



## PRELIMINARY PROGRAM

# SIXTH INTERNATIONAL SYMPOSIUM ON CONTACT ANGLE, WETTABILITY AND ADHESION

To be held at the University of Maine, Orono, Maine USA  
July 14-16, 2008

In his opening remarks at the first symposium in this series Professor Robert Good pointed out that Galileo in the 17<sup>th</sup> century was quite likely the first investigator to observe contact angle behavior with his experiment of floating a thin gold leaf on top of a water surface. Since that time contact angle measurements have found wide application as a method for determining the energetics of surfaces. This, in turn, has a profound effect on the wettability and adhesion of liquids and coatings to surfaces.

We are indeed happy to announce that this the 6<sup>th</sup> symposium in the series will be organized in collaboration with Prof. Douglas Gardner in the Advanced Engineered Wood Composites Center at the University of Maine, Orono, Maine. Prof. Gardner is well acquainted with problems of wettability and adhesion having published on the Dynamic Wettability of Wood and also serving on the editorial board of the Journal of Adhesion Science and Technology which is edited by the Conference Director Dr. Mittal.

This symposium will be concerned with both the fundamental and applied aspects of contact angle measurements. Issues such as the applicability and validity of various measurement techniques and the proper theoretical framework for the analysis of contact angle data will be of prime concern. In addition, a host of applications of the contact angle technique will be explored including but not limited to: wettability of powders, fibers, wood products, papers, polymers and monolayers. Further focus will be on the use of contact angle data in evaluating surface modification procedures, determining relevance of wettability to adhesion, the role of wettability in bioadhesion, ophthalmology, prosthesis and in the control of dust in mining and milling applications. The primary focus of this symposium will be to provide a forum for the discussion of cutting edge advancements in the field and to review and consolidate the accomplishments which have been achieved thus far.

## MOLECULAR FUNDAMENTALS

David W. Dwight, Gordon K.-S. Tseng and **David L. Allara**; Departments of Chemistry and Materials Science & Engineering, Pennsylvania State University, University Park, PA 16802; **The Reciprocal Relationship Between Donor-acceptor and Dispersion Forces**

**Athanassia Athanassiou**; NNL-National Nanotechnology Laboratory, INFN-CNR, Via Arnesano, 73100, Lecce, ITALY; **Reversible Transition from Hydrophobicity to Hydrophilicity of Photon Responsive Surfaces: From Photochromic Molecules to Nanocrystals**

**Alexander Y. Fadeev**; Department of Chemistry and Biochemistry, Seton Hall University, South Orange, NJ 07079; **Wetting of Hydrophobic Surfaces: Macroscopic and Microscopic Pictures**

**Seong H. Kim**; Department of Chemical Engineering, The Pennsylvania State University, University Park, PA 16802; **Effects of Water and Alcohol Adsorption on Silicon Oxide Nano-asperity Adhesion**

**M .E. R. Shanahan** and K.Sefiane; Université Bordeaux 1, Laboratoire de Mécanique Physique, CNRS UMR 5469, 351 Cours de la Libération, 33405 Talence Cedex, FRANCE; **Kinetics of Triple Line Motion during Evaporation**

## EXPERIMENTAL METHODS

**Edward Bormashenko**; The Ariel University Center of Samaria, 40700, Ariel, ISRAEL; **Study of the Cassie-Wenzel Wetting Transition Using Vibrated Drops**

Miguel A. Rodríguez-Valverde, Pedro M. Gea-Jódar, Helmut Kamusewitz, Francisco J. Montes Ruiz-Cabello and **Miguel A. Cabrerizo-Vílchez**; **Model For Estimation of The Young Contact Angle From Contact Angle Hysteresis Measurements**

**T. S. Horozov**; Surfactant & Colloid Group, Department of Chemistry, University of Hull, Hull, HU6 7RX, UNITED KINGDOM; **Contact Angles of Colloidal Particles Measured by a Novel "Film Calliper" Method**

**Patricia McGuiggan**; Johns Hopkins University, Department of Materials Science and Engineering, 3400 N Charles Street, Baltimore, MD 21218; **Wetting of Microspheres and Nanotubes Using the AFM**

**Joung-Man Park**, Pyung-Gee Kim, Jung-Hoon Jang, Zuoqia Wang, Woo-Il Lee, Jong-Kyoo Park, K. Lawrence DeVries; Gyeongsang National University, Jinju 660-701, KOREA; **Interfacial Adhesion Evaluation and Self-Sensing of Single Carbon Fiber/Carbon Nanotube-Epoxy Composites Using Electro-Micromechanical Technique and Dynamic Contact Angle Measurement**

**Toshiya Watanabe** and Naoya Yoshida; The University of Tokyo, 4-6-1, Komaba, Meguro-ku, Tokyo, 153-8505 JAPAN; **Surface Wettability Control by Photocatalysis for Self-Cleaning**

