

## CURRENT PROGRAM

### *IUMACRO'07*

#### ***Macromolecules for a Safe, Sustainable and Healthy World – 2<sup>nd</sup> Strategic Polymer Symposium***

Polytechnic University  
Brooklyn, New York, USA

#### Meeting Rooms

Pfizer Main Auditorium (Dibner Building)  
Pfizer Auditorium LC 102  
Pfizer Auditorium LC 400  
Jacob Hall JAB 474  
Jacob Hall JAB 475

Registration: Pfizer Auditorium Pre-Function Area

Breaks: Pfizer Auditorium Pre-Function Area

Poster Session: Rogers Hall Room RH 116

Reception: Rogers Hall Room RH 116

Banquet: Off site at The Palm House, Brooklyn Botanic Gardens

#### SUNDAY, JUNE 10, 2007

1:30 PM	<b>PFIZER AUDITORIUM PRE-FUNCTION</b> Registration Opens - Registration will be ongoing throughout the event
3:30 PM	<b>PFIZER AUDITORIUM</b> Opening Remarks  <b>J.-I. Jin, President</b> , IUPAC Polymer Division KOREA <b>Christopher K. Ober</b> , Vice President, IUPAC Polymer Division USA <b>E. Kunhardt</b> , Provost, Polytechnic University USA <b>Y. Okamoto</b> , PRI Director, Polytechnic University USA
3:45 PM	<b>PFIZER AUDITORIUM</b> Feature Address  <b>Christine Alfsen-Norodom</b> , UNESCO Education for Sustainable Development: the Role of Partnerships with Academic Institutions
4:15 PM	<b>PFIZER AUDITORIUM</b> Panel Discussion  Chair: <b>Dennis W. Smith, Jr.</b> , Clemson University USA Challenges Facing Polymer Science Today: Sustainability, Safety and Health  Dr. Eric J. Amis (NIST), Dr. Paul Armistead (ONR), Professor Todd Emrick (University of Massachusetts), Dr. Kathleen O. Havelka (Lubrizol), Ms. Dahlia Haynes (Clemson University), Prof. Jung-II Jin (Korea University), Alex W. Kawczak (Battelle Memorial Institute), Dr. Kevin H. Reinert (AMEC Earth & Environmental)
6:00 PM	<b>METROTECH COMMON AREA – Outside of the Pfizer Auditorium</b> Opening Reception
7:00 PM	END DAILY EVENTS

**MONDAY, JUNE 11, 2007**

8:00 AM	PFIZER AUDITORIUM				
	<p><b>Alan Heeger</b>, USA (Plenary Talk) Plastic Electronics and Opto-electronics - Recent Progress in Santa Barbara</p>				
8:45 AM	PFIZER AUDITORIUM				
	<p><b>Lene Lange</b>, DENMARK (Plenary Talk) Plant Cell Wall Polymers as Basis for Bioenergy - Challenges and Options</p>				
9:30 AM	PFIZER AUDITORIUM PRE-FUNCTION AREA				
	Break				
9:45 AM – 12:45 PM	LC 102	LC 400	JAB 474	JAB 475	
	9:45 AM – 12:45 PM	9:45 AM – 12:45 PM	9:45 AM – 12:45 PM	9:45 AM – 12:45 PM	
	Health and Global Security A	Health and Global Security B	Sustainable Energy and the Environment	Industrial Design, Manufacturing and Applications	
	<b>THE BIOLOGY-MATERIALS INTERFACE</b>	<b>MOLECULAR RECOGNITION AND BIOLOGICAL SENSORS FOR HEALTH AND GLOBAL SECURITY</b>	<b>POLYMERS FOR SOLAR CELLS</b>	<b>INTELLIGENT COATINGS</b>	
	<b>Session Chairs:</b> <b>Christopher K. Ober</b> , Cornell University USA <b>Giancarlo Galli</b> , University of Pisa ITALY	<b>Session Chairs:</b> <b>Ravi S. Kane</b> , Rensselaer Polytechnic University USA <b>Ari Ivaska</b> , Abo Akademi University FINLAND	<b>Session Chairs:</b> <b>Yong Soo Kang</b> , Hanyang University SOUTH KOREA <b>David Carroll</b> , Wake Forest University USA	<b>Session Chairs:</b> <b>Richard Goodman</b> , RMG Consulting USA <b>Graham Battersby</b> , Private Consultant USA	
12:45 PM	LUNCH BREAK (on your own)				
1:45 PM	PFIZER AUDITORIUM				
	<p><b>Joseph DeSimone</b>, USA (Plenary Talk) Engineered Drug Therapies Enabled by Fabrication Processes from the Electronics Industry</p>				
2:30 PM	PFIZER AUDITORIUM PRE-FUNCTION AREA				
	BREAK				
2:45 PM – 6:45 PM	LC 102	LC 400	JAB 474	JAB 475	PFIZER AUDITORIUM
	2:45 PM – 6:45 PM	2:45 PM – 6:45 PM	2:45 PM – 6:45 PM	2:45 PM – 6:45 PM	2:45 PM – 6:45 PM
	Health and Global Security A	Health and Global Security B	Sustainable Energy and the Environment	Industrial Design, Manufacturing and Applications	Industrial Design, Manufacturing and Applications
	<b>NANOFIBERS FOR BIOLOGICAL APPLICATION</b>	<b>BIOSENSORS FOR MOLECULAR/ CLINICAL DIAGNOSTICS</b>	<b>THIN FILM BATTERIES</b>	<b>FLAT PANEL DISPLAYS</b>	<b>SUSTAINABLE POLYMER CHEMISTRY</b>
	<b>Session Chairs:</b> <b>Benjamin S. Hsiao</b> , University of Stony Brook USA <b>Akihiko Tanioka</b> , Tokyo Institute of Technology JAPAN	<b>Session Chairs:</b> <b>Paniklaj Vadgama</b> , Queen Mary University of London UNITED KINGDOM <b>Rigoberto C. Advincula</b> , University of Houston USA	<b>Session Chairs:</b> <b>Hiroyuki Ohno</b> , Tokyo University of Agr and Technology JAPAN <b>Steve Greenbaum</b> , Hunter College of CUNY USA	<b>Session Chairs:</b> <b>Sam Ingram</b> , Clemson University USA <b>Yoshi Okamoto</b> , Polytechnic University USA	<b>Session Chairs:</b> <b>Richard Gross</b> , Polytechnic University USA <b>Sonja Salmon</b> , Novozymes North America, Inc. USA

