



# FINAL PROGRAM

## INTERNATIONAL SYMPOSIUM ON SURFACE SCIENCE ASPECTS OF PHARMACEUTICAL SCIENCE, PHARMACOLOGY, COSMETICS AND BIO-TECHNOLOGY

April 19-20, 2010 in Danbury, Connecticut, USA

The staff of MST CONFERENCES are happy to announce the inaugural symposium in a planned series on the surface science aspects of pharmaceutical science, pharmacology, cosmetics and bio-technology. The scope of the program deals, among others, with aspects which are critically dependent on understanding the nature of surface interactions which control the behavior and biological activity of therapeutical formulations as well as cosmetic and biomedical technologies such as bio-adhesives, drug delivery systems, cosmetic formulations and gene chip arrays.

The overall focus of the symposium of necessity is multi-disciplinary in nature involving researchers engaged in developing new drugs to surface scientists concerned with the detailed nature of surface interactions and their accurate measurement. It is indeed a prime objective of the symposium to bring these normally disparate groups together within a forum where needs, ideas and methodologies can be discussed and mutually beneficial collaborations encouraged.

It is well recognized that a wide range of critical biological interactions occur at or across surfaces including drug absorption, cellular adhesion, autoimmune reactions, skin inflammation and cell growth, to name a few.

Thus in order to control or modify these processes it is first critical to understand the fundamental nature of the surface interactions which control them. It is at this level that the surface scientist and the bio-technologist can collaborate to develop innovative technologies for drug delivery, cellular and bone repair, cosmetic formulations and advanced diagnostic methods such as gene chip arrays.

On the one hand, the pharmaceutical scientists and bio-technologists can elucidate the problems and methods of their disciplines with regard to issues relating to delivery and absorption of drug metabolites, interactions leading to inflammation or implant rejection and adverse immune system response to medical treatments. The surface scientist, on the other hand, can demonstrate how the methods of surface analysis and measurement can be brought to bear on the problem of understanding the basic surface chemistry which controls these processes. As an example, the bio-technologist might explain the problems associated with a topical skin treatment whereas the surface scientist can demonstrate how contact angle measurements can be used to evaluate the wettability characteristics of skin and how this affects the absorption of and reaction with topical medications.

### SESSION I: MONDAY, APRIL 19, 2010

#### 8:30- INTRODUCTORY REMARKS

**8:35-9:20: Arthur J. Coury;** 154 Warren Avenue, Boston, MA 02116; **Local Drug Delivery from Synthetic Hydrogel Implants**

**9:20-9:50:** T. Delmas, M. M. Roberts and **J. Y. Y. Heng;** Imperial College London, South Kensington Campus, London SW7 2AZ UK; **Geometrical and Chemical Interactions for Controlled Nucleation and Crystallization of Lysozyme**

**9:50-10:20: Matthias Lauer** O. Grassmann, M. Siam, L. Jacob, J. Tardio, S. Page, J. Kindt, A. Engel and J. Alsenz; F. Hoffmann-La Roche Ltd., Discovery Technologies, Molecular Structure Research, CH-4070 Basel, SWITZERLAND; **Screening Assay to Probe API/Excipient Melt Miscibility and Stabilities using Scanning Probe Microscopy**

#### 10:20-10:40: COFFEE BREAK

**10:40-11:10: G. Papandreou,** K. Wolf, J. Meng, N. Rahbar, C. A. Maryanoff, and W. Soboyejo; Convergent Product Development, Cordis Corporation, 7 Powder Horn Drive, Warren, NJ 07059; **Durability Studies of Drug-Eluting Stents**

## SESSION III: TUESDAY, APRIL 20, 2010

**11:10-11:40:** Hilton Barbosa de Aguiar, Alex de Beer, Matthew L. Strader and **Sylvie Roke**; Max-Planck Institute for Metals Research, Stuttgart, GERMANY; **SDS Surfactant Has a Marginal Effect on the Interfacial Tension of Nanoscopic Oil Droplets in Water**

**11:40-12:10:** Jean-Sébastien Samson, Hilton Barbosa de Aguiar, Alex de Beer and **Sylvie Roke**; Max-Planck Institute for Metals Research, Stuttgart, GERMANY; **Structure and Functionality of a Potential Liver Cancer Medicine**

**12:10-1:30: LUNCH**

## SESSION II: MONDAY, APRIL 19, 2010

**1:30-2:00:** Xu Li, Junfei Tian and **Wei Shen**; Australian Pulp and Paper Institute, Department of Chemical Engineering, Monash University, Clayton Campus, VIC 3800 AUSTRALIA; **Thread-based Low-cost Semi-quantitative Diagnostic Sensors**

**2:00-2:30:** F.J. Chen, Tommasina Bramante, Richard Deanne, George Gereg, Svetlana Sienkiewicz, Luying Wang and **Frank M. Etzler**; Pharmaceutical R&D, Boehringer-Ingelheim Pharmaceuticals, Inc. POB 368, 900 Ridgebury Road, Ridgefield, CT 06877; **Effect of Sodium Dodecyl Sulfate on the Tabletability, Compressibility and Compactibility of Common Pharmaceutical Excipients.**

**2:30-3:00:** Thomas Ballet, Laurence Boulangé, Yves Bréchet, **Franz Bruckert**, Paolo Mangiagalli, Laurent Nault and Marianne Weidenhaupt; Institut National Polytechnique de Grenoble; UMR 5628, CNRS-INPG, 3 L Nel, F-38016 Grenoble 1, FRANCE; **Kinetics of Insulin Amyloid Fiber Formation on Hydrophobic Surfaces**

