



FINAL PROGRAM

EIGHTH INTERNATIONAL SYMPOSIUM ON SILANES AND OTHER COUPLING AGENTS

June 22-24, 2011 Danbury, Connecticut, USA

SYMPOSIUM HISTORY AND MOTIVATION

This symposium continues the tradition set by the first symposium in this series: "Silanes and Other Coupling Agents" which was hosted in 1991 by the Dow Corning Corporation in honor of Dr. Edwin P. Plueddemann. As with its predecessors, this symposium is concerned with the technological areas where the use of surface primers such as silanes is critical to the success of many technologies.

Historically the silanes have been used as coupling agents for thin films in the microelectronics industry and in glass fiber composites where the use of silanes has been an enabling factor in the success of many manufactured products. Quite surprisingly, silanes have also found a role in biotechnology as specific coupling agents for bonding polynucleotides to the so-called "gene chips" and also in cosmetic applications.

WEDNESDAY, JUNE 22, 2011

SESSION I: BIOMEDICAL APPLICATIONS

(JOINT SESSION WITH POLYMER SURFACE MODIFICATION)

9:00-9:30am: **Stephen Coulson**; P2i Ltd., 127 North, Milton Park, OX14 4 SA, Abingdon, Oxfordshire, UK; **Plasma Surface Modification for Increased Hydrophilicity**

9:30-10:00: **Mikko Tuominen**, Hannu Teisala, Mikko Aromaa, Milena Stepien, Jyrki M. Mäkelä, Jarkko J. Saarinen, Martti Toivakka and Jurkka Kuusipalo; Paper Converting and Packaging Technology, Tampere University of Technology, P.O. Box 541, FI-33101 Tampere, FINLAND; **Generation and Stimulation of Liquid Flame Spray (LFS) Coating**

10:00-10:30: **Saswati Datta**; Procter and Gamble, Miami Valley Innovation Center, 11810 East Miami River Road, Cincinnati OH 45252; **"Skin Mimic": Surface Modification of Polymers to Mimic Human Skin**

10:30-11:00: COFFEE BREAK

11:00-11:30: Shubhra Gangopadhyay, **Venu Korampally**, Singdha Praharaj, Vamsi Mamidi, Bryant Harris, Luis Polo Parada, Sangho Bok and Keshab Gangopadhyay University of Missouri, Columbia, MO; **Polymethyl Silsesquioxane Nanoparticles, their Surface Modifications and Applications in Microsystems**

11:30-12:00: N. De Geyter, R. Morent, **T. Jacobs**, S. Van Vlierberghe, P. Dubruel and Christophe Leys; Research Unit Plasma Technology (RUPT), Department of Applied Physics, Faculty of Engineering, Ghent University, Jozef Plateaustraat 22, 9000 Gent, BELGIUM; **Medium Pressure Plasma Treatment of Biodegradable PLA and PCL**

12:00-12:30: Kerry A. Wilson, Craig A. Finch, Phillip Anderson, **James J. Hickman** and Frank Vollmer; NanoScience Technology Center, University of Central Florida, 12424 Research Parkway, Orlando FL 32828; **Quantification and Structure Evaluation of Protein Adsorbed at Defined Interfaces and its Effect on Subsequent Cell Culture**

12:30-2:00: LUNCH BREAK

WEDNESDAY, JUNE 22, 2011

**SESSION II: BIOLOGICAL APPLICATIONS
(CONTINUED)**

(JOINT SESSION WITH POLYMER SURFACE
MODIFICATION)

2:00-2:30: Shantanu Bhattacharya;
Department of Mechanical Engineering, IIT
Kanpur, INDIA; **Plasma Modification of
Polymer Surfaces and Their Utility in
Building Biomedical Microdevices**

**2:30-3:00: X. F. Hu, F. Zhang, E. T. Kang and
K. G. Neoh;** Department of Chemical and
Biomolecular Engineering, National University of
Singapore, Kent Ridge, Singapore 119260;
**Exploiting Surface Chemical Modification
of Natural Biopolymers for Selective Bio-
interactivity with Bacteria and Bone Cells
in Orthopedic Applications**

3:00-3:30: K. Fricke, K. Duske, A. Quade, B.
Nebe, K. Schröder and Th. v. Woedtke;
Leibniz Institute for Plasma Science and
Technology (INP Greifswald e.V.), Greifswald,
GERMANY; **Comparison of Low-
temperature Plasma Processes on the
Surface Properties of Polystyrene and
Their Impact on the Growth of
Osteoblastic Cells**