7:00 PM	<b>ROGERS HALL RH116</b> Poster Session and Reception  Session Chair: <b>Jin K. Montclare</b> , Polytechnic University USA
8:00 PM	<b>END DAILY SESSIONS</b>

**TUESDAY, JUNE 12, 2007**

8:00 AM	<b>PFIZER AUDITORIUM</b>			
8:45 AM	<b>Qi-Feng Zhou</b> , CHINA (Plenary Talk) Mesogen-Jacketed Liquid Crystalline Polymer (MJLCP) and Its Use in Property and Structure Design of New Materials			
9:30 AM	<b>PFIZER AUDITORIUM PRE-FUNCTION</b> Break			
9:45 AM – 12:45 PM	<b>LC 102</b> 9:45 AM – 12:45 PM  Health and Global Security A  <b>ENGINEERED BIOMATERIALS</b>  <b>Session Chairs:</b> <b>Richard Gross</b> , Polytechnic University USA <b>Stephen Clarson</b> , University of Cincinnati, USA	<b>LC 400</b> 9:45 AM – 12:45 PM  Health and Global Security B  <b>WHOLE CELL BIOSENSORS</b>  <b>Session Chairs:</b> <b>Michael Pishko</b> , Pennsylvania State University USA <b>Xinyan Tracy Cui</b> , University of Pittsburgh USA	<b>JAB 474</b> 9:45 AM – 12:45 PM  Sustainable Energy and the Environment  <b>MACROMOLECULAR ADDITIVES AGAINST CORROSION AND FLAMMABILITY</b>  <b>Session Chairs:</b> <b>Makoto Yuasa</b> , Tokyo University of Sciences JAPAN	<b>JAB 475</b> 9:45 AM – 12:45 PM  Industrial Design, Manufacturing and Applications  <b>PRINTED ELECTRONICS</b>  <b>Session Chairs:</b> <b>Kalle Levon</b> , Polytechnic University USA <b>Patrick Kinlen</b> , Crosslink USA
12:45 PM	LUNCH BREAK (on your own)			
1:45 PM	<b>PFIZER AUDITORIUM</b>  <b>Yasuhiro Koike</b> , JAPAN (Plenary Talk) Photonic Polymers Bringing Us back to Face-to-Face Communication			
2:30 PM	<b>PFIZER AUDITORIUM PRE-FUNCTION AREA</b> BREAK			

2:45 PM – 6:15 PM	<p><b>LC 102</b> 2:45 PM – 6:15 PM</p> <p>Health and Global Security A</p> <p><b>DRUG DELIVERY SYSTEMS</b></p> <p><u>Session Chairs</u> <b>Richard Gross</b>, Polytechnic University USA <b>Allan Hoffman</b>, University of Washington USA</p>	<p><b>LC 400</b> 2:45 PM – 6:15 PM</p> <p>Health and Global Security B</p> <p><b>DNA DETECTION TECHNOLOGIES FOR POINT OF CARE APPLICATIONS</b></p> <p><u>Session Chairs:</u> <b>Kilian Dill</b>, Antara Biosciences USA <b>Anthony Guiseppi-Elie</b>, Clemson University USA</p>	<p><b>JAB 474</b> 2:45 PM – 6:15 PM</p> <p>Sustainable Energy and the Environment</p> <p><b>PROTON CONDUCTING MEMBRANES AND FUEL CELLS 1</b></p> <p><u>Session Chairs:</u> <b>Kenji Miyatake</b>, University of Yamanashi JAPAN <b>Steven Holdcroft</b>, Simon Fraser University CANADA</p>	<p><b>JAB 475</b> 2:45 PM – 6:15 PM</p> <p>Industrial Design, Manufacturing and Applications</p> <p><b>INNOVATIONS IN GREEN POLYMER CHEMISTRY</b></p> <p><u>Session Chairs:</u> <b>Richard Gross</b>, Polytechnic University USA <b>James A. Moore</b>, <i>Rensselaer Polytechnic University USA</i></p>
6:15 PM	END DAILY SESSIONS			
6:30 PM	TRAVEL TO BANQUET LOCATION			
7:30 PM	<p><b>The Palm House, BROOKLYN BOTANIC GARDENS</b> Conference Banquet and Award Address</p> <p>Welcome: <b>Jerry Hultin</b>, President, Polytechnic University USA</p> <p>Award presentation by <b>Richard Gross</b>, Polytechnic University USA</p> <p><b>Award Recipient: Robert W. Lenz</b> Professor Emeritus of Polymer Science and Engineering Adjunct Professor of Chemistry Department of Polymer Science and Engineering University of Massachusetts USA <b>BIOPOLYMER AWARD FOR CONTRIBUTIONS TO POLYMER AND BIOPOLYMER SCIENCE</b></p>			

### WEDNESDAY, JUNE 13, 2007

8:00 AM	<p><b>PFIZER AUDITORIUM</b> <b>Myongsoo Lee</b>, KOREA (Plenary Talk) Self-Assembly of Rod Amphiphiles Into Reversible Nanostructures</p>
8:45 AM	<p><b>PFIZER AUDITORIUM</b> <b>Michael Grunze</b>, GERMANY (Plenary Talk) Polymer Nano-brushes: Preparation and Physical Characterization</p>
9:30 AM	<p><b>PFIZER AUDITORIUM PRE-FUNCTION</b> COFFEE SERVICE</p>

