

MARTIN G. BAKKER

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PROFESSIONAL PREPARATION

- 1980 Canterbury University, Christchurch, New Zealand Chemistry B. Sc. Hons (1st class)
1985 Canterbury University, Christchurch, New Zealand Chemistry Ph.D.
1985-1988 Australian Institute of Nuclear Science and Engineering, (AINSE) Sydney, Australia and The University of Western Australia, Perth, Australia; Post-Doctoral Fellow
1988-1990 Argonne National Laboratory, Chicago, IL; Research Associate

ACADEMIC AND PROFESSIONAL APPOINTMENTS

- Aug 1990 - present Assistant, then Associate Professor; Department of Chemistry; The University of Alabama; Tuscaloosa, AL 35487.
May 1988 - Aug 1990 Research Associate; Radiation and Photochemistry Group, Argonne National Laboratory; Chicago, IL 60439.
Aug 1985 - May 1988 AINSE Post-Doctoral Fellow; Lucas Heights, Sydney, Australia and The University of Western Australia, Perth, Australia.

SELECTED PUBLICATIONS (of more than 46 total)

- V. Warke, M. Curry, M. G. Bakker, D. E. Nikles, K. Hong, J. Mays, and P. Britt "Development of Block Co-Polymers as Self-Assembling Templates for Patterned Media", in *Nanostructured and Patterned Materials for Information Storage*, edited by Z.Z. Bandic, M. Rooks. R. Berger, T. Ando (Mater. Res. Soc. Symp. Proc. **961E**, Warrendale, PA, 2007), paper #O01-07
J. Manning, R. Campbell, R. Woo, B. O'Neil, L. M'Kenzie, M. G. Bakker, V. Montoya, and G. Havrilla, "Development of Nano-Micro-Macro-Structured Porous Nickel Electrodes for Use in Supercapacitors", in *Mobile Energy* ed. by A. Nathan, G. Amaratunga, M. Nookala, L.G. Scanlon, E. Morinobu, (Mater. Res. Soc. Symp. Proc. **973E**) Warrendale, PA, 2007, paper #BB07-06.
R. Campbell, M. Bakker, G. Havrilla, V. Montoya, E. A. Kenik and M. Shamsuzzoha, "Preparation of Mesoporous Silica Templated Metal Nanowire Films on Foamed Nickel Substrates", *Mesoporous and Microporous Mater.* **97**: 114-121 (2006).
W. A. Adams, M. G. Bakker, H.-W. Oh, and A. Baena, "Development of Ordered Mesoporous Semiconductor and Semiconductor Containing Thin Films for Advanced Oxidation Processes", in *New Research on Hazardous Materials*, ed. by Phillip B. Warev (Nova Science Publishers, Inc., Hauppauge, NY, 2006) pp. 81-100.
W. A. Adams, M. G. Bakker, and T. I. Quickenden, "Photovoltaic Characteristics of Ordered Mesoporous Silica Thin Film Electrodes Encapsulating Titanium Dioxide Particles", *J. Photochem. Photobiol.* **A181**: 166-173 (2006).
R. Campbell, M. G. Bakker, C. Treiner, and J. Chevelat, "Electrodeposition of Mesoporous Nickel onto Foamed Metals Using Surfactant and Polymer Templates" *J. Porous Mater.* **11**: 63-69 (2004).
W. Adams, M. G. Bakker, T. Marcias and I. A. Jefcoat, "Synthesis, Characterization and Photoactivity of Mesoporous Silica-Supported Titanium Dioxide", *J. Hazardous Mater.* **112**: 253-259 (2004).
M. G. Bakker, T. Morris, G. L. Turner, and E. Granger, "Surfactant Aggregates (Solloids) Adsorbed on Silica as Stationary Chromatographic Phases: Structure and Properties", *J. Chromatogr.* **B743**: 65-78 (2000).
M. G. Bakker, E. L. Granger, and A. I. Smirnov, "Studies of Cetylpyridinium Chloride and Cetylpyridinium Salicylate in Solution and Adsorbed on Silica Surfaces Using X and W-band Electron Paramagnetic Resonance (EPR) Spectroscopy" *Langmuir* **17**: 2346 (2001).

Synergistic Activities

Since Fall 2003; Education Coordinator for the NSF Materials Research Science and Engineering Center (MRSEC) at The University of Alabama. Responsible for oversight of the education activities supported by the MRSEC, including summer programs for research by high school students, middle school teachers, undergraduate students (including a separate REU Site grant) and faculty from three HBCUs, and collaborations with area Science Museums.

Research Advisor for two middle school teachers carrying out research on the use of micro-emulsions for templating formation of high surface area porous electrodes.

Co-PI "Enhancement of Upper Level Chemistry Laboratories Using Environmental Analysis Methods" 1998-2001. This provided a spectrofluorimeter for the Physical Chemistry Laboratory, for which the PI has developed one experiment and is now developing a second.

Development of computer games to teach middle school students science, available at <http://www.mint.ua.edu/games>.

Recent Research Collaborations:

J. Barnard (Pittsburgh), S. Blackstock (UA), M. P. Brady (ORNL), W. Butler (UA), P. Chen (MSFC), B. Chmelka (UC Santa Barbara), D. Dixon, UA; H. Fujiwara, UA; A. Gupta; J.W. Harrell, UA; G. Havrilla, LANL; A. Jefcoat, MS State; E. Kenik (ORNL), D. R. Lee (APS/ANL), X. Lu (APS/ANL), G. Mankey (UA), J. Mays (ORNL), P. Britt (ORNL), D. Nikles (UA), R. Pandey (UA), R. Schad (UA), S. Street (UA), J. Thrasher (UA), G. Thompson (UA), C. Treiner (U. Paris), P. Visscher (UA), J. Wang (APS/ANL) G. Warren (UA), J. Yang (U. Pittsburgh), G. Zangari (U. Virginia); J. Chevalet (U. Paris), F. Dardoize, (U. Paris)

Thesis Advisors and Postgraduate-Scholar Sponsors

Prof. Rodney C. Claridge, Canterbury University (PhD); Prof. Terence I. Quickenden, University of Western Australia, Mr. David Sangster ANSTO (Post-Doc.), Dr. Alexander Trifunac, ANL (Post-Doc)

Previous Students and PostDoctorals

Dr. Marc N. Lehmann, Johnson Controls, Austin TX, (Ph.D., 1997)

Dr. Gregory Turner, Alabama Department of Forensics, Birmingham AL. (Ph.D., 1999)

Mr. James Lloyd, (M. Sc., 2004), Mr. