

P&G

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Nanotechnology Applications for Today!

Aerospace • Automotive • Consumer Products

October 17-19 2005

Wyndham at Playhouse Square, Cleveland, Ohio

www.nanoappsummit.com

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SUMMIT 2005

Nano-App Summit 2005

Conference Overview



Aerospace Program

Monday October 17 **4 5**

Leading manufacturers, nano-product developers, and university researchers will spend an entire day discussing nanotechnology applications in the aerospace industry. Discover where opportunities exist, and why the aerospace industry offers a unique climate for nano-growth. Hear from Boeing, Lockheed Martin and others on the state of aerospace nanotechnology applications today.

Automotive Program

Tuesday October 18 **6 7**

Ford, GM, Goodyear, PPG, Air Products & Chemicals and leading nano-developers share on the latest applications of nanotechnology in the automotive industry. Find out what's been successful and why. Hear how the technology is being adapted into new products. And discover what automotive industry thought leaders believe will be coming over the next 12 months.

Consumer Products Program

Wednesday October 19 **8 9**

Product innovation from nanotechnology is making an impact in consumer markets right now, and more is on the way. Procter and Gamble, 3M and leading nanotechnology product developers discuss the application opportunities for nano and what it takes to successfully bring products to market. Find out where the biggest opportunities are today. And hear how nanotechnology is impacting Consumer Brands.

Nano-App Summit 2005 Conference Registration Form

Located on page **13**

There's not a better conference offered anywhere that focuses on the real world application of nanotechnology in today's aerospace, automotive and consumer markets.

University Commercialization Showcase

Monday October 17 through
Wednesday October 19 **10**

This is a perfect chance for attendees, business leaders and nanotech researchers to personally connect and discuss nanotechnology applications. Relevant nano-research with right-now application potential will be on display throughout the conference.

Nanotech University

Monday October 17 through
Wednesday October 19 **11 12**

Where do business professionals go to get up to speed with the latest terminology, science, tools and information being used in the world of nanotechnology applications? Nanotech University.

Top instructors from nanotechnology programs at leading universities have developed six strategic courses designed specially for individuals interested in learning more about nanotechnology and its real world applications. Classes are offered all three consecutive days during the Nano App Summit.

Nano Week in Cleveland, Ohio

Monday October 17 through
Friday October 21

Nano Week in Cleveland 2005 is a week long exploration and celebration of how nanotechnology is changing our world. NANO WEEK 2005 will explore real world applications of nano-enabled products in automotive, aerospace and consumer products industries. Events include: The Emerging Technology Forum at Kent State University. A Nanotechnology Manufacturers Forum in Elyria, Ohio, A Microsystems Economic Forum in Cleveland, and The Nanotechnology Business Idea Contest at Case Western Reserve University.

Nano-App Summit 2005

The most focused application-oriented nanotechnology conference in the world!

The bringing together of major manufacturers, product developers, and major university researchers to discuss today's applications creates an unparalleled environment for immediate business benefits.

Finally, a nanotechnology conference completely dedicated to today's product applications.

Nano-App Summit 2005 is all about nano-applications in Aerospace, Automotive, and Consumer Product markets. Unlike most nano conferences that tend to be very general, Nano-App Summit has chosen to narrow its focus and go deep into the subject of today's applications. This means that each day, nano-business thought leaders will be addressing their own industry peers on the subject of nanotechnology application issues, opportunities, and products that are impacting their industry right now. The result is a relevancy and immediacy that cannot be found at any other nano-gathering.

Insights from the people shaping nanotechnology application in your industry.

Nano-App Summit is distinguished by a powerful panel of speakers from industry-leading companies that represent the drivers, thought leaders, and nano-pioneers in each of our three markets. Hear them share on . . .

- Factors driving current product development
- Product development strategies that have worked
- Specific product enhancements needed today
- Opportunities and gaps that are ripe for development
- Problems and challenges in bringing nanotechnology to market

Registration Fees

	Before Oct. 5	After Oct. 5
One day:	\$174	\$274
Two days:	\$299	\$399
Three days:	\$399	\$499

Special discounts available to full time students, ASM members, and Nano Network Members (see online registration page for details). Register online via credit card at www.nanoappsummit.com.

