

Related Resources from SAE International

UNS on the Web: Metals and Alloys in the Unified Numbering System

The Unified Numbering System for Metals and Alloys (UNS) provides a means of correlating many internationally used metal and alloy numbering systems administered by societies, trade associations, and those individual users and producers of metals and alloys. Now available as a web-based subscription, this new and important resource has been updated since the publication of SAE's 9th edition of the UNS book and CD-ROM, and includes about 200 new and updated UNS numbers and 3,000 updates to cross references and trade names, and features quarterly updates, so you always have the latest information available.

SAE 2002 Transactions (V111-2002)

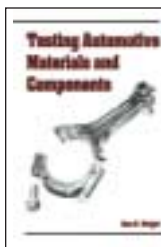
Get the definitive collection of the year's best technical research, trends, and reviews of the latest automotive technologies with *SAE Transactions*. Highlighting the year's best Technical Papers, the complete set includes seven subject-specific journals (1,091 Papers) and a FREE hardbound copy of the Annual Index. Don't need the complete set, choose the volume that's right for you.

Journal of Materials & Manufacturing (V111-5)

The year's 121 best SAE Technical Papers in ferrous and non-ferrous metals; plastics and polymers; coatings and ceramics; powdered metals; life cycle assessment; waste material management; forming and joining; manufacturing systems, methods, and measurements; and much more.

Journal of Fuels and Lubricants (V111-4)

The year's 177 best SAE Technical Papers in fuel cells; emissions control strategies; fuel properties; alternative fuels; catalyst technology; environmental implications; lubricants; deposits; additives; atmospheric chemistry; and much more.



Testing Automotive Materials and Components (R-124)

By Donald H. Wright

This book demonstrates how automotive materials and components can be evaluated to reveal their true characteristics under realistic loading and environmental conditions. It

describes and illustrates test methods which will help designers and development engineers save valuable time and expenditure, not only during prototype and preproduction stages, but in the event of service failure.



Motor Vehicle Structures (R-324)

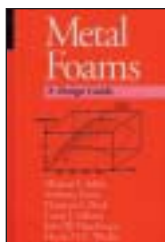
By Joason C. Brons, A. John Robertson, and Stan T. Serpento

This title is written as a unified textbook dealing with the structural mechanics of the mass-produced integral passenger car body. It provides a clear and concise explanation of load paths in the vehicle body-in-white (BIW), based on engineering first principles. This is then used as a basis for an in-depth discussion of the conceptual design of car structures, using case studies directly related to real-life design problems. It is based on a short course designed for industry, which has been well received and is used to train body engineers worldwide.

Dictionary of Materials and Testing: 2nd Edition (R-257)

Edited by Joan Tomsic

Recent advances in the fields of materials and testing have introduced hundreds of new concepts and terms. This new edition of the Dictionary of Materials and Testing emphasizes "engineered" materials that can withstand stress or unusual environments for an extended period of time. Technical terms from related fields, including computer-related language, and computer hardware and software technology applicable to testing, have also been added to this second edition.



Metal Foams: A Design Guide (R-294)

This book offers a concise description of metal foams, their manufacture, and their performance and applications. It also highlights the unique structure of metal foams, which include air or other gaseous pockets in the metal structure, making it ideal for applications in the

automotive, aerospace, and other weight-dependent industries. Using simple presentation and many charts, diagrams, and tables, Metal Foams presents engineers with the current understanding of this rapidly developing technology.

Fuel Cell Technology Showcase

SAE International is known globally as a leading source for automotive technology. SAE has developed the Fuel Cell Technology Showcase as a resource for the latest books, standards, articles, events and more with relation to fuel cell energy and fuel cell vehicles.

Visit the Showcase via our Web site at
fuelcells.sae.org



SAE Emissions Technology Collection on CD-ROM (EMISS2003)

With today's push for a cleaner, safer environment, having the latest design technologies to reduce emissions is essential to your success in the automotive market. The comprehensive resource contains more than 2,000 key emissions-related Technical Papers presented at SAE conferences since 1975 providing the latest research and requirements for emissions for all engine types and applications to help you comply with government and regulatory agencies.