9:45 AM – 12:45 PM	<b>LC 102</b> 9:45 AM – 12:45 AM Health and Global Security A <b>CELL-SURFACE INTERACTIONS</b> <u>Session Chairs:</u> <b>Miriam Rafailovich</b> , University of Stony Brook USA <b>Daniel Cohn</b> , Hebrew University - Jerusalem ISRAEL	<b>LC 400</b> 9:45 AM – 12:45 AM Health and Global Security B <b>CHEMICAL SENSORS FOR HEALTH AND GLOBAL SECURITY</b> <u>Session Chairs:</u> <b>Anthony Guiseppi-Elie</b> , Clemson University USA <b>Kalle Levon</b> , Polytechnic University USA	<b>JAB 474</b> 9:45 AM – 12:45 AM Sustainable Energy and the Environment <b>PROTON CONDUCTING MEMBRANES AND FUEL CELLS 2</b> <u>Session Chairs:</u> <b>Kenji Miyatake</b> , University of Yamanashi JAPAN <b>Steven Holdcroft</b> , Simon Fraser University CANADA	<b>JAB 475</b> 9:45 AM – 12:45 AM Industrial Design, Manufacturing and Applications <b>PHOTONICS DESIGN</b> <u>Session Chairs:</u> <b>S. Koike</b> , Keo University, JAPAN
12:45 PM	<b>PFIZER AUDITORIUM</b> Closing Ceremonies  <u>Kalle Levon</u> Polytechnic University USA  <u>Akihiro Abe</u> Nano-Science Research Center, Tokyo Polytechnic University USA			
1:00 PM	END CONFERENCE			

### PLENARY AND FEATURED ADDRESS SESSIONS

<b>Christine Alfsen-Norodom</b> <i>UNESCO USA</i> Education for Sustainable Development: the Role of Partnerships with Academic Institutions
<b>Alan Heeger</b> <i>University of California Santa Barbara USA</i> Plastic Electronics and Optoelectronics - Recent Progress in Santa Barbara
<b>Lene Lange</b> , Morten Nedergaard Grell, and William Willats <i>University of Copenhagen DENMARK</i> Plant Cell Wall Polymers as Basis for Bioenergy - Challenges and Options
<b>Joseph M. DeSimone</b> <i>UNC Chapel Hill and North Carolina State University USA</i> Engineered Drug Therapies Enabled by Fabrication Processes from the Electronics Industry
Xing-He Fan, Xin-Hua Wan, Xiao-Fang Chen, Er-Qiang Chen, and <b>Qi-Feng Zhou</b> <i>Peking University CHINA</i> Mesogen-Jacketed Liquid Crystalline Polymer (MJLCP) and Its Use in Property and Structure Design of New Materials
<b>Alexei R. Khokhlov</b> <i>Moscow State University RUSSIA</i> Polymers for Energy Applications
<b>Yasuhiro Koike</b> <i>Keio University JAPAN</i> Photonics Polymer Bringing Us back to Face-to-Face Communication

<p><b>Robert W. Lenz</b>  <i>University of Massachusetts USA</i>          Biopolymer Award For Contributions To Polymer and Biopolymer Science</p>
<p><b>Myongsoo Lee</b>  <i>Yonsei University KOREA</i>          Self-Assembly of Rod Amphiphiles Into Reversible Nanostructures</p>
<p><b>Michael Grunze</b>, Marin Steenackers, Ursula Schmelmer, Alexander Kuller, Armin Golzhauser, and Rainer Jordan  <i>University of Heidelberg GERMANY</i>          Polymer Nano-brushes: Preparation and Physical Characterization</p>

**HEALTH AND GLOBAL SECURITY A**

**CHRISTOPHER K. OBER, CORNELL UNIVERSITY USA**

**RICHARD GROSS, POLYTECHNIC UNIVERSITY USA**

THE BIOLOGY-MATERIALS INTERFACE

Christopher K. Ober, *Cornell University USA*

Giancarlo Galli, *University of Pisa ITALY*

**Monday, June 11, 2007, Morning Session**

9:45 AM	<p><b>Carsten Werner</b>  <i>Leibniz Institute GERMANY</i>          Modulating Bioactive Molecules on Polymer Thin Films</p>
10:15 AM	<p><b>Giancarlo Galli</b>  <i>University of Pisa ITALY</i>          Surface Nanostructuring Non-Biocidal Coatings for Marine Biofouling Release</p>
10:45 AM	<p><b>Gregory Tew</b>  <i>University of Massachusetts USA</i>          Antimicrobial Polymers that Mimic Natural Host Defense Peptides</p>
11:15 AM	<p><b>Dean C. Webster</b>  <i>North Dakota State University USA</i>          Approaches to Environmentally-Friendly Underwater Marine Coatings</p>
11:45 AM	<p><b>J. Paul Armistead</b>  <i>Office of Naval Research USA</i>          Non-toxic Approaches to Discouraging Marine Biofouling</p>
12:15 PM	<p><b>Christopher K. Ober</b>, Rong Dong, Sitaraman Krishnan, Yi Yi, Barbara Baird, Manfred Lindau, and E. J. Kramer  <i>Cornell University USA</i>          Tailoring Surfaces to Resist Non-Specific Binding</p>

