The Fourth Annual
Northeast Ohio Undergraduate Research Symposium

August 2, 2007
Hosted by the Ohio Aerospace Institute and NASA Glenn Research Center

Poster Session A

Andrea Albright, Kent State University
Studies toward Hydrosilylation of Aromatic Aldehydes and Ketones in Ionic Liquid Solvents
Advisor: Kenneth K. Laali, Kent State University

Eric M. Arndt, Case Western Reserve University
High-Performance Poly(amide imide) Clay Aerogel Composites
Advisor: Dr. David A. Schiraldi, Case Western Reserve University

Jerica S. Bell, Fisk University
Anti-Fouling Shape Memory Polymers by PEO Grafting
Advisor: Prof. Patrick Mather, Case Western Reserve University

Anna C. Blice-Baum, University of South Alabama
Hydrogen bonded Liquid Crystal Elastomers Using Fluorinated Polymers
Advisor: Antal Jakli, Liquid Crystal Institute, Kent State University

Ian Blitz, Beloit College
Mesoporous organosilicas with different surface and bridging groups: Synthesis, characterization and application for adsorption of mercury ions
Advisor: Mietek Jaroniec

Chanita L. Carter, Glenville High School
Toward Supramolecular Hydrogels for Tissue Engineering
Advisors: Lauren E. Buerkle and Stuart J. Rowan, Case Western Reserve University

Nicholas C. Clark, Clemson University
Mechanical and thermal properties of di-isocyanate cross-linked carbon nanofiber silica aerogels
Advisor: Mary Ann B. Meador, NASA Glenn Research Center

Taneisha Deans, Glenville High School
Preparation of a low $T_g$ phosphate glass and their blends with polymers for gas barrier applications
Advisor: David A. Schiraldi, Case Western Reserve University

Christopher Fennig, University of Pittsburgh
Soft-Templating Synthesis of Ordered Mesoporous Carbons: The Effects of Temperature and Block Copolymer/Carbon Precursor Ratio
Advisor: Mietek Jaroniec

Michael Gehl, Case Western Reserve University
Measurements on multi-layered polymer lasers
Advisors: Dr. Singer and Yeheng Wu, Case Western Reserve University

Jared Griebel, Case Western Reserve University
Hydrogenation Utilizing Ceramic Clay Aerogel Supported Nickel Nanoparticle
Advisor: Dr. David Schiraldi, Case Western Reserve University
Matthew Hagy, Case Western Reserve University  
*Simulation of Metallo-Supramolecular Micelles*  
Advisor: Dr Elena E. Dormidontova, Case Western Reserve University

Alexandra Hill, Kent State University  
*Characterization of the Interaction of PTEN’s N-terminus with PI(4,5)P₂*  
Advisors: Roberta Redfern and Arne Gericke, Kent State University

Joshua Houpt, Edinboro University of Pennsylvania  
*Characterization of LCLC Torodial Structures*  
Advisors: Oleg D. Lavrentovich and Luana Tortora, Liquid Crystal Institute, Kent State University

J. Casey Johnson, Case Western Reserve University  
*Towards Complex Polymer Architectures*  
Advisor: Prof. Stuart J. Rowan, Case Western Reserve University

Katrice King, Monmouth College  
*Spectroscopic and Thermodynamic Analysis of Ceramide 1-Phosphate Phase Behavior*  
Advisor: Arne Gericke, Kent State University

Sean Lemke, Case Western Reserve University  
*Development of Tunable 1-D Photonic Crystals*  
Advisor: Dr. Eric Baer, Case Western Reserve University

Samuel Long, Case Western Reserve University  
*Investigation of Bio-Inspired Age-Dependant GRIN Lenses*  
Advisor: Dr. Eric Baer, Case Western Reserve University

Shequella Martin, University of Toledo  
*Potential role of oxidative damage in the modification of proteins important in energy production in MS cortex*  
Advisor: Earnest Freeman, Kent State University

James McCloskey, Kent State University  
*In Search of Anomalous Heat Transfer in Gold Nanoparticle Suspensions*  