Catalytic Converters: Design and Durability Seminar (98017)

This seminar takes you from the early development of catalytic converters and the key inventions that made them viable, to the recent advances in converter technology required to meet the ever stringent emissions regulations for both light-off and underbody converters. Applications of converter design to gasoline-powered cars, trucks and motorcycles will be presented.

Automotive Glazing Materials Seminar (99002)

This seminar will present an overview of the different automotive glazing materials - past, present and future. It will cover historical background, the laws that govern their use, and manufacture, installation, usage, testing, safety aspects and how they affect automotive performance. Topics will include the chemical, physical and design issues of annealed, laminated, tempered, glass-plastic and plastic glazing materials.

SAE Fuels & Lubricants Meeting

June 8-10, 2004, Centre De Congres Pierre Baudis, Toulouse, France

Explore the latest technology and trends in combustion, emissions, fuels, and lubricants from a global perspective.

International Body Engineering Symposium

September 21-22, 2004, Michigan State University, Management Education Center, Troy, Michigan

The premier global forum for the latest trends, designs, and technologies in body engineering.

Powertrain & Fluid Systems Conference & Exhibition

October 25-28, 2004, Tampa Marriott Waterside, Tampa, Florida

Explore today's pressing issues in powertrain design from a global systems perspective.

"The premier society dedicated to advancing mobility engineering worldwide"

Nanotechnology - Inner Value Symposium

May 11-12, 2004

Carnegie Mellon University • Pittsburgh, Pennsylvania, USA

Hosted by Carnegie Mellon Engineering

Learn how emerging nanotechnologies of today
will transform the automotive industry of tomorrow.

Topics covered:

- Nano-materials and their applications
- Emission control catalysts
- Fuel cell applications
- Information storage
- Machining
- Future implications

Marketers: connect with this highly-targeted audience
of engineering professionals. Details inside.

**Change is the only constant. . .
Prepare for the future in Nanotechnology.**

Attend the SAE Nanotechnology - Inner Value Symposium and learn about
the latest research, trends, and technological advances in Nanotechnology
and how this emerging technology will revolutionize the automotive industry.
May 11-12, 2004, Carnegie Mellon University, Pittsburgh, Pennsylvania, USA

Register by April 30, 2004 and SAVE \$100!

Register to attend
before April 30, 2004
and SAVE \$100!

www.sae.org/nanotech

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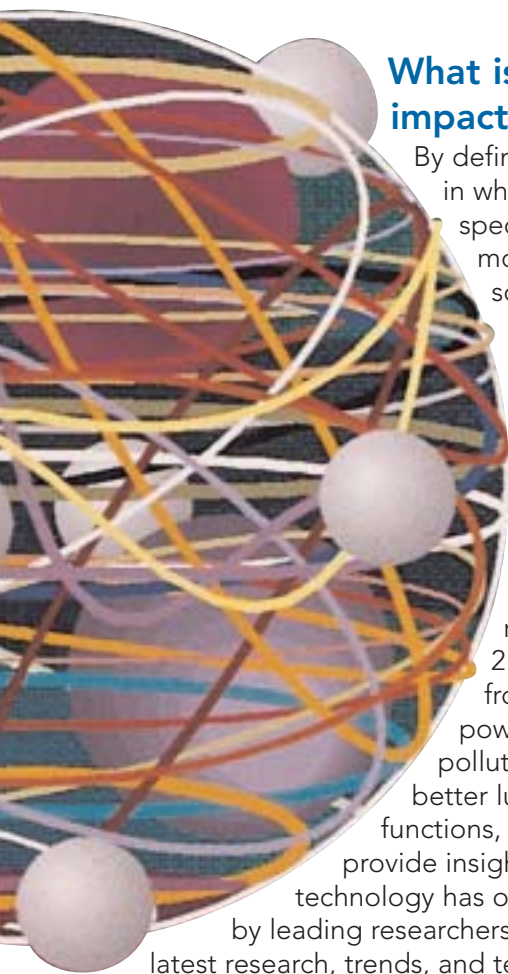
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Nanotechnology - Inner Value Symposium

Carnegie Mellon University, Pittsburgh, Pennsylvania, May 11-12, 2004



What is nanotechnology and how is it impacting the automotive industry?