**NANOFIBERS FOR BIOLOGICAL APPLICATION**

Benjamin S. Hsiao, *University of Stony Brook USA*

Akihiko Tanioka, *Tokyo Institute of Technology JAPAN*

**Monday, June 11, 2007, Afternoon Session**

2:45 PM	<p><b>D. W. Hutmacher</b>  <i>National University of Singapore SINGAPORE</i>          Electrospun Matrices for Bone Engineering</p>
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3:15 PM	<b>Gary L. Bowlin</b> <i>Virginia Commonwealth University USA</i> Vascular Tissue Engineering via Electrospun Nanofibers
3:45 PM	<b>Darrell H. Reneker</b> <i>The University of Akron USA</i> Nanofibers for Biological Applications
4:15 PM	<b>Akihiko Tanioka</b> and Hidetoshi Matsumoto <i>Tokyo Institute of Technology JAPAN</i> Surface Electrochemistry of Ionic Fibers by Electrospinning: Catalytic and Adsorption Behaviors
4:45 PM	<b>Frank Ko</b> <i>Drexel University USA</i> Nanocomposite Fibrils by Electrospinning
5:15 PM	<b>David C. Martin</b> , Sarah Richardson-Burns, Antonio Peramo, Mohammad Abidian, Jeffrey L. Hendricks, Laura Povlich, and Sarah Spanninga <i>The University of Michigan USA</i> Direct Integration of Electronic Biomedical Devices with Living Tissue using Conducting Polymers
5:45 PM	<b>Benjamin Chu</b> and <b>Benjamin Hsiao</b> <i>Stony Brook University USA</i> Functional Nanofibrous Membranes for Biomedical Applications

### ENGINEERED BIOMATERIALS

Richard Gross, *Polytechnic University USA*

Stephen Clarson, *University of Cincinnati USA*

### Tuesday, June 12, 2007, Morning Session

9:45 AM	Jennifer Haghpanah, Soumya Nanda, and <b>Jin Kim Montclare</b> <i>Polytechnic University USA</i> Biologically Inspired Polymers: Investigating Protein Self-Assembly
10:15 AM	<b>Mitsuo Sawamoto</b> <i>Kyoto University JAPAN</i> Functional Polymers via Transition Metal-Catalyzed Living Radical Polymerization
10:45 AM	Eui-Doo Do, Young-Wan Kwon, Chang-Hoon Lee, Dong-Hoon Choi, Eui-Kwan Koh, Jung-Sung Kang, and <b>Jung-Il Jin</b> <i>Korea University KOREA</i> Magnetic Properties of Natural and Modified DNAs
11:15 PM	<b>Todd Emrick</b> <i>University of Massachusetts USA</i> Functional Synthetic Polymers and Nanocomposites for Sustainable Health
11:45 PM,	<b>Michael R. Tomlinson</b> , Fabrice Cousin, Zhenyu Zhang, Ateyyah Al-Baradi, and Mark Geoghegan <i>University of Sheffield, UNITED KINGDOM</i> Ultrathin Nanoporous Films via Novel Star/Comb Polymer
12:15 PM,	<b>Akinori Takasu</b> <i>Nagoya Institute of Technology JAPAN</i> Room-Temperature Polycondensation of Dicarboxylic Acids and Diols Catalyzed by Water-Stable Lewis Acids

## DRUG DELIVERY SYSTEMS

Richard Gross, *Polytechnic University USA*

Allan Hoffman, *University of Washington USA*

### Tuesday, June 12, 2007, Afternoon Session

2:45 PM	<b>George Guo-Qiang Chen</b> <i>Shantou University CHINA</i> Application of Polyhydroxyalkanoates as Tissue Engineering Materials
3:15 PM	<b>Vladimir P. Torchilin</b> <i>Northeastern University USA</i> Polymeric Micelles as Pharmaceutical Carriers
3:45 PM	<b>Allan S. Hoffman</b> , Pat S. Stayton and many students and postdocs <i>University of Washington USA</i> Intracellular Drug Delivery for Treatment and Prevention of Disease
4:15 PM	<b>Joseph P. Kennedy</b> <i>The University of Akron USA</i> Amphiphilic Conetworks to Correct Diabetes
4:45 PM	<b>Dennis E. Discher</b> <i>University of Pennsylvania USA</i> Soft Material Mimics of Viruses for Delivery and Extracellular Matrices for Stem Cells
5:15 PM	<b>Jason A. Burdick</b> <i>University of Pennsylvania USA</i> Photocrosslinkable Hydrogels for Tissue Engineering and Growth Factor Delivery
5:45 PM	<b>Hamid Ghandehari</b> , Kelly Kitchens, Rohit Kolhatkar, and Peter Swaan <i>University of Maryland USA</i> Poly (Amido Amine) Dendrimers as Oral Drug Carriers: Transport and Toxicity Considerations

## CELL-SURFACE INTERACTIONS

Miriam Rafailovich, *University of Stony Brook USA*

Daniel Cohn, *Hebrew University - Jerusalem ISRAEL*

### Wednesday, June 13, 2007, Morning Session

9:45 AM	<b>Richard Clark</b> , Kaustabh Ghosh, Zhi Pan, Glenn Prestwich, and Miriam Rafailovich <i>SUNY Stony Brook University USA</i> Tissue Engineering with Biologically Friendly Hyaluronan: Convergence of Biological and Mechanical Stimuli
10:15 AM	<b>Donald E. Ingber</b> <i>Harvard Medical School USA</i> Cellular Control through Mechanical Distortion of Linked Molecular Scaffolds in the Extracellular Matrix, Cytoskeleton and Nucleus
10:45 AM	<b>Matthew L. Becker</b> , Khaled A. Amer, Nathan D. Gallant, Nancy J. Lin, Abby W. Morgan, Carl G. Simon Jr., and Yanyin Yang <i>NIST USA</i> Combinatorial Methods for Tissue Engineering
11:15 AM	<b>Svetlana Sukhishvili</b> <i>Stevens Institute of Technology USA</i> Polymer-Protein Interactions at Surfaces

11:45 AM	<b>Mark W. Grinstaff</b> <i>Boston University USA</i> Biodendrimers for Wound Repair and Tissue Engineering
12:15 PM	<b>Daniel Cohn</b> <i>The Hebrew University in Jerusalem ISRAEL</i> In Situ Generated Scaffolds for Tissue Regeneration

