coatings SHOW 2011  
PLUS ADHESIVES, SEALANTS, CONSTRUCTION CHEMICALS

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

**Nürnberg, Germany**  
29 - 31 March 2011

European Coatings CONGRESS  
28 - 30 March 2011

*Note the date!*

NÜRNBERG MESSE

VINCENTZ

## Tutorial Talkback

### PRE-TUTORIAL: POLYURETHANES

"First of all, I have to mention how well organized the whole event is. The presentation and handouts were great. I learned a lot about new coatings and raw materials in the polyurethane technology field. I am especially interested in the new isocyanates."



Irfan Raza,  
Aldoa

### PRE-TUTORIAL: ANTIMICROBIAL SURFACES

"I am quite new to this field, so I found this tutorial to be a good introduction to the subject of antimicrobial surfaces. I enjoyed hearing about all the environmental regulations in particular. Melinda Wales gave a good mix of information which appealed to professionals across the board."



Melanie  
Micha-Schama,  
Bunge Biphor L.L.C.

### PRE-TUTORIAL: RADIATION CURING

"The tutorial with Michael Dvorchak gave me a lot of good material. I feel more informed about how to cure pigmented coatings. He talked about the UV-source, right pigmentation and the two lampsystem with differing wavelengths. As a result of his talk, we may buy a small lab system."



Bruce G. Stokes,  
Neenah Paper Inc.



# “Most Dominant Trend is Simplification”

SMART COATINGS CAN PROVIDE FUNCTIONS ABOVE AND BEYOND LATEST PROPERTIES EXPECTED FROM PAINTS AND COATINGS



James W. Rawlins,  
University of Southern Mississippi

★ **Smart coatings are often referred to as structured coatings which provide additional benefits by giving an appropriate response to outside conditions. Self-healing, anti-fingerprint and anti-ice coatings, to name only a few, are topics on everyone’s lips. ACS DAILY spoke with James W. Rawlins, Assistant Professor of Polymer Science at the University of Southern Mississippi, who will be one of the speakers of the ACC session on smart coatings.**

▶▶ **ACS DAILY: How do you define “smart coatings”?**

**James W. Rawlins:** I define smart coatings as protective and decorative films that provide functions above and beyond the latent properties expected from paints and coatings. These functions may be recognizing or sensing environmental conditions such as exceeding a tempera-

ture threshold. Many examples exist for any of the important environmental or potential conditions, i.e., chemical warfare agents, package tipping beyond an allowable angle, gaseous material detection, food spoilage, and excessive UV exposure have all been shown to be possible and most practical as a technology.

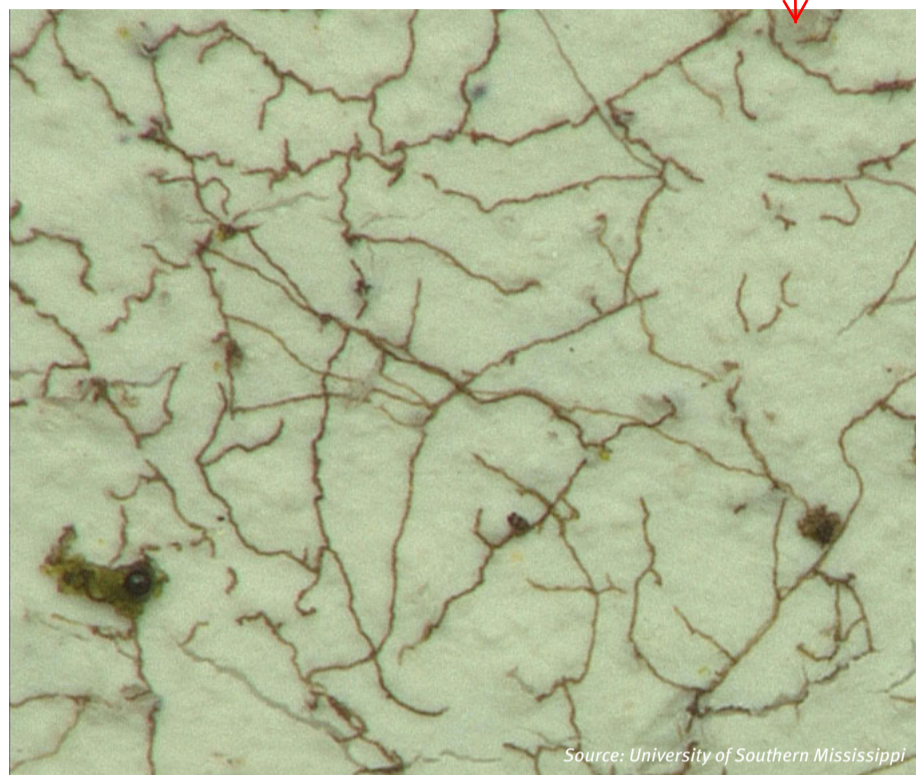
▶▶ **What are the latest trends in smart coatings?**