## SUPERHYDROPHOBIC BEHAVIOR

**Peilin Chen**; Institute of Applied Science and Engg. Research, Academia Sinica, 128, Section 2, Academia Road, Nankang, Taipei 115, TAIWAN; **Novel Applications of Switchable Superhydrophobic Surfaces**

**Wonjae Choi**, Anish Tuteja, Robert E. Cohen, and Gareth H. McKinley; Mechanical Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts; **Exploring Contact Angle Hysteresis and the Validity of the Cassie-Baxter Equation Using Super-oleophobic Surfaces**

**Chih-Feng Huang** and Feng-Chih Chang; Department of Applied Chemistry, National Chiao Tung University, Hsinchu 300 TAIWAN; **Fabrication of Super-Amphiphobic Surfaces and New Type of Mold-Release Agent for Nanoimprint via Polybenzoxazine**

**Minglin Ma** and Gregory C. Rutledge; Chemical Engineering, Institute for Soldier Nanotechnologies, Massachusetts Institute of Technology, Cambridge, MA; **Superhydrophobic Electrospun Nonwovens**

**Avi Marmur**; Chemical Engineering Department, Technion - Israel Institute of Technology, Haifa, 32000 ISRAEL; **Super-hydrophobicity: Water in Air, and Air in Water**

**A. R. Phani**, P. De Marco, and S. Santucci; CASTI, CNR-INFM Regional Laboratory, Department of Physics, University of L'Aquila, via Vetoio, 67010 Coppito - L'Aquila - ITALY; **Super Hydrophobic Films Based on Organic-inorganic Hybrid Coatings - Potential Application in Aeronautic, Automotive and Biomedical Applications**

**D. K. Sarkar** and M. Farzaneh; Université du Québec à Chicoutimi, QUÉBEC; **Superhydrophobic Binary Structures: Preparation, Characterization and Ice Adhesion**

**Jian Xu**; State Key Laboratory, Polymer Physics & Chemistry, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100080, P.R. CHINA; **A Novel Ultra-Hydrophobic Surface: Statically Non-Wetting but Dynamically Non-Sliding**

**Mireille Turmine**; Laboratoire d'Electrochimie et Chimie Analytique (UMR7575), Université Pierre et Marie Curie, 4 place Jussieu, 75252 PARIS Cedex 05, FRANCE; **Grafted ZnO Surface (Superhydrophobic Surface)**

## STRUCTURED SURFACES

**Chuck Extrand**; Entegris Research Group, Entegris, Inc., 3500 Lyman Blvd., Chaska, MN 55318; **Super Wetting of Structure Surfaces**

**Akira Fujishima**; Kanagawa Academy of Science and Technology, KSP Building West 614, 3-2-1 Sakado, Takatsu-ku, Kawasaki, Kanagawa 213-0012, JAPAN; **TiO<sub>2</sub> Photocatalysis - Fundamentals and Applications**

**Jason Heikenfeld**; Novel Devices Laboratory, University of Cincinnati, Cincinnati, OH 45220; **Arrayed Electrowetting Devices for Thin, Low-Cost, Powerful, and Efficient Optics**

**Dr. Rikard Lingström**; Division of Fibre Technology, School of Chemical Science & Engg., Royal Institute of Technology, (KTH), SE-10044 Stockholm, SWEDEN; **Fibre Surface Engineering and the Link Between Fibre Wettability and Wet Adhesion**

**S. T. Picraux**, Dongqing Yang, S. Choi, P. Aella, Antonio A. Garcia; Center for Integrated Nanotechnologies, Los Alamos National Laboratory, Los Alamos, New Mexico 87545; **Design of Surfaces with Photo-induced Superhydrophilic to Superhydrophobic Switching**

**Hiroshi Yabu**, Miki Kojima, Yuji Hirai, Masatsugu Shimomura; Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, 2-1-1, Katahira, Aoba-ku, Sendai, 980-8577, JAPAN; **Honeycomb Films; Their Unique Structures and Surface Properties**

**Haoshen Zhou**; (AIST), Umezono 1-1-1, Tsukuba, 305-8568, JAPAN; **Wettability Properties Controlled by the Nanostructured Surface Fabrication**

## BIOLOGICAL SURFACES

**Laurence Boulangé**, F. Crozet, F. Charlon and F. Desmaris; BD Medical - Pharmaceutical Systems, 11 Rue Aristide Bergès, 38800 Le Pont de Claix, FRANCE; **Effect of the Surface Solid Heterogeneity on Protein Stabilization**

**Xian Jia**; Department of Science and Technology, University of Science and Technology Beijing, Beijing 100083, CHINA; **Research Progress of Hydrophobic Biomaterial Surfaces and Biomimetic Hydrophobicity Surfaces**

**Mika M. Kohonen**; Surfactant & Colloid Group, Department of Physical Sciences, University of Hull, Kingston upon Hull, HU6 7RX, United Kingdom; **Observations on Insect Adhesion and Friction**