### HEALTH AND GLOBAL SECURITY B

ANTHONY GUISEPPI-ELIE, *CLEMSON UNIVERSITY USA*

#### MOLECULAR RECOGNITION AND BIOLOGICAL SENSORS FOR HEALTH AND GLOBAL SECURITY

Ravi S. Kane, *Rensselaer Polytechnic University USA*

Ari Ivaska, *Abo Akademi University FINLAND*

### Monday, June 11, 2007 Morning Session

9:45 AM	Prakash Rai, Amit Joshi, Arundhati Saraph, Chakradhar Padala, Saleem Basha, Sandesh Kate, Vincent Poon, Jeremy Mogridge, and <b>Ravi Kane</b> <i>Rensselaer Polytechnic Institute</i> The Design of Polyvalent Inhibitors of Anthrax Toxin
10:15 AM	Johan Bobacka and <b>Ari Ivaska</b> <i>Abo Akademi University FINLAND</i> Conducting Polymer Based Sensors for Some Pharmaceuticals
10:45 AM	<b>Vito G. DelVecchio</b> <i>Vital Probes Inc. USA</i> Novel Proteomics Methods for Surveillance and Biomarker Discovery of Emerging Pathogens and Biological Warfare Agents
11:15 AM	<b>Thomas W. O'Brien</b> <i>Tetracore, Inc. USA</i> Immuno-diagnostic Bioassays for Global Security – From the Field to the Laboratory
11:45 AM	<b>Rigoberto Advincula</b> <i>University of Houston USA</i> Conducting Polymer/Glucose Oxidase Multilayer-Based Electrochemical Surface Plasmon Resonance (EC-SPR) Glucose Biosensors
12:15 PM	<b>Atsushi Maruyama</b> , Daisuke Ishii, Kentaro Muraki, Sung Won Choi, Arihiro Kano <i>Kyushu University and CREST Japan Science and Technology Agency JAPAN</i> Polymer Materials Manipulating DNA Folding for DNA Nanobiotechnology

#### BIOSENSORS FOR MOLECULAR/CLINICAL DIAGNOSTICS

Paniklaj Vadgama, *Queen Mary University of London UNITED KINGDOM*

Rigoberto C. Advincula, *University of Houston USA*

### Monday, June 11, 2007 Afternoon Session

2:45 PM	Zimei Rong, Sarah Rashid, Deepen Paul, Jaroslaw Wasikiewicz, and <b>Pankaj Vadgama</b> <i>Queen Mary, University of London UNITED KINGDOM</i> Biosensor Adaptation for Blood Tissue Monitoring
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3:15 PM	<b>Emmanuel Iwuoha</b> , Nicolette Hendricks, Rachel Ngece, Priscilla Baker, Amir Al-Ahmed, Anna Ignaszak, Tesfaye Waryo, and Nazeem Jahed <i>University of Western Cape SOUTH AFRICA</i> Potential-Modulated Cytochrome P450-3A4 Self-Assembled Nanobiosensors for Antiretroviral Drugs
3:45 PM	Wei Liao and <b>Xinyan Tracy Cui</b> <i>University of Pittsburgh USA</i> Reagentless Aptamer Based Impedance Biosensor for Monitoring a Neuro-inflammatory Cytokine PDGF
4:15 PM	<b>Sabine Szunerits</b> <i>INPG FRANCE</i> Local Immobilization and Recognition of DNA Hybridization Events on Gold and Oxygen-Terminated Semiconductor Interfaces
4:45 PM	<b>Ingo Köper</b> <i>Max Planck Institute for Polymer Research GERMANY</i> Functional Tethered Bilayer Lipid Membranes
5:15 PM	N. Badi, L. Auvray, and <b>P. Guégan</b> <i>University of Evry Val d'Essonne Bld. F. Mitterrand FRANCE</i> Synthesis of Star Polymers for Hemichannels Applications
5:45 PM	<b>Anthony Guiseppi-Elie</b> <i>Clemson University USA</i> Bioactive and Biomimetic Hydrogel Membranes for Implantable Biosensors and Stimulating Electrodes

### WHOLE CELL BIOSENSORS

Michael Pishko, *Pennsylvania State University USA*

Xinyan Tracy Cui, *University of Pittsburgh USA*

### Tuesday, June 12, 2007 Morning Session

9:45 AM	<b>Michael V. Pishko</b> <i>The Pennsylvania State University USA</i> Cell Based Bioassays in Microfluidic Systems
10:15 AM	<b>Andreas Offenhausser</b> <i>Forschungszentrum Juelich Research Center GERMANY</i> Using Bioelectronic Detection Schemes for Biomedical and Environmental Sensing
10:45 AM	<b>Ashok Mulchandani</b> , Wilfred Chen, Marylynn V. Yates, Hsiao-yun Yeh, Aijun A. Wang, and Andre M. Salazar <i>University of California USA</i> Whole Cell Biosensors for Environmental Monitoring
11:15 AM	<b>Gary Saylor</b> <i>The University of Tennessee USA</i> Bioluminescent Bioreporters: Field and Integrated Circuit Sensing of Environmental Chemicals and Processes
11:45 AM	<b>Ye Fang</b> <i>Corning Incorporated USA</i> Optical Biosensor-Based Cell Assays for Drug Discovery
12:15 PM	<b>Chun-Min Lo</b> <i>University of South Florida USA</i> Assessing Invasive Activities of Ovarian Cancer Cells by Electric Cell-substrate Impedance Sensing

## DNA DETECTION TECHNOLOGIES FOR POINT OF CARE APPLICATIONS

Kilian Dill, *Antara Biosciences USA*

Anthony Guiseppi-Elie, *Clemson University USA*

### Tuesday, June 12, 2007 Afternoon Session

2:45 PM	<b><u>Shuqi Chen</u></b> <i>IQuum, Inc. USA</i> Lab-in-a-tube Platform: Enabling Nucleic Acid Testing at the Point-of-care
3:15 PM	<b><u>Christopher Cooney</u></b> , Phil Belgrader, Kristin McFarlane, Robert Doebler, Andrew Miller, and Matthew Lesho <i>Northrop Grumman Corp. USA</i> Handheld Bioidentifier for Biodefense Applications
3:45 PM	<b><u>Paolo Fortina</u></b> CANCELLED
4:15 PM	<b><u>Uwe R. Müller</u></b> <i>Nanosphere, Inc. USA</i> High Sensitivity Detection of Protein and Nucleic Acid Analytes Based on Nanoparticle Probe Technology
4:45 PM	<b><u>Robin H. Liu</u></b> <i>CombiMatrix Corp. USA</i> Integrated Microfluidic and Microarray Biochips for DNA Analysis
5:15 PM	<b><u>Kilian Dill</u></b> <i>Antara Biosciences USA</i> Enzyme Amplified Electrochemical Detection for POC

