



LECTURE TABLE OF CONTENTS

Unless otherwise noted, all lectures are held in “West Ballroom” and meal functions are held in “North Pre-Assembly” room.

SUNDAY, MAY 21, 2006

12:00 – 2:00 PM **REGISTRATION**

2:00 – 2:10 PM *Welcoming Remarks*, Timothy E. Long and Kathleen O. Havelka

OPENING SESSION

Discussion Leader: Nancy Singletary, Solvay Advanced Polymers

2:10 – 3:00 PM **Plenary Lecture** E. W. Bert Meijer, Eindhoven University
Supramolecular Polymers; From Scientific Curiosity to Technological Relevance and Beyond

3:00 – 3:35 PM Garth L. Wilkes, Virginia Tech
Nanostructured Percolated Hard Domain Morphologies in Segmented Polyurethanes and Polyureas
Made Without use of Chain Extenders: Importance of Molecular Symmetry and Hydrogen Bonding

3:35 – 4:10 PM Stuart J. Rowan, Case Western Reserve University
Supramolecular Polymerizations: From Dynamic Chemistry to Dynamic Materials

4:10 – 4:45 PM Ulrich S. Schubert, Eindhoven University
Engineering with Macromolecules: The Supramolecular LEGO Approach

4:45 – 5:00 PM **BREAK**

MINI-SESSION I

Discussion Leader: Dan Brunelle, General Electric

FUNCTIONAL POLYMERS IN BIOMEDICAL AND NANOTECHNOLOGY

5:00 – 5:50 PM **Plenary Lecture** Samuel I. Stupp, Northwestern University
Polymeric Crafting of Bioactivity for Regenerative Medicine

5:50 – 6:25 PM James J. Watkins, University of Massachusetts Amherst
Preparation of Ordered Titania and Carbon Films by the Replication of Polymer Templates in
Supercritical Fluids

6:25 – 7:00 PM George R. Newkome, University of Akron
Nanomolecular Architectures: Routes to Non-Dendritic Self-Assemblies

7:15 – 8:15 PM **WELCOME RECEPTION** (*Skylight Terrace*)

MONDAY, MAY 22, 2006

7:30 - 8:30 AM **CONTINENTAL BREAKFAST**

MINI-SESSION II

Discussion Leader: Thomas W. Smith, Rochester Institute of Technology

POLYMERS FOR ELECTRONIC AND OPTICAL TECHNOLOGIES

8:30 – 9:20 AM **Plenary Lecture** Timothy M. Swager, Massachusetts Institute of Technology
Polymer Electronics for Sensors

9:20 – 9:55 AM Dennis W. Smith, Jr., Clemson University
Fluorine Containing Polymers for Active and Passive Photonics

9:55 – 10:30 AM Robert D. Allen, IBM Almaden
Sub-100nm Patterning: Lithographic Materials Challenges

10:30 – 10:45 AM **BREAK**

MINI-SESSION III

Discussion Leader: Kenneth J. Wynne, Virginia Commonwealth University

FUNCTIONAL POLYMERS FOR BIOMEDICAL AND NANOTECHNOLOGY

10:45 – 11:35 AM **Plenary Lecture** Craig J. Hawker, University of California Santa Barbara
Facile Chemistry for the Generation Nanostructures

11:35 – 12:10 PM Mark E. Davis, Caltech
Design of Synthetic Materials for the Systemic Delivery of Short-Interfering RNA (siRNA)

12:10 – 12:45 PM Kathryn E. Uhrich, Rutgers University
PolyNSAIDs and PolyAntibiotics: Designing Biodegradable Polymers for Drug Delivery

12:45 – 2:00 PM **LUNCH**

MINI-SESSION IV

Discussion Leader: Hsinjin Yang, Essilor USA

RHEOLOGY AND PROCESSING OF ADVANCED MATERIALS

2:00 – 2:50 PM **Plenary Lecture** Ronald G. Larson, University of Michigan
Analysis of Long-Chain Branching in Polymers using Rheology

2:50 – 3:25 PM Cesar A. Garcia-Franco, ExxonMobil Chemical Company
Chain Architecture-Polymer Rheology Relationships

3:25 – 4:00 PM Dieter Fischer, IPF Dresden
In-Line Process Analysis of Polymer/Nanocomposite Materials During Extrusion by NIR-, RAMAN- and Ultrasonic Spectroscopy

MONDAY, MAY 22, 2006, CONT'D

4:00 – 5:30 PM **POSTER SESSION AND INSTRUMENTATION SHOWCASE** (*North Pre-Assembly Room*)