By definition, nanotechnology is a fabrication technology in which objects are designed and built by the specification and placement of individual atoms or molecules or where at least one dimension is on a scale of nanometers (i.e. one billionth (10⁻⁹) of a meter or 1/80,000 the diameter of a human hair). The ability to systematically organize and manipulate matter on the nanometer length scale allows for the fabrication of an entirely new generation of products that are cleaner, stronger, lighter, and more precise.

While nanotechnology is in the "pre-competitive" stage (i.e. applied use is limited), it will change or redefine all known technologies and markets in the 21st century. The automotive industry will benefit from this dominating trend by advancing its powertrains, increasing fuel efficiency, lowering pollutant emissions, improving energy storage, using better lubricants, reducing car weight, enhancing material functions, and raising cost efficiency. This symposium will provide insight into the near- and long-term implications this technology has on the automotive industry. Featuring presentations by leading researchers from academia and industry, you will learn the latest research, trends, and technological advances surrounding Nanotechnology and how it will revolutionize the automotive industry.

TOUR

Seagate Research: A World Class Research Center

Attendees will have the exciting opportunity to tour the Seagate Research Center, a world-class center for data storage technology research. Regarded as the pre-eminent academic research center in the world of magnetic storage, it's at this facility where technology leaders and industry veterans work on visionary, alternatives for the future of storage technologies and other nanotechnology applications that might be integrated into future products.

HOTEL and TRAVEL INFORMATION

SAE does not have a hotel block. For your convenience, please refer the list of hotels located near the conference site.

Suggested Hotels

Hampton Inn Pittsburgh - University Center
3315 Hamlet Street
Pittsburgh, PA 15213
PH: 412-681-1000
<http://www.hamptoninn.com>

Holiday Inn Select - University Center
100 Lytton Avenue
Pittsburgh, PA 15213
PH: 412-682-6200
<http://www.ihotelsgroup.com>

Wyndham Garden Hotel - University Place
3454 Forbes Avenue
Pittsburgh, PA 15213
PH: 412-683-2040
<http://www.wyndham.com>

NOTE: All properties offer shuttle service to the Carnegie Mellon University campus. Also, there is a Parking Garage on campus, located on Forbes Avenue.

AGENDA

Tuesday, May 11, 2004

- 9:30 a.m. **Registration**, Singleton Room Atrium (coffee available)
- 10:30 a.m. **Introductions**
How Did We Get Here: A Brief History of Nanotechnology
William C. Messner, Professor of Mechanical Engineering, Carnegie Mellon University
- 11:15 a.m. **Nanotechnology in Automotive Mar / Scratch Resistant Clearcoats**
Kurt G. Olson, Director, Automotive Coatings Research, PPG Industries Inc.
- 12:00 p.m. **Lunch**
- 1:30 p.m. **Low-Cost Nanocrystalline Materials for Structural Component**
Srinivasan Chandrasekar, *W. Dale Compton*, Purdue University; *Lillian M. Gilbert*, Distinguished Professor of Industrial Engineering
- 2:15 p.m. **Nano Structured Catalysts for Environmental Applications**
Ismat Shah, Professor, University of Delaware
- 3:00 p.m. **Break**
- 3:30 p.m. **Nano-Carbon Materials Road Map to Commercialization**
Raouf Loutfy, President, MER Corporation
- 4:15 p.m. **Nano-Structured Thin Film Materials for Machining and for Fuel Cell Application**
Paul Salvador, Assistant Professor, Department of Materials Science and Engineering, Carnegie Mellon University
- 5:00 p.m. **Reception**

Wednesday, May 12, 2004

- 8:45 a.m. **Nanotechnology in the Future of the Automobile Industry**
Lester B. Lave, Professor of Economy, Carnegie Mellon University
- 9:30 a.m. **Effects of Developing Nanotechnology for use in Automobile Body Panels and Emission Control Catalysts**
Shannon M. Lloyd, PhD Candidate, Carnegie Mellon University
- 10:15 a.m. **Nanotechnology, Information Storage, and Implications for the Automotive Industry**
Ed Schlesinger, Professor and Associate Head of ECE; Co-Director, General Motors Collaborative Laboratory at Carnegie Mellon University
- 11:00 a.m. **Depart for Seagate Tour** (boxed lunch provided)

Technical program updates available at
<http://www.sae.org/nanotech>

MARKETING SOLUTIONS

Promoting your company at this highly-focused industry event is an easy, cost-effective way to distinguish your company from the competition and build relationships with influential engineering professionals. The nanotechnology design and supply community is invited to showcase their products and services with tabletop displays and increase the visibility of their companies through exclusive sponsorship and advertising opportunities.