SESSION III: THURSDAY, JUNE 23, 2011

NOVEL APPLICATIONS OF SILANES

9:00-9:05: INTRODUCTORY REMARKS

9:05-9:35: Bret Chisholm, Partha
Majumdar, Shane Stafslie, and David
Christianson; Center for Nanoscale Science
and Engineering, North Dakota State
University, Fargo, ND; **An Investigation of
Antimicrobial Coatings Derived from
Quaternary Ammonium-Functional
Alkoxysilanes Using Combinatorial/High-
Throughput Methods**

9:35-10:05: A. Ansarifar; Materials
Department, Loughborough University,
Leicestershire LE11 3TU, UK;
**How a Sulfur-Bearing Bifunctional
Organosilane Changed the Shape of
Rubber Formulation**

10:05-10:35: W. Dierkes, M. Tiwari, R. Datta,
A. Talma, J. Noordermeer and W. van Ooij;
University of Twente, Faculty of Engineering
Technology, Department of Elastomer
Technology & Engineering, Enschede, THE
NETHERLANDS; **Improving Compatibility and
Interaction of Polymers and Additives in
Rubber by Surface Modification in a Plasma
Polymerization Process**

10:35-11:00: COFFEE BREAK

11:00-11:30: Gon Seo; School of Chemical
Engineering, Chonnam National University,
Gwangju 500-757, Korea; **Improved Tensile
and Dynamic Properties of SBR Compounds
Reinforced with Networked Silicas Prepared
Using Silanes as Connecting Materials**

11:30-12:00: A Babik and V. Cech; Institute
of Materials Chemistry, Brno University of
Technology, Purkynova 118, CZ-61200 Brno,
CZECH REPUBLIC; **Self-assembled
Monolayers of Vinyltriethoxysilane and
Vinyltrichlorosilane**

12:00-12:30: Roy U. Rojas Wahl;
Momentive Performance Materials, 769 Old
Saw Mill River Road, Tarrytown, NY 10591;
**The Reaction Between
Organoalkoxysilane Esters And 1,3-Diols
To Form Cyclic Silane Esters**

12:30-2:00: LUNCH

SESSION IV: THURSDAY, JUNE 23, 2011

SILANES IN ADHESION AND BONDING

2:00-2:30: A. N. Rider and N. Brack; DSTO,
Melbourne, AUSTRALIA; **The Influence of
Surface Roughening and Plasma Treatment
on the Environmental Resistance of Epoxy
to Titanium Adhesive Bonds**

2:30-3:00: E.H.N. Pow K.K.C. Yeung and J.P.
Matinlinna; Oral Rehabilitation, Faculty of
Dentistry, The University of Hong Kong, HONG
KONG; **HEMA and Silane Blend Effects on
Resin-Titanium Bonding**

3:00-3:30: L. Hoferek, E. Palesch and **V. Cech**; Institute of Materials Chemistry, Brno University of Technology, Purkynova 118, CZ-61200 Brno, CZECH REPUBLIC; **Plasma-polymerized Films Based on Tetravinylsilane Monomer**

3:00-4:00: COFFEE BREAK

4:00-4:30: **Hari T Deo**; Institute of Chemical Technology Deemed University, Mumbai, INDIA; **The Enhanced Interfacial Adhesion Phenomena Using Ti-based Polymeric Surface-modifying Formulations**

4:30-5:00: **Tsutomu Furuta** and Akira Nakajima; Department of Metallurgy & Ceramics Science, Graduate School of Science & Technology, Tokyo Institute of Technology, 2-12-1, Ookayama, Meguro-ku, Tokyo 152-8552, JAPAN; **Evaporation and Sliding of Water Droplets on Fluoroalkylsilane Coatings with Nanoscale Heterogeneity**

5:00-5:30: **M. Masudul. Hassan**, Marco Mueller, Diana J. Tartakowska and Manfred H. Wagner; Department of Chemistry, M C College, National University, Sylhet-3100, BANGLADESH; **Grafting of Gycidyl Methacrylate onto Isotactic Polypropylene Used as a Compatibiliser For Composite Preparation**

SESSION V: FRIDAY, JUNE 24, 2011

SILANE CHEMISTRY AND NANOSTRUCTURES

9:00-9:30: Yun mi Kim, Janis Matisons and **Barry Arkles**; Gelest Inc., 11 East Steel Road, Morrisville, PA 19067; **Evaluating the Hydrolytic Stability of Silane, Titanate and Phosphate Coupling Agents on Metallic and Silicious Substrates**