**3:00-3:20: COFFEE BREAK**

**3:20-3:50:** Laila J. Jallo, Yuhua Chen, Xi Han, James Bowen, Frank Etzler, and **Rajesh Davé**; New Jersey Center for Engineered Particulates, New Jersey Institute of Technology, 138 Warren Street, Newark, NJ, 07102-1982; **Adhesion Force Prediction for Fine Particles from Surface Energy and Surface Roughness Measurements**

**3:50-4:20:** **Cetin Cetinkaya**, Ilgaz Akseli, Mohammad Miraskari, Huan Zhang, and Weiqiang Ding; Dept. of Mechanical and Aeronautical Engineering, Clarkson University, Potsdam, NY 13699-5725; **Non-Contact Rolling Bond Stiffness Characterization of Polyvinylpyrrolidone (PVP) Particles: Relevance to Pharmaceutical Tablet Compaction**

**4:20-4:50:** **Mark Poggi**; Biolin Scientific, 808 Landmark Drive Suite 124, Glen Burnie, MD 21061; **Enabling in vitro Real-Time Characterization of Biointerfaces with Quartz Crystal Microbalance with Dissipation Monitoring**

**8:30-9:00:** **Nicholas Randall**; CSM Instruments, Needham MA; **State-of-the-art in Surface Mechanical Properties Characterization of Biomaterials**

**9:00-9:30:** **K. Schröder**, B. Finke, K. Fricke, U. Menyes, A. Ohl, T. Vorhaben, D. Böttcher, U. T. Bornscheuer and K.-D. Weltmann; Leibniz Institute for Plasma Science and Technology (INP), Felix-Hausdorff-Strasse 2, 17489 Greifswald, GERMANY; **Plasma-assisted Immobilization of Bioactive Molecules for Biomedical and Biotechnological Applications**

**9:30-10:00:** **Xiaoping Cao**; Pfizer Global Research & Development, Eastern Point Road, Groton, CT 06340; **Characterizing Surface Properties of Pharmaceutical Materials Using Atomic Force Microscopy**

**10:00-10:20: COFFEE BREAK**

**10:20-10:50:** **K. Fricke**, K. Schröder, T. v. Woedtke and K.-D. Weltmann; Leibniz Institute for Plasma Science and Technology (INP), Felix-Hausdorff-Strasse 2, 17489 Greifswald, GERMANY; **Atmospheric Pressure Plasma Sources - Modification and Decontamination of Biomedical Relevant Surfaces**

**10:50-11:20:** A.E. Jefferson, D.R. Williams and **J. Y. Y. Heng**; Surfaces and Particle Engineering Laboratory, Department of Chemical Engineering, Imperial College London, South Kensington Campus, London SW7 2AZ, UNITED KINGDOM; **Surface Energy Heterogeneity of Pharmaceutical Powders**

**11:20-11:50:** **Thomas Luxbacher**; Anton Paar GmbH, Anton-Paar-Strasse 20, A-8054 Graz, AUSTRIA; **Assessment of Biomaterial Surfaces by Streaming Potential Measurement**

**11:50-12:20:** **Sofia Svedhem**; Rickard Frost, and Bengt Kasemo; Dept. of Applied Physics, Chalmers University of Technology, 412 96 Göteborg, SWEDEN; **Supported Lipid Membranes as Model Systems for Nanodrug and Nanoparticle Interactions at Biological Barriers**

**12:20-1:30: LUNCH**

## SESSION IV: TUESDAY, APRIL 20, 2010

**1:30-2:00:** **Peilin Chen**; Research Center for Applied Sciences, Academia Sinica, Nankang, Taipei 115, TAIWAN; **Observation of Enhanced Cell Adhesion and Transfection Efficiency on the Superhydrophobic Surfaces**

**2:00-2:30:** **Cláudia Sousa**; IBB-Institute for Biotechnology and Bioengineering, Centre of Biological Engineering, University of Minho, Campus de Gualtar, 4710-057 Braga, PORTUGAL; **Thermodynamic Analysis of S. Epidermidis Adhesion to Biomedical Materials**

**2:30-3:00: Odessa Petzold**, Wageesha Senaratne, Ying Wei, Lijun Zou and Lung Wu; CORNING Incorporated, Sullivan Park, Corning, NY 14831; **Exploiting Liver Cell Membrane Receptors and Mechano-Sensing to Modulate Cell Attachment and Morphology**

**3:00-3:20: COFFEE BREAK**

**3:20-3:50: Ruchirej Yongsunthon**, Wendy Baker, Marie Bryhan, Jin Liu, Theresa Chang and Odessa Petzold; CORNING Incorporated, Sullivan Park, Corning, NY 14831; **Force Spectroscopy to Investigate Cell Reconstruction of Culture Surfaces**

**3:50-4:20: Saurabh Mittra**<sup>1</sup> and Robert E. Baier <sup>2</sup>; CPF (Pepsi) & NEHF (Lipton) Inc, 25 Copeland Drive, Ayer, MA 01432; **Infrared Microscopic Monitoring of Microfouling on Germanium Surfaces**

**4:20-4:50: Mitsuhiro Ebara**<sup>1</sup>, Takao Aoyagi<sup>1</sup>, Masayuki Yamato<sup>2</sup>, Teruo Okano<sup>2</sup>; Smart Biomaterials Group, Biomaterials Center, National Institute for Materials Science, JAPAN; **Switchable Surface Capture/Release Systems For Cells, Biomolecules, And Analytical Beads**

**CLICK BELOW FOR LIST OF COMPLETE ABSTRACTS IN ALPHABETICAL ORDER**

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