## CHEMICAL SENSORS FOR HEALTH AND GLOBAL SECURITY

Anthony Guiseppi-Elie, *Clemson University USA*

Kalle Levon, *Polytechnic University USA*

### Wednesday, June 13, 2007 Morning Session

9:45 AM	<b><u>Kurt E. Geckeler</u></b> <i>Gwangju Institute of Science and Technology (GIST), SOUTH KOREA</i> Carbon Nanotube-Protein Adducts: Novel Sensing Materials?
10:15 AM	<b><u>Michael Strano</u></b> <i>University of Illinois at Urbana – Champaign USA</i> Carbon nanotube-based Nanobiosensors
10:45 AM	Rudolf Robelek, Eva S. Lemke Birgit Wiltschi, Marcel Leutenegger, Theo Lasser, Dieter Oesterhelt, and <b><u>Eva-Kathrin Sinner</u></b> <i>Max-Planck Institute for Polymerforschung GERMANY</i> G-protein coupled receptor (GPCR) - based sensing on biofunctionalized surfaces: <i>in vitro</i> and <i>in vivo</i>
11:15 AM	<b><u>Mark Green</u></b> <i>Polytechnic University, USA</i> A Liquid Crystal Based Inquiry into Nature's Construction of Filamentous Phage
11:45 PM	<b><u>Kent Kirshenbaum</u></b> <i>New York University USA</i> Conformationally Defined Multivalent Displays for Sensing and Imaging Applications

12:15 PM	<b>Stephen Arnold</b> and Iwao Teraoka <i>Polytechnic University USA</i> Label-free Biological Detection using Whispering Gallery Mode Biosensors
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### SUSTAINABLE ENERGY AND ENVIRONMENT

**HIROYUKI NISHIDE, WASEDA UNIVERSITY JAPAN**

#### **POLYMERS FOR SOLAR CELLS**

Yong Soo Kang, Hanyang University, *SOUTH KOREA*

David Carroll, *Wake Forest University USA*

### Monday, June 11, 2007, Morning Session

9:45 AM	<b>Kwanghee Lee</b> , Jin Young Kim, and A. J. Heeger <i>Gwangju Institute of Science and Technology (GIST) KOREA</i> High Efficiency Polymer-Titanium Oxide Solar Cells with Remarkable Air Stability
10:15 AM	<b>Shuzi Hayase</b> , Yusuke Noma, Yoshitaka Hara, Fumi Inakazu, Daisuke Ogata, and Takeshi Kougo <i>Kyushu Institute of Technology JAPAN</i> High Efficiency Dye Sensitized Solar Cells and the Solidification – From the Point of Optimization of Nano Interfaces
10:45 AM	Jilian N. de Freitas, João E. Benedetti, Agnaldo S. Gonçalves, Bruno I. Ito, Marco-Aurelio De Paoli, and <b>Ana Flávia Nogueira</b> <i>UNICAMP-Chemistry Institute BRAZIL</i> New Advances of Dye Sensitized Solar Cells Using Polymeric Materials
11:15 AM	<b>Yong Soo Kang</b> and Moon-Sung Kang <i>Hanyang University KOREA</i> Solid State Dye-Sensitized Solar Cells Employing Polymer Electrolytes: Oligomer Approach

#### **THIN FILM BATTERIES**

Hiroyuki Ohno, *Tokyo University of Agr and Technology JAPAN*

Steve Greenbaum, *Hunter College of CUNY USA*

### Monday, June 11, 2007, Afternoon Session

2:45 PM	<b>William C. West</b> , Jay F. Whitacre, and Ratnakumar Bugga <i>California Institute of Technology USA</i> Thin Film Batteries for Space Applications
3:15 PM	<b>Nancy Dudney</b> <i>Oak Ridge National Laboratory USA</i> Thin Film Lithium and Lithium-ion Batteries
3:45 PM	<b>Hiroyuki Ohno</b> <i>Tokyo University of Agriculture and Technology JAPAN</i> Is Ionic Liquid Excellent Partner to Prepare Thin Film Batteries?
4:15 PM	<b>Kenichi Oyaizu</b> , Takeo Suga, and Hiroyuki Nishide <i>Waseda University JAPAN</i> Charge Transport within Radical Redox Polymers as Electroactive Materials in Thin Film Batteries

4:45 PM	<b>Faisal M. Alamgir</b> <i>National Institute of Standards and Technology USA</i> An Atomic-Scale View of Structural Changes in Thin-Film Rechargeable Batteries During Cycling
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## MACROMOLECULAR ADDITIVES AGAINST CORROSION AND FLAMMABILITY

Makoto Yuasa, *Tokyo University of Sciences JAPAN*

### Tuesday, June 12, 2007, Morning Session

9:45 AM	<b>Hidetoshi Yamabe</b> <i>Sumitomo Metal Mining Company, Ltd. JAPAN</i> Wet Adhesion of Metallic Materials and their Interface
10:15 AM	<b>Peter Zarras</b> <i>NAWCWD USA</i> Electroactive Polymers (EAPs) as Alternative Coatings for Chromium and Cadmium Based Pretreatment and Primer Coatings
10:45 AM	<b>Menachem Lewin</b> <i>Polytechnic University USA</i> Fire Safety of Polymeric Materials: Present Challenges
11:15 AM	<b>Makoto Yuasa</b> , Hidenori Murata, and Kenichi Oyaizu <i>Tokyo University of Sciences JAPAN</i> Molecular Design of Anionic Polymers as a Corrosion Inhibitor in Cooling Water System
11:45 PM	<b>Scott Hayes</b> and Patrick Kinlen <i>Crosslink USA</i> "Smart" Corrosion Protection Coatings Utilizing Electroactive Polymers