**James W. Rawlins:** Trends? I think the dichotomy between research and commercialization is still large enough that many have had an automatic negative response to the term “smart coatings”. The buzz may wear off before the reduction to practice proves the real value addition and economic feasibility along with robustness for each application. With that said, I think the most dominant trend is simplification. If a material can be easily adapted for robust use then reduction to practice will be more rapid and well received. Everyone thinks about self-cleaning or self-healing, and both have been proven possible: the remaining question is how much cleaning and for how long?

▶▶ **Please comment on your particular topic – natural materials in synthetic coatings:**

**James W. Rawlins:** Throughout history, natural materials have been adapting so they can sense, detect, and trigger re-

Reactive Surfaces ProteCoat Additive in Action



Source: University of Southern Mississippi

Smart coatings can provide additional benefits by giving an appropriate response to outside conditions

sponses to almost any mode of positive or negative environmental stimuli very effectively and efficiently, so it makes sense that we should capitalize upon biological materials. Using biomimicry to initiate our work provides a tremendous database to draw upon for early material understanding. When properly used, the database is so large that we could never singularly

replicate the understanding that is already available if we look in the right places. The biggest surprise for most is that the natural materials, enzymes, and peptides often have longer useful lives in polymers and similar, or they have improved activity in comparison with the same materials in their natural environment.

## “Cooperative Efforts Between Academics and Industry Need to Improve Globally”



Yasmin Sayed-Sweet,  
Alberdingk Boley Inc.  
Booth #2841

★ **Waterborne coatings are not just gaining ground – they have become the gold standard in many applications. Yasmin Sayed-Sweet, Vice President at Alberdingk Boley Inc., calls for greater cooperation between universities and manufacturers of raw materials, as well as more joint efforts within the industry, e.g. between raw material producers and coatings manufacturers. The goal here is both to set new trends and to offset current shortcomings in comparison to solventbornes .**

▶▶ **ACS DAILY: Meanwhile most waterborne systems show equal skills to solventborne coatings. Where do you see the largest technological backlogs?**

**Yasmin Sayed-Sweet:** The main technological backlogs are in availability of innovative building blocks at a price that market can bare, stabilization of components in aqueous media and meeting the challenges of VOC and environmental regulations to balance performance.

On the other hand, communication and cooperative efforts between academics

and industry needs to improve globally for adaptation and incorporation of basic sciences and fundamental principles into the coatings industry.

▶▶ **What technological trends do you expect for future waterborne systems?**

**Yasmin Sayed-Sweet:** The trends are innumerable, as waterborne systems become much more viable technological alternatives, example as global consumer palate gets more sophisticated and conscious of the “green” environment we will see more usage of ultra-low and low-VOC coatings, greater use of solvent-less polymers for industrial and architectural markets. Consumers willing to pay a small premium in their use of environmentally safer alternatives.

Global additives suppliers working cooperatively with polymer manufacturers and paint companies to add special effects and added performances, paint companies and suppliers paying more attention to ancillary industries for innovative ideas, emerging economies in the forefront of the latest trends with their developed counterparts.

