

Paper & Chemical Engineering Scholarly Activities 2008-2009

Theses and Practicum completed

Gaytri Sharma, (Advisor: Dr. Catherine Almquist), "Synthesis and Characterization of Nanostructured Tungsta/Vanadia/Titania Catalysts for the Oxidation of Dimethyl Sulfide."

Liqiang Zheng (Advisor: Dr. Marvin Thrash), "Protein Adsorption on Metal Oxides."

Peer-Reviewed Journal Articles

Endalkachew Sahle-Demessie, **Catherine B. Almquist** and Sridara Chandra Sehker (2008). The role of catalyst properties on methanol oxidation over V₂O₅-TiO₂ using ozone. *Water, Air, and Soil Pollution: Focus*, 8, p. 297-309.

R. D. Meicenheimer, **D. W. Coffin** and Eric M. Chapman, "Anatomical Basis for Biophysical Differences between Pinus Nigra and P. Resinosa (Pinaceae) Leaves," *American Journal of Botany* 95(10): 1191–1198 (2008)

R. E. Popil, **D. W. Coffin**, C. C. Habeger, "Transverse shear measurement for corrugated board and its significance," *Appita Journal* 61(4): 307-312 (2008).

Wei Mu, Lei L. Kerr, and Nadia Leyarovska, "Extended X-Ray Absorption Fine Structure Study of p-type Nitrogen Doped ZnO," *Chemical Physics Letters*, Vol. 469, issue 4~6, pp.318-320, 2009.

Rong Zhang, Sachin Kumar, Shouzhong Zou, and **Lei Kerr**, "High Density Vertically-Aligned ZnO Rods with A Multi-stage Terrace Structure and Their Improved Solar Cell Efficiency," *Crystal Growth & Design*, Vol. 8, pp. 381-383, 2008.

Rong Zhang, Jie Pan, **Bragg Evans**, **Marvin Thrash**, and **Lei L. Kerr**, "Studies on the Adsorption of RuN₃ Dye on Nanostructured ZnO Films," *Solar Energy Materials and Solar Cells*, Vol. 92, pp. 425-431, 2008.

Y. –J. Sung and **D. S. Keller**, "Evaluation of the changes in paper structure by the laboratory wet pressing conditions", *J. Industrial Engineering Chem.*, **4(3)**, 328-332 (2008)

Xiao, H., and **Lalvani, S. B.**, "A Linear Model of Alternating Voltage-Induced Corrosion," *The Journal of The Electrochemical Society*, 155, 2, C69-C74, 2008.

Zhang, R.; Vairavanathan, P. R.; Lalvani, S. B., "Perturbation Method Analysis of AC-induced Corrosion," *Corrosion Science*, 50, 6, 1664-1671, 2008

Refereed proceedings

Douglas Troy, **D. Steven Keller**, James Kiper and **Lei Kerr**, "First Year Engineering: Exploring Engineering through the Engineering Design Loop," pp. T1A1-T1A6, 38th ASEE/IEEE Frontiers in Education Conference, Saratoga Springs, NY, October 22 – 25, 2008.

Professional presentations:

Catherine B. Almquist, Central Regional Meeting of the American Chemical Society (CERMACS), Columbus, Ohio. Guy Litt's technical poster was presented at a poster session, entitled "An Investigation of CuO/Fe₂O₃ Catalysts for the Gas-Phase Oxidation of Ethanol."

Douglas Coffin, "Developing constitutive equations for paper that are valid for multi-time scales and large stresses," *2008 Progress in Paper Physics Seminar*, Helsinki Finland, June (2008).

Douglas Coffin "Load Reduction Factors and Box Lifetime" TAPPI Corbotec Meeting, June 19, 2008, Mystic CT.

Meicenheimer, R. D., **Coffin, D. W.**, Chapman, E. M., "To Break or Not To Break? – It's What's Inside that Counts!.", Developmental and Structural Section Poster Session, Botany without Borders, July 26 – 30, 2008, University of British Columbia, Vancouver BC – the paper presented won the Session Award.

D. Branca and **D.S. Keller**, "*Analysis of the Structure of Embossed Tissue Papers*" *2008 International Progress in Paper Physics Seminar, Espoo, Helsinki, Finland, June 1, 2008*

Joseph Korfhagen, Cristina Gonzalez, Atiyaa Reed and Marvin Thrash, "The Adsorption of Proteins of Metal Oxides and Chromatographic Adsorbents.2008 Preparative Chromatography Symposium.

Undergraduate Research Supervision

Ryan Long, 2008 Undergraduate Summer Scholar, "Transport and Fate of Nanoparticles through Porous Materials," with **Dr. Almquist**.

Louis Troll, 2008 Undergraduate Summer Scholar, "Spatial Mapping of Fibrous Web Density by Laser Profilometry," with **Dr. Keller**.

William Nelson, 2008 Undergraduate Summer Scholar, "Process and Characterize Nanosized Dye-Sensitized Solar Cells," with **Dr. Kerr**.

Sheryl Kavetza, 2008 Undergraduate Summer Scholar, "The use of Immobilized Cell Cultures in Bioreactors," with **Dr. Thrash**.

Joseph Korfhagen, 2008 SEAS Summer Research Program, "Protein Adsorption," SEAS Summer Research Program with **Dr. Thrash**.

Zachary McCoy, 2008 SEAS Summer Research Program, "Spatial Mapping of Fibrous Web Density by Laser Profilometry," with **Dr. Keller**.

Jimmy Kozlow, Independent Study, "Spatial Mapping of Fibrous Web Density by Laser Profilometry," with **Dr. Keller**.

Austin McCormick, "Physics of Rubbing and Wiping of Paper Towel, 2008 Summer Research on P and G Grant, with **Dr. Coffin**.

Katy Lysaght, "Physics of Rubbing and Wiping of Paper Towel, 2008 Summer Research on P and G Grant, with **Dr. Coffin**

Daniels Falicia, "Physics of Rubbing and Wiping of Paper Towel, 2008 Summer Research on P and G Grant, with **Dr. Coffin**

Adam Lee, "ECT Testing of Corrugated Board," independent study with **Dr. Coffin**

External Research Grants Awarded

Marvin Thrash (CO-PI), "Curriculum Enhancements in Environmental Engineering," National Science Foundation, \$149,938.

D.S. Keller, "Mapping the Web Structural Properties of Fabric Creped Base Sheets", Georgia Pacific, \$31,000.

Internal Research Grants Awarded

Douglas Coffin, MUITDC student research project "Making Miami Efficient," \$3,000.

Catherine Almquist, “An Investigation of Beneficial Uses of Industrial Waste: Pyrolysis of De-inked Paper Sludge for the Adsorption of Mercury,” \$5,000, Shoupp Phase I Award .

D.S. Keller, “Spatial Mapping of Fibrous Web Density,” \$5,000. Shoupp Phase I Award.

D.S. Keller and Katy Lysaght, “Student Access to Data Acquisition for Instruments in Instructional Laboratories.” Student Tech Fee Fund, \$4,185

Shashi Lalvani, Lei Kerr, Shouzhong Zou, and Hong Wang, “Center for Advanced Research on Energy (CARE)”, \$50,000, Ohio Third Frontier, Miami University, 2008