## PROTON CONDUCTING MEMBRANES AND FUEL CELLS 1

Kenji Miyatake, *University of Yamanashi JAPAN*

Steven Holdcroft, *Simon Fraser University CANADA*

### Tuesday, June 12 2007, Afternoon Session

2:45 PM	<b>John P. Kopasz</b> and Nancy Garland <i>Argonne National Laboratory USA</i> Membrane Development for PEM Fuel Cells, The U.S. DOE Perspective
3:15 PM	<b>Peter N. Pintauro</b> , Ryszard Wycisk, and Jun Lin <i>Case Western Reserve University USA</i> New Membrane Morphologies for PEM Fuel Cells
3:45 PM	Benoît Lafitte and <b>Patric Jannasch</b> <i>Lund University SWEDEN</i> Proton-Conducting Membranes Prepared from Polysulfones Carrying Di- and Trisulfonated Aromatic Side Chains
4:15 PM	<b>Chris J. Cornelius</b> <i>Sandia National Laboratories USA</i> Physical Properties and Hydrogen Fuel Cell Performance of a Series of Sulfonated Diels-Alder Polyphenylenes
4:45 PM	<b>Francis DiSalvo</b> <i>Cornell University USA</i> Novel Electrocatalysts for Fuel Cell Applications

5:15 PM	<b>Deborah Jones</b> , Jacques Rozière, Jennifer Péron, Elodie Ruiz, and Feifei Ng <i>University of Montpellier FRANCE</i> Functionalized Polybenzimidazoles for PEMFC
5:45 PM	<b>Stephen E. Creager</b> , Darryl D. DesMarteau, Dennis W. Smith, Arno Rettenbacher, Iqbal Sharif, Raul Hernandez and Bing Liu <i>Clemson University USA</i> Proton-Conducting Polymer Electrolyte Membranes (PEMs) from Perfluorinated Sulfonimide and Partially Fluorinated Sulfonated Aryl Ether Ionomers

## PROTON CONDUCTING MEMBRANES AND FUEL CELLS 2

Kenji Miyatake, *University of Yamanashi JAPAN*

Steven Holdcroft, *Simon Fraser University CANADA*

### Wednesday, June 13, 2007, Morning Session

9:45 AM	Dong Hwee Kim and <b>Sung Chul Kim</b> <i>KAIST KOREA</i> Polymer Blend Membranes for the Direct Methanol Fuel Cell
10:15 AM	<b>Tetsuya Yamaki</b> <i>Japan Atomic Energy Agency JAPAN</i> Development of Fuel-Cell Polymer Electrolyte Membranes Using Quantum Beam Technology: State of the Art at Japan Atomic Energy Agency
10:45 AM	<b>Brian C. Benicewicz</b> <i>Rensselaer Polytechnic Institute USA</i> High Temperature PBI Membranes
11:15 AM	Ana Siu, Jennifer Schmeisser, and <b>Steven Holdcroft</b> <i>Simon Fraser University CANADA</i> Low Temperature and Low RH Proton Conductivity of PEMs
11:45 AM	<b>Kenji Miyatake</b> , Hiroyuki Uchida, and Masahiro Watanabe <i>University of Yamanashi JAPAN</i> Acid Functionalized Silica/Hydrocarbon Ionomer Composite Membranes for PEMFCs

### INDUSTRIAL DESIGN, MANUFACTURING AND APPLICATIONS

**KALLE LEVON**, *POLYTECHNIC UNIVERSITY USA*

**RICHARD GROSS**, *POLYTECHNIC UNIVERSITY USA*

#### INTELLIGENT COATINGS

Richard Goodman, *RMG Consulting USA*

Graham Battersby, *Private Consultant USA*

### Monday, June 11, 2007, Morning Session

9:45 AM	<b>Marek Urban</b> <i>University of Southern Mississippi USA</i> Stimuli-responsive Polymeric Coatings
10:15 AM	<b>Joerg Lahann</b> <i>The University of Michigan USA</i> Fine-tuning Interfacial Properties with Reversible Switching Surfaces

10:45 AM	<b>Joseph M. Mabry</b> , Sandra J. Tomczak, and Vandana Vij <i>Edwards Air Force Base USA</i> Nanocomposite Coatings Research at the Air Force Research Laboratory: New Developments and Applications
11:15 AM	<b>Brian Muellers</b> <i>Pall Corporation USA</i> Innovative Polymeric Materials at the Leading Edge of Biological Filtration and Separations
11:45 AM	<b>Saša Andjelić</b> <i>Ethicon, a Johnson &amp; Johnson Company USA</i> Advances in the Processing of Synthetic Absorbable Polymers for Wound Closure Applications
12:15 PM	<b>P. Verge</b> , C. Chevort, D. Teyssié, F. Vidal, F. Tran-Van, P-H. Aubert, and L. Beouch, <i>Université de Cergy-Pontoise FRANCE</i> Auto-Supported Electrochromic in Visible and Infrared Ranges Interpenetrated Polymer Networks-Based Devices

#### FLAT PANEL DISPLAYS

Sam Ingram, *Clemson University USA*

Yoshi Okamoto, *Polytechnic University USA*

#### Monday, June 11, 2007, Afternoon Session

2:45 PM	<b>Junji Kido</b> <i>Yamagata University JAPAN</i> Development of High Efficiency Organic Light-Emitting Devices
3:15 PM	<b>Patrick J. Kinlen</b> and <b>Eric A. Bruton</b> <i>Crosslink USA</i> Ultra-Flexible Electroluminescent Systems for Both Visible and Near-infrared
3:45 PM	<b>Stephen Z. D. Cheng</b> <i>The University of Akron USA</i> Polymers for Photonics and Optical Technologies
4:15 PM	<b>Franky So</b> <i>University of Florida USA</i> Dye-dispersed Polymer Phosphorescent OLEDs for Solid State Lighting Applications
4:45 PM	<b>Dennis W. Smith, Jr.</b> <i>Clemson University USA</i> Active and Passive Optical Polymers from Trifluorovinyl Aromatic Ethers

