

Paper Science and Engineering

Scholarship Activities 2004

Peer-Reviewed Journal Articles

Almquist, C. B. and L. Boyd (2004). "The application of photocatalysis on TiO₂ for degrading COD in paper mill wastewaters", *TAPPI Journal*, 3(9), pp 9-15.

G. Wu, **C.L.B. Almquist**, and S-T Hwang (2004), "High gas permeability in open-structure membranes", *Korean Journal of Chemical Engineering*, 21(2), pp. 442-453.

Coffin, D. W., L. A. Carlsson and R. B. Pipes, "On the Separation of Carbon Nanotubes," Submitted to *Composites Science and Technology*, special edition edited by R. Ruoff, 2004

Coffin, D. W., Lif, J. O., Fellers, C., "Tensile and ultrasonic stiffness of paper at different moistures - A clarification of the differences," *Nordic Pulp and Paper Research Journal*. 19(2): 257-263, 2004

Vorakunpinij, A., **Coffin, D. W.**, Habeger, C. C., A new device for measuring tensile and compressive creep in paper, *Experimental Techniques*. 28(3): 43-48, 2004

Kerr, L.L., Li, S.S., Johnston, S.W., Anderson, T.J., Crisalle, O.D., Kim, W., Abushama, J., and Noufi, R.N., (September, 2004) "Investigation of defect properties in Cu(In,Ga)Se₂ solar cells by deep-level transient spectroscopy", *Solid State Electronics*, 48, 579-1586.

Mondal, K., Lorethova, H., Hippo, E., Wiltowski, T. and **Lalvani, S. B.**, "Reduction of Iron Oxide in Carbon Monoxide Atmosphere – Reaction Controlled Kinetics," *Fuel Processing Technology*, 86, 1, 33-47, Nov., 2004.

Mondal, K., Jegadeesan, G. and **Lalvani, S. B.**, "Removal of Selenate by Fe and NiFe Nanosized Particles," *Industrial and Engineering Chemistry research*, 43, 4922-4934, 2004.

Mondal, K., and **Lalvani, S. B.**, "Extended X-Ray Absorption Fine Structure Spectroscopy of Amorphous IR Transmitting Optical Materials," *J. Materials Science*, 39 (3), 1065-1069, 2004.

Obert, J., and **Lalvani, S. B.**, "Development of a Bath for Codeposition of Copper and Platinum," *Journal of Applied Electrochemistry*, 34, 397-401, 2004.

Waller, M. H., "Feedback Control Schemes for Disturbance Rejection in the Wet End of a Paper Machine:Mimicking a Process Simulator," from ISA Expo 2004 Conference and Exhibition, Paper No. ISA04-P040, ISA Emerging Technologies, (ISBN TP04ISA157), 454, 162-170, (2004).

PATENTS

Lalvani, S. B., and Mondal, K., "Electrochemical Hydrogenation of Vegetable Oils," U.S. Patent Number 6,825,367, 2004.

External Research Grants Awarded

C.L.B. Almquist, \$45,000, US EPA. Investigation for use of a surface corona discharge catalytic reactor for partial and deep oxidation of waste gas emissions from the pulp and paper industry", Sept. 2004 – Sept. 2005.

Lalvani, S. B., "Low Trans Fatty Acid Containing Hydrogenated Soybean Oil via a Novel Low Temperature Electrochemical Process," \$250,000, USDA, 1/1/2005-31/1/2007.

Theses completed

Bi, Wu, "Racking Strength of Paperboard Based Sheathing Materials," advisor **Douglas W. Coffin**, 2004.

Kumar, Sachin, "The Use of Nanostructures V_2O_5/TiO_2 Catalysts for the Destruction of Dimethyl Sulfide", advisor **C. B. Almquist**, 2004.

Kumar, Vipul, "An Investigation of Nanostructured Tungsta/Vanadia/Titania Catalysts for the Oxidation of Methanol", advisor **C. B. Almquist**, 2004.

Sharma, Neeraj, " Use of Ultrasound to Predict Ink-Jet Print Quality", advisor **M.D. Sikora, Douglas W. Coffin**, 2005

Undergraduate Summer Scholarships

Lee, Nathan, undergraduate in Engineering Physics, Undergraduate Summer Scholars (USS) program 2004 – investigated the effect of particle size of nanostructured $WO_2/V_2O_5/TiO_2$ flame aerosol synthesized catalysts for the oxidation of monochlorobenzene under the direction of **Dr. Almquist**.

Sugawara, Jessica, a junior PSE student worked (Summer 2004) with **Dr. Coffin** as part of the University Summer Scholars program on the investigation of the effect of refining on the creep response of paper.