9:30-10:00: **Bhanu P. S. Chauhan**, Leon Prasanth K, Ramani Thekkathu, Ankita Shah, Hardika Shukla, Vanessa Comerón and Tamar Lesnoy; Engineered Nanomaterials Laboratory, Department of Chemistry, William Paterson University, 300 Pompton Road, Wayne, NJ 07470-2103; **Hydrosilanes as Coupling Agents for "Living" Metal Nanoparticles Surfaces**

10:00-10:30: Guo Liang Li, K. G. Neoh and **E. T. Kang**; Department of Chemical & Biomolecular Engineering, National University of Singapore, Kent Ridge, Singapore 119260; **Silane-Promoted Synthesis of Functional Hollow Polymeric and Hybrid Micro- and Nanostructures**

10:30-11:00: L. Wang, C. Huang, E. T. Kang and **K. G. Neoh**; Department of Chemical and Biomolecular Engineering, National University of Singapore, Kent Ridge, Singapore 119260; **Designing Functionalized Magnetic Nanoparticles via Silane Anchors for Biomedical Applications**

HOTEL AND TRAVEL INFORMATION FOR THE DANBURY PLAZA HOTEL

THE SYMPOSIUM WILL BE HELD AT THE DANBURY PLAZA HOTEL AT THE FOLLOWING ADDRESS:

**Danbury Plaza
Hotel and Conference Center
18 Old Ridgebury Road
Danbury, CT 06810
Tel: 203-794-0600
Web site: www.danburyplaza.com**

TRANSPORTATION: Limousine and shuttle service is available from Laguardia and Kennedy airports. The hotel recommends the following services for Airport Transportation arrangements. Each of these vendors offers door to door service.

Go Airport Shuttle - Shuttle Van
Georgianna Lemelin
Tel: 203-891-1280
E-mail: sales@ToTheAirport.com

Gateway Limousine Inc.-Town Car
Rich Daddona
Tel: 800-942-8392

Enterprise Care Rental - Car Rental with an International Drivers License
David Capasso
Tel: 203-423-9334 Cellular Phone
E-mail: David.a.capasso@erac.com

All of the above vendors service the international airports both in CT and NY. Please remember that each airport has Taxi Stands with Taxi Service available from each airport to the hotel destination. Taxi service cannot be pre-arranged.

IF TRAVELING BY RENTAL CAR PLEASE REFER TO THE FOLLOWING MAP AND DIRECTIONS:

http://www.danburyplaza.com/map_and_directions/

CLICK BELOW FOR DETAILED WRITTEN DIRECTIONS IF TRAVELLING BY CAR:

[DanburyPlazaWritenDirections.htm/](#)

Local Attractions

Relaxing New York City Area Hotel Lodging , Near Prominent Businesses & Attractions. Escape to a relaxed and comfortable environment at the Danbury Plaza Hotel, formerly the Sheraton Danbury. One of the most accessible New York City area hotels, this first-class lodging offers stylish accommodations, exceptional meeting facilities, and close proximity to key businesses and leisure attractions. Call on clients at the nearby Ridgebury Office Center. Or board the Metro North train and arrive in midtown Manhattan in about an hour. For added value, check out the affordable deals at this convenient New York area hotel lodging.

- * **Grand Prix NY Race Track (20.0 mi.)**
- * **Connecticut Jazz Festival**
- * **Litchfield Hills Connecticut**
- * **Danbury Fair Mall (1.0 mi.)**
- * **Danbury Dining and Entertainment District (5.0 mi.)**
- * **Military Museum of Southern New England (5.0 mi.)**
- * **Kent Falls (35.0 mi.)**
- * **New York City Attractions (50.0 mi.)**
- * **Foxwoods Resort Casino (90.0 mi.)**
- * **Mohegan Sun Resort Casino (90.0 mi.)**
- * **Brewster Sports Arena**
- * **Centennial Golf Course**

REGISTRATION INFORMATION

DATES:

JUNE 20-22, 2011: EIGHTH INTERNATIONAL SYMPOSIUM ON POLYMER SURFACE MODIFICATION: RELEVANCE TO ADHESION
www.mstconf.com/surfmod8.htm

JUNE 22-24, 2011: EIGHTH INTERNATIONAL SYMPOSIUM ON SILANES AND OTHER COUPLING AGENTS
www.mstconf.com/silanes8.htm

LOCATION:

DANBURY PLAZA HOTEL AND CONFERENCE CENTER

18 OLD RIDGEBURY ROAD
DANBURY, CT 06810

Tel: 203-794-0600
FAX: 203-798-7735

E-mail: aweber@danburyplaza.com

Web Site: www.danburyplaza.com

REGISTRATION:

Speaker/student \$395 each; regular attendee \$595 each. A 10% discount applies if more than 1 person is participating from the same organization.

