2004
Institute of Technology
Summer Undergraduate Research Expo

Thursday, August 12, 2004
4-7 p.m.
Memorial Hall, McNamara Alumni Center
University of Minnesota
Poster Presentations

Listed by presenting author and sponsoring program. For abstracts, see http://www.mrsec.umn.edu/itsure.html

1. **Anderson, Benjamin, Yiannis Kaznessis**
   *Investigation into the Membrane Association of Residues 1-22 of Cytolytic NK-lysin using Molecular Dynamic Simulations*
   Home Institution: University of Minnesota
   Sponsor: Bioinformatics Summer Institute

2. **Kumar, Akash, Yiannis Kaznessis**
   *Stochastic Modeling of a Tetracycline-induced Gene Network for Implementation in Gene Therapy Applications*
   Home Institution: University of Minnesota
   Sponsor: Bioinformatics Summer Institute

3. **Tavakley, Anita, Ying Chen, T. Andrew Taton**
   *Synthesis of Amphiphilic Diblock Copolymers for Crosslinkable Micelle Assembly*
   Home Institution: University of Minnesota
   Sponsor: Chemistry – Heisig

4. **Werness, Jenny, Ziyad F. Al-Rashid, Thomas R. Hoye**
   *Synthesis and Computational Analysis of 1-Oxaquinolizidine and its Derivatives*
   Home Institution: University of Minnesota
   Sponsor: Chemistry – Heisig

5. **Arndt, Erin, Javid Rzayev, Marc Hillmyer**
   *Polymerization of D,L-Lactide with Kraton Liquid to form Triblock Copolymers*
   Home Institution: Valparaiso University
   Sponsor: Chemistry – Lando

6. **Chao, Lynn, Timothy Lodge**
Effect of Solvent Selectivity in PEE-PEO-PFP0 Morphology
Home Institution: Cornell University
Sponsor: Chemistry – Lando

7. Coursolle, Dan, Wayland Noland
Synthesis of 3-hydratropoyl-2-methylindole and its Reaction with Phenyl Lithium
Home Institution: University of Minnesota – Morris
Sponsor: Chemistry – Lando

8. Davis, Allison, Yanshi Zhang, Richard P. Hsung
Acid-Catalyzed Cyclization Reactions Involving Ynamides
Home Institution: Wartburg College
Sponsor: Chemistry – Lando

9. Everaerts, Ken, Xiaoyang Zhu, Ryan Major
The World of Interfacial Force Microscopy
Home Institution: St. Cloud State University
Sponsor: Chemistry – Lando

10. Funke, Cassie, Ben Duckworth, Mark Distefano
Purification of IFABP and Helixless IFABP Proteins for Eventual Conjugation to Catalists
Home Institution: Carleton College
Sponsor: Chemistry – Lando

11. Gillis, Eric, George Barany
Compounds to Probe the Dts Amino Protecting Group
Home Institution: Grinnell College
Sponsor: Chemistry – Lando

12. Glab, Kristin, Craig J. Forsyth
Improved Synthesis of Phorboxazole C42-C46
Sponsor: Chemistry – Lando

13. Holm, Nicole, Nermeen Aboelella, William Tolman
Synthesis of Thioether-Diketiminate Ligands for Modeling Monocopper Enzyme Active Sites
Home Institution: University of Wisconsin – River Falls
Sponsor: Chemistry – Lando

14. Leung, Annie, Philippe Buhlmom
Synthesis and Characterization of a Novel
Bisthiourea Host
Host Institution: Grinnell College
Sponsor: Chemistry – Lando

15. Lin, Xiaonan, T. Andrew Taton
Making the I-Domain
Home Institution: Massachusetts Institute of Technology
Sponsor: Chemistry – Lando

16. Manojlovic, Marija, Son Nguyen, Craig J. Forsyth
Synthesis of C21-C26 Domain (E-ring) of Azaspiracid
Home Institution: University of Belgrade
Sponsor: Chemistry – Lando

17. Marti, Erica, Kent Mann
Synthesis and Characterization of Ruthenium (II) Hexafluoroacetyl-acetonate
Compounds with Bidentate Nitrogen Donor Ligands
Host Institution: University of Illinois – Urbana-Champaign
Sponsor: Chemistry – Lando

18. Matzen, Elizabeth, Kristine H. Wammer, Jeffrey J. Werner, Kristopher McNeill
Photochemical Degradation of Fluoroquinolone Antibiotics
Home Institution: Luther College
Sponsor: Chemistry – Lando