#### SUSTAINABLE POLYMER CHEMISTRY

Richard Gross, *Polytechnic University USA*

Sonja Salman, *Novozymes North America, Inc. USA*

#### Monday June 11, 2007, Afternoon Session

2:45 PM	<b>Stephen J. Clarson</b> <i>University of Cincinnati USA</i> Biocatalytic and Bioinspired Routes to New Silicon-Based Organic-Inorganic Hybrids and Polymers
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3:15 PM	<b>Akihiro Abe</b> <i>Tokyo Polytechnic University USA</i> Smart Use of Hydrogen-Bonds in Polymers – A Lesson from the Screw Sense Inversion Characteristic of $\alpha$ -Helical Polyaspartates
3:45 PM	<b>Sonja Salmon</b> <i>Novozymes North America, Inc. USA</i> BioPreparation: Enzymes Deliver Sustainable Benefits in Textile Processing
4:15 PM	<b>M. Jaffe</b> , A. J. East, Z. Ophir, Y. Zhang, G. Collins, W. Hammond, and P. Friedhoff <i>New Jersey Institute of Technology USA</i> Sustainable Epoxy Resins Based on Isosorbide
4:45 PM	<b>James A. Moore</b> <i>Rensselaer Polytechnic Institute USA</i> Dead Leaves and Lawn Clippings: Waste or Opportunity?
5:15 PM	<b>Emo Chiellini</b> <i>University of Pisa ITALY</i> Reengineering of Full Carbon Backbone Polymers to Green Plastics
5:45 PM	<b>F. Spada</b> , V. Kapeliouchko, T.Poggio, and V. Arcella <i>Solvay Solexis S.p.A. ITALY</i> Fluoropolymer Dispersions: New Environment-Friendly Products and Technology

### PRINTED ELECTRONICS

Kalle Levon, *Polytechnic University USA*

Patrick Kinlen, *Crosslink USA*

### Tuesday, June 12, 2007, Morning Session

9:45 AM	<b>Jerzy Wielgus</b> , John Szczech, and Daniel Gamota <i>Motorola Labs USA</i> Printed Electronics Using Traditional Graphic Arts Printing Technologies
10:15 AM	<b>Hiroyuki Nishide</b> <i>Waseda University JAPAN</i> Radical Polymers for Innovative Design of an Organic-Based Printable Battery
10:45 AM	<b>Graham Battersby</b> <i>Private Consultant USA</i> Printing Electronics: Connecting the Disconnects
11:15 AM	Baghat Sammakia and <b>Mark Poliks</b> <i>Binghamton University, USA</i> The Small Scale Systems Integration and Packaging Center of Excellence at Binghamton University
11:45 AM	<b>Sam T. Ingram</b> <i>Clemson University USA</i> Printed Electronics Methods for Determining Process Capabilities

### INNOVATIONS IN GREEN POLYMER CHEMISTRY

Richard Gross, *Polytechnic University USA*

James A. Moore, *Rensselaer University USA*

### Tuesday, June 12, 2007, Afternoon Session

2:45 PM	<b>Jim Barber</b> <i>Metabolix, Inc. USA</i> Natural Plastic: A Sustainable, Environmentally Superior Alternative to Our Needs for Plastic Materials
3:15 PM	<b>Gregg Whited</b> <i>Genencor USA</i> Genetically Engineering a Microorganism to Make 1,3-Propanediol, The Key Ingredient in DuPont's Sorona® Polymers
3:45 PM	<b>Christoph Irle</b> and Martin Melchior <i>Bayer MaterialScience GERMANY</i> Waterborne Two Component Polyurethane Coatings - Environmentally Friendly and Outstanding Durability
4:15 PM	<b>Newell Washburn</b> <i>Carnegie Mellon University USA</i> Engineering the Biosynthesis of Styrene in Yeast
4:45 PM	<b>Dahlia M. Haynes</b> , Akhilesh Singh, Graham Harrison, Karen Burg, and Dennis W. Smith <i>Clemson University USA</i> New Approaches to Renewable Lactide Derived Polymers
5:15 PM	<b>Richard A. Gross</b> <i>Polytechnic University USA</i> New Paradigms for Synthesis and Modification of Polymeric Materials Using Enzyme Catalysis

## PHOTONICS DESIGN

S. Koike, Keo University, JAPAN

### Wednesday, June 13, 2007, Morning Session

9:45 AM	<b>Bruce A. Garetz</b> <i>Polytechnic University USA</i> Light Scattering from Block Copolymer Thin Films
10:15 AM	<b>Kwang-Sup Lee</b> , Byoung Il Yang, Jinsoo Park, Ran Hee Kim, and Prem Prabhakaran <i>Hannam University KOREA</i> Lithographic Microfabrication for Precise 3D Nano/Micro-Objects by Using Two-Photon-Initiated Polymerization Technique
10:45 AM	<b>Seizo Miyata</b> <i>New Energy and Industrial Technology Development Organization JAPAN</i> Activity and Strategy of Japanese Government Program of Nanotechnology
11:15 AM	<b>Akihiro Tagaya</b> and Yasuhiro Koike <i>Japan Science and Technology Agency JAPAN</i> Zero-birefringence Polymer and Its Application
11:45 PM	<b>Whitney White</b> , Miri Park, and Lee Blyler <i>Chromis Fiberoptics USA</i> High-Performance Graded-Index Plastic Optical Fiber Produced by Extrusion
12:15 PM	<b>Mark Green</b> , <i>Polytechnic University, USA</i> Chiral Approaches to Temperature Determination, Switching and Imaging Technology