HOTEL: Please make room reservations directly with the Danbury Plaza Hotel. Make your reservations early and be sure to mention that you are attending the MST symposium in order to receive the reduced conference hotel rate.

TRANSPORTATION: Limousine and shuttle service is available from Laganardia and Kennedy airports

TO REGISTER FOR SYMPOSIUM:

BY PHONE: 845-897-1654; 845-227-7026
BY FAX: 212-656-1016
E-mail: rhl@mstconf.com

REGISTER ONLINE:

www.mstconf.com/RegMST.htm

BY MAIL: SEND COMPLETED FORM TO:

Dr. Robert Lacombe
Chairman
MST Conferences
3 Hammer Drive
Hopewell Junction, NY 12533-6124, USA

SHORT COURSES ON APPLIED ADHESION MEASUREMENT METHODS (June 25, 2011) AND DURABILITY OF ADHESIVE JOINTS (June 26, 2011)

: Associated with these symposia MST gives short courses on adhesion related topics. Since nearly all of the MST symposia have some relation to adhesion phenomena, the ability to quantify the adhesion of one material layer to another is clearly one of the unifying themes. These courses are designed to mesh with the topical symposia by presenting an overview of the most useful techniques for evaluation of the adhesion of coatings and the durability of adhesive joints. Emphasis is given to methods which can be carried out in a manufacturing environment as well as in the lab and which give results that are directly relevant to the durability and performance of coatings, adhesive joints and other bonded laminate structures. The effects of material elastic properties and residual stress are considered as well as environmental influences which affect coating adhesion and joint durability.

Audience: Scientists, technical and professional staff in R&D, manufacturing, processing, quality control/reliability involved with the durability and reliability of coatings, laminates and other bonded structures.

Level: Beginner to Intermediate

Prerequisites: Elementary background in chemistry, physics or materials science.

Duration: 1 day

Registration fee: \$695: Includes course notes, handouts and a copy of the newly published handbook and reference volume: **ADHESION MEASUREMENT METHODS: THEORY AND PRACTICE** (CRC Press, 2006).

How You Will Benefit From These Courses:

- ▶ **Understand advantages and disadvantages** of a range of adhesion measurement and joint testing techniques.
- ▶ **Gain insight** into mechanics of adhesion testing and the role of intrinsic stress and material properties
- ▶ **Learn optimal methods** for setting adhesion strength requirements for adhesive joints and coating applications.
- ▶ **Learn how to select** the best measurement technique for a given application.
- ▶ **Gain perspective** from detailed discussion of actual case studies of product manufacturing and development problems.

CANCELLATIONS: Registration fees are refundable, subject to a 15% service charge, if cancellation is made by June 1, 2011. **NO** refunds will be given after that date. All cancellations must be in writing. Substitutions from the same organization may be made at any time without penalty. MST Conferences reserves the right to cancel any of the symposia or the short course if it deems this necessary and will, in such event, make a full refund of the registration fee. No liability is assumed by MST Conferences for changes in program content.

REGISTRATION FORM: CHECK ALL THAT YOU WANT TO ATTEND

EIGHTH INTERNATIONAL SYMPOSIUM ON POLYMER SURFACE MODIFICATION, June 20-22, 2011 (speaker/student)	\$395
EIGHTH INTERNATIONAL SYMPOSIUM ON POLYMER SURFACE MODIFICATION, June 20-22, 2011 (regular attendee)	\$595
EIGHTH INTERNATIONAL SYMPOSIUM ON SILANES AND OTHER COUPLING AGENTS, JUNE 22-24, 2011 (speaker/student)	\$395
EIGHTH INTERNATIONAL SYMPOSIUM ON SILANES AND OTHER COUPLING AGENTS, JUNE 22-24, 2011 (regular attendee)	\$595
Sub Total	
Deduct additional 10% if more than 1 participant from same institution	
Short Course on <u>Applied Adhesion Measurement Methods</u> (June 25, 2011)	\$695
Short Course on <u>Durability of Adhesive Joints</u> (June 26, 2011)	\$695
TOTAL REGISTRATION FEE	

METHOD OF PAYMENT, CHECK WHICH METHOD YOU PREFER

CREDIT CARD: Check here and fill out box below	
BANK WIRE TRANSFER: Check here and contact the symposium Chairman, Dr. Lacombe for bank wire information either by phone, FAX or E-mail: Tel. 845-897-1654 FAX: 212-656-1016 E-mail: rhlacombe@compuserve.com	
CHECK: Make check payable to MST Conferences, LLC and mail to: Dr. Robert H. Lacombe Conference Chairman 3 Hammer Drive Hopewell Junction, NY 12533-6124, USA	

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