

***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. Jákl, 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, Oregon 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