Tabletop Display\$1,500

- One tabletop display space (6' x 30" table with two chairs)
- One complimentary symposium registration
- Recognition in the event program

Networking Sponsorship Opportunities

Choose either an exclusive or a package sponsorship to promote your company to top industry professionals.

Evening Networking Reception.....	\$5,000
Continental Breakfast.....	\$3,000 per day
Morning Breaks.....	\$1,500 per day
Daily Lunches.....	\$4,000 per day
Afternoon Refreshment Breaks.....	\$2,000 per day

Packaged Sponsorship Packages

Gold Level.....	\$10,000
Silver Level.....	\$5,000
Bronze Level.....	\$3,000

Further details on all of these marketing opportunities are available at <http://www.sae.org/nanotech>. Partner with the SAE Sales Team to successfully market your company to this targeted audience by calling 724-772-7116 or email exhibitions@sae.org today.

REGISTRATION FORM

040234

REGISTRATION and FEES

By April 30, 2004

SAE Member: \$695.00
Non-Member: \$795.00

After April 30, 2004

SAE Member: \$795.00
Non-Member: \$895.00

The fee includes technical program, lunches, reception, and tour of Seagate Research Center.

Registration is limited. Those wishing to enroll after **April 30, 2004** should first verify that space is available by calling SAE Customer Service (1-877-606-7323 U.S./Canada or 724-776-4970).

Due to the program format and the nature of the information presented, handout materials will only be available to registered attendees. This allows all information discussed to be taken in the context in which it is presented. Requests for handout materials by non-registrants will not be considered.

Nanotechnology - Inner Value Symposium Registration

May 11-12, 2004 • Carnegie Mellon University • Pittsburgh, Pennsylvania, USA

Register me for:

- Nanotechnology - Inner Value Symposium (I.D. # 2004S06)

Preferred mailing address is:

- Business Home (Check one)

SAE Member No. _____

Registrant's Name (first/m.i./last) _____

Mail Stop (if applicable) _____

Job Title _____

Company Division/Department _____

Company Name _____

Street Address _____

City _____ State or Province _____ Zip+4 or Postal Code _____

Country _____

Telephone No. (Day) _____ Telephone No. (Evening) _____

Fax No. _____ Email Address _____



- SAE will do what is feasible to make its events reasonably accessible to attendees. If you have special accommodation needs, please let us know in advance by checking the box and attaching a brief description of how we can serve you better. Accommodations requested on site will be provided only if possible for us to do so on short notice.

- Check Enclosed \$ _____
U.S. Funds only

Purchase Order # _____

OR



CARD NO. _____

EXP. DATE _____

SIGNATURE _____

Be sure to indicate on checks as well as purchase orders the names of participants, Symposium name, and dates. Please print clearly.

Note: The SAE reserves the right to change speakers or cancel programs due to circumstances beyond its control and cannot be held responsible for costs incurred other than the registration fee.

Conditions of Sale: Payment must accompany this form by pre-registration date. Registrations received after the deadline date will automatically be charged the on-site price. NO CHILDREN UNDER THE AGE OF 16 PERMITTED. All cancellations must be in writing and received by SAE prior to **Thursday, April 29, 2004**. A \$50.00 processing fee will be assessed for each canceled registration that results in a refund. Refunds for special event/ meal tickets will not be processed after **Wednesday, April 28, 2004**. Refunds will not be issued if cancellation occurs on or after **Thursday, April 29, 2004**.

To register and for additional details, contact SAE:
Online: <http://www.sae.org/nanotech>
E-mail: CustomerService@sae.org
Phone: Toll free 1-877-606-7323
(outside US/Canada 1-724-776-4970)
Fax: 1-724-776-0790
Mail: Attn: Customer Service, SAE,
400 Commonwealth Drive, Warrendale, PA 15096-0001