Who should come to Nano-App Summit 2005 in Cleveland, OH?

Anyone looking for market specific applications, insights, and direction for applying Nanotechnology today in automotive, aerospace and consumer product markets, specifically...

- Business leaders seeking strategic and decision making insight
- Marketers who need to know what products and developments are most in demand now
- Product managers looking for usable technology and development strategies
- Engineers looking to streamline development and avoid delay
- Researchers with ready-to-apply nanotechnology
- Venture Capitalists seeking real world discernment in evaluating technology ROI



Aerospace

Monday Oct. 17 - Speaker Program

Tuesday Oct. 18 - Nanotech University & University Showcase

On October 17th, nanotechnology leaders in the aerospace industry will spend an entire day discussing application needs, opportunities, and the next wave of new products.

Maybe you should be there?

The Aerospace Track of the Nano-App Summit is like no other conference offered anywhere in the world. It's completely dedicated to aerospace applications of nanotechnology for today.

Nano-App Summit has assembled the industry's leading manufacturers, thought leaders, and forerunner suppliers to share with you the specifics on using, applying and developing nanotechnology into commercially successful products. The conference will explore the driving factors of innovation and the people who are leading the way. If you are developing, manufacturing, supplying, investing, or purchasing nano-enabled products in this industry, you will want to be here.

Leveragable technology, research, and innovation exists and is just waiting to be applied. Nanotechnology is already yielding more efficient airframe materials, improving space vehicle survivability, and impacting safety issues at every level of the aircraft. Leading manufacturers, suppliers, and industry experts will share on what's really important, what the market needs are, what's been successful so far: speakers will discuss both the obvious and obscure opportunities in applying nanotechnology in the aerospace industry.

We invite you to come and learn from our speakers' experience, and take back practical wisdom for guiding business decisions in the weeks and months ahead. It's a day to gain powerful insight and focus for your nanotechnology programs.

- Get Insight from experts and major manufacturers about what your researchers, chemists, and engineers should be working on now
- Discover what products and applications offer the most immediate opportunities for nano development and why the aerospace industry offers a unique climate for innovation
- Learn from companies who have successfully used nanotechnology in the development of breakthrough products



Aerospace

Monday Oct. 17th - Speaker Program



Monday October 17th - Aerospace Speaker Program

Morning Session

8AM — 8:45 Keynote

Dr. James S. Murday, Head, Chemistry Division, Executive Secretary, NSTC subcommittee on Nanoscale Science, Engineering and Technology (NSET)

Naval Research Laboratory

Topic: *Nanotechnology: Hype and Hope in the Progress Toward Aerospace Applications*

9AM-9:30

P.R. Subramanian, Materials Scientist, Nanotechnology Group,

General Electric Global Research

Topic: *Imagination in Aerospace*

9:30-10AM

Dr. Rich Vaia, Materials and Mfg. Director

Air Force Research Laboratory

Topic: *Winning with Nanotechnology*

10AM-10:15 Break

10:15AM — 10:45AM

Dustin Carr, Principal Member of Technical Staff in the Microsystems Development Laboratory

Sandia National Labs

Topic: *Nanotechnology Integration of Advanced Sensor Development within the Department of Energy Lab*

10:45AM-11:15AM

Saraj Rawal, Senior Manager R&T, Advanced Materials & Structures

Lockheed Martin Space Systems

Topic: *Advancements and Challenges of Nanotechnology Insertion into Space Systems*

11:15AM-11:45AM

Speaker Pending

11:45-12:45 Lunch

Afternoon Session

12:45PM — 1:45PM Keynote

Boeing Executive

Boeing Corporation

Topic: *Nanotechnology in the Boeing 787*

2:45PM-3:15PM

Dr. Minoo Dastoor, Senior Advisor to the Associate Administrator for Office of Aerospace Technology

NASA Headquarters

3:15PM — 3:45PM

Speaker Pending

3:45PM Break

4PM-5PM Panel Discussion

John Belk, Manager Boeing Technology Ventures, **Boeing Corporation** (Moderator)

Sankar Sambasivan, President and CEO, **Applied Thin Films**

Max Lake, President and CEO, **Applied Sciences, Inc.**

David Diehl, Scientist and Manager, Corporate Technology Initiatives, **PPG, Inc.**

Jim Wasson, Chief Technology Officer, **BAE Systems**



Automotive

Monday Oct. 17

Tuesday Oct. 18

Wednesday Oct. 19

Nanotech University & University Showcase

Speaker Program

Nanotech University & University Showcase

Automotive nanotechnology leaders will spend an entire day talking about the most important issues for bringing nano-innovations to market.