19. McElfresh, Patrick, David Blank
Corona Poling as a Probe of Polymer Relaxation Dynamics
Home Institution: University of Wisconsin – River Falls
Sponsor: Chemistry – Lando

20. Nelsen, Andrea, Marian Stankovich
Characterization of Wild Type and Mutant Human Short Chain Acyl-CoA Dehydrogenase
Home Institution: University of Minnesota
Sponsor: Chemistry – Lando

21. Peterson, Britt, Chris Whiting, Hossein Ahmadzadeh, Edgar Arriaga
Detection of Superoxide using a Microfluidic Station with Laser-Induced Fluorescence
Home Institution: College of St. Benedict
Sponsor: Chemistry – Lando
22. **Schultze, Mary, Peter Carr**  
*Performance of Cation-Exchange Columns Used in Proteomics*  
Home Institution: University of Wisconsin – River Falls  
Sponsor: Chemistry – Lando

23. **Stone, Elizabeth, Christopher Cramer**  
*A Computational Study of the Vitamin B12-catalyzed, Reductive Dechlorination of Trichloroethylene*  
Home Institution: Grinnell College  
Sponsor: Chemistry – Lando

24. **Studniski, Angela, Jennifer Grzybowski, Gianluigi Veglia**  
*Optimization of the Overexpression of Protein Kinase A*  
Home Institution: Carthage College  
Sponsor: Chemistry – Lando

25. **Wegner, Seraphine, Nicholas Ergang, Andreas Stein**  
*Catalytic Modification of Three-Dimensionally Ordered Macroporous (3DOM) Carbon*  
Home Institution: Middle East Technical University – Ankara, Turkey  
Sponsor: Chemistry – Lando

26. **Yik, Wing Yan, Joe Emerson, Lawrence Que Jr.**  
*Catechol dioxygenases-MndD & HPCD*  
Home Institution: Washington State University  
Sponsor: Chemistry – Lando

27. **Tung, Kevin, Richard P. Hsung**  
*Total Synthesis of Elenic Acid, An Inhibitor of Topoisomerase II*  
Sponsor: Chemistry – Pfizer

28. **Anderson, Amelia, Brian T. Holmes, Michael D. Ward**  
*The Design and Synthesis of Oligothiophene Substituted Semiconductors*  
Home Institution: Hamline University  
Sponsor: Materials Research Science and Engineering Center

29. **Chen, Jie Qiong, Mamoun Bader, Michael D. Ward**  
*New Organic Semiconductors*  
Home Institution: Pennsylvania State University  
Sponsor: Materials Research Science and Engineering Center
30. Fasoli, Joy, Lijun Zu, David Norris
*Synthesis of Photoactive Gold and Silver Nanocrystals*
Home Institution: Pennsylvania State University
Sponsor: Materials Research Science and Engineering Center

31. Finstrom, Nick, Pelumi Osoba, Jessica Shu, Matt Panzer, C. Dan Frisbie
*Characterization of Perylene Tetra-carboxyl Diimide (PTCDI) Derivatives for Use in Thin Film Transistors*
Home Institution: University of Minnesota
Sponsor: Materials Research Science and Engineering Center

32. Holmberg, Vincent, Alhad Phatak, Frank S. Bates
*Extrusion of Triblock/Pentablock Copolymers*
Home Institution: University of Minnesota
Sponsor: Materials Research Science and Engineering Center

33. Kade, Matthew, Kent Mann
*Synthesis of Quinoidal Oligothiophenes for use as n-channel Semiconductors*
Home Institution: University of Massachusetts – Amherst
Sponsor: Materials Research Science and Engineering Center

34. Krogstad, Matthew, Paul Crowell
*Spin Transport in Ferromagnet-Semiconductor Heterostructures*
Home Institution: California Institute of Technology
Sponsor: Materials Research Science and Engineering Center

35. Lasater, Marta, Chris Macosko
*The Effects of Block Copolymers on the Range of Cocontinuity in Polystyrene/Polyethylene Polymer Blends*
Home Institution: University of Missouri – Columbia
Sponsor: Materials Research Science and Engineering Center

36. Matthews, Kristopher, Tiffany Shih, Swedesh Srivastava, Chris Palmstrøm
*Development of a Free-standing Shape Memory Alloy Microsensor*
Home Institution: University of California – Berkeley
Sponsor: Materials Research Science and Engineering Center

37. Mendez, Gilbert, Nagalingam Balakrishnan, Michael D. Ward
*Controlling the Growth and Symmetry of Liquid*
Crystal Domains
Home Institution: College of Menominee Nation
Sponsor: Materials Research Science and Engineering Center