Nick Moon, Case Western Reserve University  
*Effect of Branching Architecture of Polyacrylate-based Side-Chain Liquid Crystalline Polymers on Rheological and Mesogen Alignment Properties*  

Garrett O’Malley, Bucknell University  
*Polymer Photonic Crystals Containing Azobenzene*  
Advisor: Prof. Thein Kyu, The University of Akron

Janet Ondrake, Case Western Reserve University  
*1D Layered Photonic Crystals-Incident Light Reflection*  
Advisor: Dr. Baer, Case Western Reserve University

Necka Rogers, Glenville High School  
*Polymeric Materials for Terahertz Applications*  
Advisor: Dr. Christoph Weder, Case Western Reserve University

Leslie Schumacher, Kent State University  
*Studies on the Acid-Catalyzed Decomposition of Glutathionylcobalamin*  
Advisor: Dr. Nicola Brasch, Kent State University
Richelle Teeling, Samuel Sprunt, Kent State University
*Measurement of Inverse Flexoelectricity of bent-core nematic liquid crystals by Mirau Interferometry*
Advisor: A. Jákli, Liquid Crystal Institute, Kent State University

Stephanie Trittschuh, Case Western Reserve University
*Templated Nanocomposites with Cellulose Whiskers from Cotton*
Advisor: Dr. Christoph Weder, Case Western Reserve University

Cerena Uttal, Mount Holyoke College
*Looking for the Entropy Crisis: Treating Glass as a Defective Crystal*
Advisor: Dr. Puru Gujrati, The University of Akron

Paul Yanzer, University of Wisconsin-Eau Claire
*Segmented Cyano-PPVs as Chromogenic Sensor Dyes*
Advisor: Dr. Christoph Weder, Case Western Reserve University
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Poster Session B

Christine Ander, SUNY Fredonia  
*Synthesis of Chromogenic Dyes for Mechanochromic Sensors and Nonlinear Optics*  
Advisors: Dr. Christoph Weder and Jill Kunzelman, Case Western Reserve University

Craig Baker, Denison University  
*Synthesis of a metal-terpyridine-arborol “green” aqueous gels*  
Advisor: Dr. George R. Newkome, The University of Akron

Karla Bernal Ramos, Universidad Autónoma de Coahuila  
*Synthesis of Functionalized Hyperbranched Polyacrylates*  
Advisor: Dr. Coleen Pugh, The University of Akron

Kimberly Bean, Kent State University  
*Developing a prostate cancer model: WTI-GFP stably transfected LNCaP cell lines*  
Advisor: Dr. Gail Fraizer, Kent State University

Christopher Bruot, Kent State University  
*Comparative Study of Proton Mobility in Solids Using Electrical Resistance and NMR Diffusivity Measurements*  
Advisor: Dr. Yuriy Tolmachev, Kent State University

Jessica Carter, Georgia Institute of Technology  
*Synthesis of Surface Grafted Nanoparticles by Condensation of Alkoxy silanes*  
Advisor: Dr. Kevin Cavicchi, The University of Akron

Jia Ning Chen, Kent State University  
*Dye Sensitized Solar Cells*

Terrance Codd, Southern Nazarene University  
*Modeling PTEN Structure and Interactions*  
Advisor: Dr. Michael Tubergen, Kent State University

Alexis D. Crosby, Glenville High School  
*Preparation of a Low Tg Phosphate Glass and Their Blends with Polymer for Gas Barrier Applications*  
Advisor: Dr. David Schiraldi, Case Western Reserve University

G. Connor Evans, Case Western Reserve University  
*Dynamic Photonic Crystals*  
Advisor: Dr. Christoph Weder, Case Western Reserve University

Flavia Frimpong, Kent State University  
*Observations of New Particle Formation in Kent, Ohio*  
Advisor: Dr. Shanhu Lee, Kent State University
Raymond M. Gipson, Kent State University  
*Thieno[3,2-b]thiophenes as Liquid Crystals*  
Advisors: Dr. Paul Sampson and Dr. Alexander Seed, Kent State University