Maybe you should come and listen?

Nanotechnology is already driving changes at almost every level of material, component, and system in the automotive industry. Without question, this is just the beginning of a wave of innovation that could revolutionize product development in the automotive industry.

So how do automotive manufacturers, tier-ones and tier-twos successfully bring innovation to the market quickly, and profitably?

And how do companies that are new to nanotechnology get started?

These are some of the key questions that will be addressed at the Automotive Track of the Nano-App Summit in Cleveland. The entire day of Tuesday, October 18th will be focused on the application and adaptation of nanotechnology in the automotive industry. During this intensive, applications-focused day, you will hear what the major manufacturers want, why certain product development has succeeded or failed, and where/and how you should be channeling technical resources to bring products to market quicker.

Nano-material advances like exfoliated nanoclays in some of the new plastics, carbon nanofibers used in tires, and nanoparticle advances for coatings are just a few developments that are opening new opportunities for alert companies. This will be an excellent environment for getting new product ideas and gaining insight on how to focus and structure your nano-based development strategies based on what's really happening in the market. It's a day to gain powerful insight and focus for your nanotechnology programs.

Key nanotechnology thought leaders from Ford and General Motors along with proven nano-product developer forerunners who have experienced both setbacks and success with this new technology will be speaking. We invite you to come and learn from their experience, and take back practical wisdom and insight to guide business decisions for the weeks and months ahead.

- Hear from experts and major manufacturers about what your researchers, chemists, and engineers should be working on now
- Find out where manufacturers are finding their most immediate gains with nanotechnology
- Learn business model approaches to nano product development that assess and minimize risk and improve time-to-market
- Discover what products and applications offer the most immediate opportunities for nano-development
- Get insight from companies who have successfully used nanotechnology in the development of breakthrough products



Automotive

Tuesday Oct. 18 Speaker Program



Tuesday, October 18th - Automotive Speaker Program

Morning Session

8:30 am - 9:00 am

John M. Ginder, Physical and Environmental Sciences Department
Research and Advanced Engineering

Ford Motor Company

Topic: *Driving Nanotechnology in the Automotive Industry*

9:00 am - 9:30 am

Jeffrey DiPinto, Business Development Manager,
Nanotechnology

Air Products and Chemicals, Inc.

9:30 am - 10:00 am - University Speaker

10:00am - 10:30am - Networking Break

10:30 am - 11:00 am

Dan Rardon, Manager of Nanotechnology Initiatives
PPG Corporate Research

Topic: *Nanotechnology at PPG: From Potential to Products*

11:00 am - 11:30 am

Frank J. Feher, Manager, Polymer Technology
Goodyear Tire and Rubber Company

Afternoon Session

11:30 am - 1:00 pm - Lunch

Mark Verbrugge, Director Materials & Processes Lab
General Motors Corporation

1:00 pm - 1:30 pm

Alan J. Gotcher, Ph.D., President and Chief Executive Officer
Altair Nanotechnologies

Topic: *"Nano in the Battery Market. Adding Value to new cars and aftermarket."*

1:30 pm - 2:00 pm

Mark R. Blitstein, Manger of Application Development
NanoFilm, Ltd.

Topic: *Gearing Up for Nanotechnology: Powering Performance - Choking Costs*

2:00pm - 2:30pm - University Speaker

2:30pm - 3pm - Networking Break

3:00 pm - 4:45 pm - Panel Discussion

5:30 pm - 7:00 pm - University Commercialization Showcase &
Cocktail Mixer



Consumer Products

Tuesday Oct. 18

Nanotech University & University Showcase

Wednesday Oct. 19

Speaker Program

Companies that learn how to bring nano-innovation to market quicker and more efficiently win. That's what October 19th is all about.