38. Osoba, Olupelumi, Nick Finstrom, Jessica Shu, Matt Panzer, C. Dan Frisbie
Fabrication and Analysis of N-Type Organic Semiconductors for the Development of Thin Film Transistors
Home Institution: University of Southern California
Sponsor: Materials Research Science and Engineering Center

39. Renteria, Calvin, Shramik Sengupta, Victor H. Barocas
Studying Electro-kinetic Behavior of Cells and Protein Solutions
Home Institution: Rockhurst University
Sponsor: Materials Research Science and Engineering Center

40. Shea, Ryan, Chris Leighton
The Magnetic Properties of PrCaCoO$_3$
Home Institution: Augsburg College
Sponsor: Materials Research Science and Engineering Center

41. Shu, Jessica, Nick Finstrom, Pelumi Osoba, Matt Panzer, C. Dan Frisbie
Fabrication and Characterization of N-Type Organic Semiconducting Thin Films
Home Institution: University of California – Berkeley
Sponsor: Materials Research Science and Engineering Center

42. Shacklady, Danielle, Sang Ok Lee, Michael D. Ward
Translational Design in Crystal Engineering
Home Institution: Catawba Valley Community College and University of North Carolina – Chapel Hill
Sponsor: Materials Research Science and Engineering Center

43. Skaja, Joseph, Thomas Marsh, C. Dan Frisbie
Development and Characterization of Au Nanoparticle Array employing a G-DNA Molecular Scaffold
Home Institution: University of St. Thomas
Sponsor: Materials Research Science and Engineering Center

44. Stone, Douglas, Hyuk-Jae Jang, David Dahl, Dan Dahlberg
Magnetic Reversal in Nanoscopic Ellipsoidal Permalloy Particles
Home Institution: St. Olaf College
Sponsor: Materials Research Science and Engineering Center
45. Shantia White, Victor H. Barocas
Settling of Large Spheres in a Small Rectangular Channel
Home Institution: Dillard University
Sponsor: Materials Research Science and Engineering Center

46. Haydel Robert, Miguel Wong, Gary Parker
Gravel-bed Stream Evolution
Home Institution: Dillard University, Tulane University
Sponsor: National Center for Earth-surface Dynamics

47. Perez, Angel L. Santiago, Matt Carper, Rob Stoll, Fernando Poté-Angel
A Wind Tunnel Study of Turbulent Boundary Layer over Heterogeneous Surface Conditions
Home Institution: University of Puerto Rico – Mayaguez
Sponsor: National Center for Earth-surface Dynamics

48. Barth-Cohen, Lauren, Prisca Cushman
Study of the Beta Background in CDMS
Home Institution: Smith College
Sponsor: Physics

49. Busch, Michael, Robert L. Lysak
Modeling Ion Motion in the Magnetosphere
Home Institution: University of Minnesota
Sponsor: Physics

50. Caven, David, Dan Dahlberg
Exploring Ferromagnetic/Antiferromagnetic Bilayers with AC Susceptometry
Home Institution: University of Minnesota
Sponsor: Physics

51. Chitambar, Eric, Kenneth Heller
Experimental Preparations for the Building of the NOvA Far Detector
Home Institution: University of Notre Dame
Sponsor: Physics

52. Christian, Gregory, Jonathan Strand, Paul Crowell
Optical Orientation in GaAs
Home Institution: Georgia Institute of Technology
Sponsor: Physics

53. Johnson, Jolene, Jochaim Mueller
Fluorescent Fluctuation Spectroscopy: An In Vivo Photobleaching Study of EGFP, EYFP, and ECFP
Home Institution: Gustavus Adolphus College
Sponsor: Physics

54. Mecklenburg, Matthew, Woods Halley
Bose-Einstein Condensation in Helium-II
Home Institution: University of Minnesota
Sponsor: Physics

55. Rhone, Trevor David, Allen Goldman
Superconductivity in Indium Oxide Thin Films
Home Institution: Macalester College
Sponsor: Physics

56. Tubman, Emily, Cynthia Cattell
A Collisionless Shock Wave: The Bow Shock
Home Institution: University of Michigan – Ann Arbor
Sponsor: Physics

57. Wallace, Colin, Shaul Hanany
Window Testing for the E and B EXperiment (EBEX)
Home Institution: Case Western Reserve University
Sponsor: Physics

58. Wech, Aaron, Michael Larson, John Wygant
Preliminary Investigation into Energetic Particle Acceleration in the Reconnection Region
Home Institution: Kansas State University
Sponsor: Physics