Instrumentation Showcase

CHAIR: Erica Martin, Rohm and Haas

Poster Session

Co-CHAIRS: Kathryn L. Beers, NIST and Jeff Linhardt, Bausch & Lomb

MINI-SESSION V

Discussion Leader: Rick L. Beyer, U.S. Army Research Laboratory

SUSTAINABLE POLYMER CHEMISTRY AND TECHNOLOGY

5:30 – 6:20 PM **Plenary Lecture** Joseph M. DeSimone, University of North Carolina Chapel Hill
Fluoropolymers for use in Next Generation Microfluidic Devices, Soft Lithographic Techniques,
Particle Fabrication and as Proton Exchange Membranes for use in Fuel Cells

6:20 – 6:50 PM Kevin Miller, Rohm and Haas
New Sustainable Chemistry for Adhesives, Elastomers and Foams

7:00 – 8:00 PM **OCEANFRONT RECEPTION** (*Chickee Village*)

TUESDAY, MAY 23, 2006

7:30-8:30 AM **CONTINENTAL BREAKFAST**

MINI-SESSION VI

Discussion Leader: Scott R. Trenor, KRATON Polymers

BIOMACROMOLECULES

8:30 – 9:20 AM **Plenary Lecture** David A. Tirrell, Caltech
New Ways of Thinking about Polymers and Proteins

9:20 – 9:55 AM Theresa M. Reineke, University of Cincinnati
Synthetic Design and Biological Study of Glycopolymers for Cellular Gene Delivery and Imaging

9:55 – 10:30 AM Kristi L. Kiick, University of Delaware
Production of Advanced Materials via a Combined Biosynthetic and Chemical Approach

10:30 – 10:45 AM **BREAK**

MINI-SESSION VII

Discussion Leader: Edwin Hortelano, Bayer MaterialScience

MACROMOLECULES FOR RENEWABLE TECHNOLOGIES

10:45 – 11:35 AM **Plenary Lecture** Richard Wool, University of Delaware
Bio-based Polymers and Composites

11:35 – 12:10 PM Richard A. Gross, Polytechnic University
Enzyme-Catalyzed Polymer Synthesis and Modification Reactions

TUESDAY, MAY 23, 2006, CONT'D

12:10 – 12:45 PM Mark F. Mathias, GM Global Alternative Propulsion Center
Polymer Electrolyte Requirements for Proton-Exchange Membrane Fuel Cells

12:45 – 7:00 PM **AFTERNOON FREE**

MINI-SESSION VIII

Discussion Leader: S. Richard Turner, Virginia Tech MII

STIMULI RESPONSIVE POLYMER TECHNOLOGIES

7:00 – 7:50 PM **Plenary Lecture** John Reynolds, University of Florida
Optimized Variable Band Gap Conjugated Polymers

7:50 – 8:25 PM Sue A. Carter, University of California Santa Cruz
Doped Conjugated Polymers for Fully Printable Emissive Displays and Sensors

8:25 – 9:00 PM Matthew S. Bratcher, U.S. Army Research Laboratory
Responsive Surfaces and Films

WEDNESDAY, MAY 24, 2006

7:30 - 8:30 AM **CONTINENTAL BREAKFAST**

MINI-SESSION IX

Discussion Leader: Kenneth C. Caster, U.S. Army Research Office

MODELING ADVANCED TECHNOLOGIES

8:30 – 9:20 AM **Plenary Lecture** Tom McLeish, University of Leeds
Macromolecular Engineering of Complex Flows

9:20 – 9:55AM Juan J. de Pablo, University of Wisconsin-Madison
Dimension-Dependent Properties of Polymers In Nanostructures, and Consequences
for Nanofabrication

9:55 – 10:10 AM **BREAK**

MINI-SESSION X

Discussion Leader: Jason Jenkins, Eastman Chemical Company

CATALYSIS FOR NOVEL POLYMER PLATFORMS

10:10 – 11:00 AM **Plenary Lecture** Richard F. Jordan, University of Chicago
Progress on the Polar Monomer Problem

11:00 – 11:35 AM Timothy J. Deming, University of California Los Angeles
Self-Assembly of Block Copolypeptides, The Role of Chain Conformation

11:35 – 12:10 PM Tobin J. Marks, Northwestern University
Multiple Nuclearity Polymerization Catalysts and Enchainment Cooperativity Effects in Olefin
Polymerization -----

12:10 PM **BIENNIAL ADJOURNS**