Should your company come and listen?

This is an intensive, real-world, applications-focused day where you will hear what the major manufacturers want, why certain product development has succeeded or failed, and where/and how you should be channeling technical resources to bring products to market quicker. It's a day to gain powerful insight on what to focus on today and how to bring products to market more effectively.

Perhaps no area can benefit more quickly from advances in nanotechnology than consumer products. Nano-enabled cosmetics, nutraceuticals and other products are demonstrating that this technology can not only differentiate your product in the marketplace, but the product enhancements can literally redefine the playing field.

We have gathered together a group of forerunners and thought leaders who have experienced both setbacks and success with this new technology. We invite you to come and learn from their experience, and take back practical wisdom and insight to guide business decisions in the weeks and months ahead.

- Hear from experts and major manufacturers about what your researchers, chemists, and engineers should be working on now
- Find out where consumer product manufacturers are finding their most immediate gains with nanotechnology
- Learn business model approaches to nano product development that assess and minimize risk and improve time-to-market
- Discover what products and applications offer the most immediate opportunities for nano development
- Get insight from companies who have successfully used nanotechnology in the development of breakthrough products



Consumer Products

Wednesday Oct. 19 Speaker Program

3M

ARKEMA

P&G

PolyOne

CABOT

CASE
CASE WESTERN RESERVE UNIVERSITY

Wednesday October 19th - Consumer Products Speaker Program

Morning Session

8AM — 8:40 Keynote

Keith Grimes, Senior V.P. of R&D

Procter & Gamble

Topic: Procter & Gamble's Approach in the Integration of Nanotechnology to Consumer Products

8:45AM-9:15

Nirmal Maity, Director of Application Development

Cabot Corporation

Topic: Production and Application of Nano-Based Aerogels

9:20-9:55AM

Frank Armatís, Manager of Corporate Materials Research

3M Corporation

Topic: Nanotechnology and the Consumer

9:55-10:20 Break

10:20AM — 10:50AM

Sheng Hong, Research Scientist

Arkema Inc.

Topic: Nanostrength Block Copolymers: Toughening Plastics on the Nanometer Scale

10:55AM-11:25AM

Roger Avakian, Chief Technology Officer

PolyOne Corporation

Topic: Nanotechnology Comes to Main Street: An Industrial Viewpoint on Nano-Materials in the Consumer Marketplace

11:30AM-11:45AM

Speaker Pending

11:45-12:55 Lunch

Afternoon Session

1PM — 1:30PM

Keith Blakely, CEO

NanoDynamics

Topic: Capturing High Value Opportunities in Nanotechnology

1:35PM-2:05PM

Dr. Christopher Weder, Associate Professor, Department of Macromolecular Science and Engineering

Case Western Reserve University

Topic: Polymer Chameleons: Smart Materials with Applications in Safety, Security and Early Failure Warning.

2:10PM — 2:45PM

Dr. Hong Koo Kim, Co-Director of NanoScience and Engineering

University of Pittsburgh

Topic: The Application of Nano-Optic Chips to Advanced Diagnostic Medical Equipment

2:50-3:20PM

Dr. Clemons Burda, Director of Center for Chemical Dynamics and Nano Materials Research

Case Western Reserve University

Topic: Chemistry on the Nanoscale Towards Consumer Applications

3:30-4pm Networking Break

4PM-5PM Panel Discussion

Patti Glaza, CEO **Small Times**

Gerry Weimann, President and CEO, **Five Star Technologies**

Brian Sokol, Branding Expert, **Idea Institute**



University Commercialization Showcase

A place where university research connects with today's market applications

Does your company need to connect with fresh, new nano-innovation?

A place to personally connect with the research, people, and technology you need for nanotechnology initiatives

Imagine an environment where you can review current nanotechnology research from major universities, then actually meet with the researchers and technology transfer people to discuss applications for your company in your industry.

That's what the University Showcase at the Nano-App Summit is: an in-person, interactive forum where the needs of the marketplace engage top nanotechnology research initiatives at major universities.

The University Showcase runs parallel with the Nano-App Summit all three days at the Wyndham Hotel. University research booths will display an overview of current nanotechnology projects. Key researchers will be available at the booth or for individual appointments to discuss applications.