Amanda Henry, Slippery Rock University of Pennsylvania  
*Surface Enhanced Raman Spectroscopy in Living Cells*  
Advisors: Dr. Arne Gericke and Dr. Soumitra Basu, Kent State University

David A. S. Hill, Fisk University  
*Fabrication and Characterization of Poled Polymer Films*  
Advisor: Jie Shan, Case Western Reserve University

Chia-Pei Denise Hsu, Carnegie Mellon University  
*Crosslinked Aerogels for Sound Barrier Applications*  
Advisor: Dr. Sadhan C. Jana, The University of Akron

Joseph Kasper, College of Mount St. Joseph  
*Enzyme Catalyzed Transesterification of Polymers with Vinyl Acetate*

John King, SUNY Fredonia  
*Probing the Nature of the Interphase using Solvatochromic Dyes*  
Advisor: Dr. Christoph Weder, Case Western Reserve University

Kevin Lamison, Case Western Reserve University  
*Dynamics of Clay Aerogel Formation*  
Advisor: Dr. David Schiraldi, Case Western Reserve University

Allia Kaye Lindsay, Agnes Scott College  
*In situ FTIR Monitoring of Model Systems Designed to Mimic Natural Rubber (NR) Biosynthesis*  
Advisor: Dr. Judit E. Puskas, The University of Akron

Jessica Macklin, Kent State University  
*Causation of Cyanobacteria Blooms in Lake Erie*  
Advisor: Dr. Jenny Baeseman, Kent State University

Thomas Martz, Pennsylvania State University  
*Fabrication of Nanostructure Elastic Membranes from Glassy Polymers*  
Advisor: Patrick Mather, Case Western Reserve University

Nathan Miller, Baldwin-Wallace College  
*Analysis of tethered chains on the surface of Poly(ε-Caprolactone) single crystals*  
Advisor: Stephen Z. D. Cheng, The University of Akron

Karla Jade Moore, Fisk University  
*Gold-Nanoparticle Based Sensor for Heavy Metals in an Aqueous Solution*  
Advisor: Prof. David Schiraldi, Case Western Reserve University

Jesus A. Ocana, Kent State University  
*Synthesis and Characterization of a Novel Series of Hetero-Ligated Lanthanide Compounds for the Ring Opening Polymerization of ε-Caprolactone*  
Advisor: Dr. Scott Bunge, Kent State University

Alma Terán Rocha, Universidad Autónoma de Coahuila  
*Synthesis and Evaluation of Acrylic/Alkyd Hybrid Resins*  
Advisor: Prof. Mark Soucek, The University of Akron
Mario Sanders, Grambling State University
*Microstructure of Novel Plasma Enhanced Chemical Vapor Deposition Films Useful for Photonics*
Advisor: Dr. Mark Foster, The University of Akron

Brennan Sheehy, Oregan Institute of Technology
*Measuring Abrasion Resistance of Proposed Space Suit Fabrics*
Advisors: Dr. Mary Ann Meador, Dr. Jim Gaier, NASA Glenn Research Center

Jane Spikowski, Case Western Reserve University
*Silicification of Poly(ethylene imine)-Clay Aerogel Composites*
Advisor: Dr. David Schiraldi, Case Western Reserve University

Marissa E. Tousley, Alfred University
*Styrene Crosslinked Silica-Based Aerogels*
Advisor: Baochau N. Nguyen, OAI

Tessema, Tsemre-Dengil, Kent State University
*Analysis of G-Quartet DNA Structure Using Laser Tweezers*
Advisor: Dr. Hanbin Mao, Kent State University

Steven Vesole, Case Western Reserve University
*Modulating Paclitaxel Release from Electrosprayed Drug-Eluting Stents through Secondary Layer Processing*
Advisor: Prof. Patrick T. Mather, Case Western Reserve University

Joshua Wagner, Kent State University
*Synthesis of Asymmetric DCM Type Fluorophores for Single Molecule Imaging*
Advisor: Robert J. Twieg, Kent State University

Kimberly Worst, Westminster College
*Plasmonic Nanoparticles as Nanotools for Single Molecule Studies*
Advisor: Qi-Huo Wei, Liquid Crystal Institute, Kent State University