**Lei Jiang**; Center of Molecular Sciences, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100080, CHINA; **Design and Creation of Bioinspired Surfaces with Special Wettability**

**Carel Jan van Oss**; School of Medicine and Biomedical Sciences, SUNY Buffalo, Buffalo, NY 14214-3078; **Energetics and Kinetics of Specific Ligand-Receptor (Including Antigen-Antibody) Interactions**

## WOOD TECHNOLOGY

**Martina Meincken**, A Klash and E Ncube; Department of Forest and Wood Science, Department of Chemistry and Polymer Science, University of Stellenbosch, Private Bag X1, Matieland 7602, SOUTH AFRICA; **Localisation and Quantification of Functional Groups on Pulp Fibres**

**Gloria S. Oporto** and Douglas J. Gardner; Advanced Engineered Wood Composite (AEWC) Center, University of Maine, Orono, ME 04469; **Adhesion Properties of Wood Plastic Composites Surfaces (WPC) Using Atomic Force Microscopy**

**Marko Petric**, Borut Kricej, Andreja Kutnar, Matjaz Pavlic, Philippe Gerardin, Mathieu Petrissans and Milan Sernek; University of Ljubljana, Biotechnical Faculty, Dept. of Wood Science & Technology, Jamnikarjeva 101, SI 1000, Ljubljana, SLOVENIA; **Wettability of Various Wood Based Materials and Their Surface Free Energies**

**B. Riedl**, V. Blanchard, P. Blanchet, R. Gilbert and P. Evans; Département des Sciences du Bois, Université Laval, Québec, CANADA; **Plasma Treatment for Enhanced Adhesion of Coatings to Wood.**

## THEORETICAL STUDIES

**Dan Lewis**; Rensselaer Polytechnic Institute, Materials Research Center, Room 110, 110 8th Street, Troy, NY 12180; **Computational Method for Understanding Balance of Surface Tension Forces Against External Constraints of Varying Complexity**

**Mark Robbins**; Dept. of Physics and Astronomy, Johns Hopkins University, Baltimore, MD 21218; **Moving Contact Lines: Can the Interfacial Width Remove the Stress Singularity?**

**Mireille Turmine**; Laboratoire d'Electrochimie et Chimie Analytique (UMR7575), Université Pierre et Marie Curie, 4 place Jussieu, 75252 PARIS Cedex 05, FRANCE; **Nonextensive Approach of Thermodynamics to Wettability**

**Mireille Turmine**; Laboratoire d'Electrochimie et Chimie Analytique (UMR7575), Université Pierre et Marie Curie, 4 place Jussieu, 75252 PARIS Cedex 05, FRANCE; **Wettability Behavior of Acid-Base Surface**

F.J. Montes Ruiz-Cabello, Halim Kusumaatmaja, **M.A. Rodríguez-Valverde**, J.M. Yeomans and M. Cabrerizo-Vilchez; Biocolloid and Fluid Physics Group, Department of Applied Physics, University of Granada, Campus de Fuentenueva; E-18071 Granada, SPAIN; **Study of Contact Angle Multiplicity of Cylindrical Drops Using Lattice-Boltzmann Model**

## SURFACE TREATMENT STUDIES

**Hernando Salapare III**; Plasma Physics Laboratory, National Institute of Physics, College of Science, University of the Philippines Diliman, PHILIPPINES; **The Porosity and Wettability Properties of Hydrogen Ion Treated Polytetrafluoroethylene**

Tessa ten Cate, Daniël Turkenburg, Timme Lucassen, Susan Reinders, Lawrence Batenburg and **Mariëlle Wouters**; TNO Science and Industry, Innovative Materials, THE NETHERLANDS; **Using Monolayer Coatings to Tune Surface Wettability**

**Akira Nakajima**, Shunsuke Suzuki, Munetoshi Sakai, Yoshikazu Kameshima and Kiyoshi Okada; Department of Metallurgy and Ceramics Science, Tokyo Institute of Technology, JAPAN; **Direct Evaluation of the Sliding Motion of Water Droplets on Hydrophobic Silane Coatings**

This symposium is being organized under the direction of Dr. K. L. Mittal, Editor, Journal of Adhesion Science and Technology by MST Conferences, LLC. A proceedings volume is planned for this symposium and further details will be provided in due course. Please notify the conference chairman of your intentions to present a paper as early as possible. An abstract of about 200 words should be sent by **April 15, 2008** to the conference chairman by any of the following methods:

E-mail: [rhlacombe@compuserve.com](mailto:rhlacombe@compuserve.com)

FAX: 212-656-1016

Regular mail:

Dr. Robert H. Lacombe  
Conference Chairman  
3 Hammer Drive  
Hopewell Junction, NY 12533

Contact by phone: 845-897-1654; 845-227-7026

Full conference details and registration via the Internet will be maintained on our web site:

**<http://mstconf.com/contact6.htm>**