In addition, application-based presentations will be given each afternoon from university researchers.

There's never been a better environment for meeting with top researchers and transfer people from major universities and discussing specific applications.



A truly unique setting that fosters industry-university partnerships

Spend a day attending seminars in your industry and another day reviewing potential university research partnerships. Hear application-based presentations. Set appointments with specific researchers. Each attendee receives...

- Application-based research overview from each university listing current projects and findings.
- A list of researchers with their project profiles who will be attending the conference and available for personal meetings
- The opportunity to post technology needs and potential partnership projects with our commercialization concierge to facilitate dialogue with universities
- Private conference rooms and suites for meetings



Nanotech University

A unique educational program



Does your company have a team of people that need to become nano-ready?



How do you get up to speed with nanotechnology in a very short period of time so you can lead, advance, and drive the nano-initiatives at your company?



Nanotech University at the Nano-App Summit is a great place to start.

Nanotech University is the educational program at the Nano-App Summit. Top instructors from a number of nanotechnology programs at leading universities as well as leading nano-tools providers have developed multiple sessions designed specifically to provide the background you need to navigate the nanotechnology waters over the next few years.

Nanotechnology background for business applications, the right information with the flexibility you need

Nanotech University is a one-day series of related courses which will be run simultaneously with the application tracks of the Nano-App Summit. If you are primarily interested in the Aerospace Track, attend it on Monday, followed by Nanotech University on Tuesday. If Automotive is your game, attend Nanotech University on Monday, and your automotive application day on Tuesday. If you're attending Nano-App for all three days, come and go into Nanotech University sessions as you please.

All classes are offered all three days

We've structured our curriculum offerings so that all of the courses are offered all three days. Stay an extra day and matriculate through Nanotech University! Learning nano has never been this readily available or this flexible!

Who should attend Nanotech University?

- Top executives who want to get up to speed quickly
- Nano-Initiative leaders and team members
- R&D people moving into nanotechnology
- Product and marketing people that need the technical background
- Venture capitalist who need to communicate complex technology to investors

Where else can you spend a day and be taught by college-level instructors from leading universities whose specialty is nanotechnology? If your company is looking for a place to get started and an environment to stir ideas and possibilities, this is it. We've boiled our curriculum down to the courses you really need to begin to move and flow in nanotechnology. Come for the conference, or just come to attend Nanotech University.

Nanotech University

Curriculum and Class Schedule



Nanotech University Schedule

Course: Nanotechnology 101

What you need to know

Taught By: Case Western Reserve University

This 2-hour primer provides a solid foundation for what you need to know about nanotechnology and its applications. This will be geared to the person who knows that nanotechnology will be important for their industry, but wants a more solid fundamental understanding of the technology and its implementation.

Course: Electrical Measurement in Nanoscale systems

Taught By: Keithley Instruments

Keithley Instruments, the world leader in very low-level electrical measurements will discuss tools and techniques needed to properly characterize, connect to and measure nanoscale systems. This session will include examples in carbon nanotube-based materials and electronics, molecular electronics, and materials.

Course: Nano-characterization tools and techniques

Taught By: FEI Corporation

The world leader in sub-micron visualization, characterization and exploration will describe the various techniques and tools for working with nanoscale systems. The discussion will include advanced three-dimensional metrology, device editing, trimming, and structural analysis for management of sub-micron structures.

Course: Nanofabrication Techniques

Taught By: Pennsylvania State University

Implementing nanoscale systems requires a host of special considerations and presents many unique problems. This course will discuss these considerations and issues, along with specific topics in top down and bottom up nanofabrication.

Course: Nanopolymer basics

Taught By: University of Akron

Nanopolymers will find their way into nearly every application area, as the combination of advanced polymer technology and nanotechnology is a particularly powerful one. This session will outline opportunities, advantages and considerations in using and fabricating nanopolymers.

Course: Ethical considerations in Nanotechnology

Taught By: TBA

With bold new technologies come new ethical questions. This session will explore the various ethical and safety issues, considerations and questions that arise as nanotechnology reaches a broader commercial application stage.

Course: Topic TBA

Taught By: Ohio State University



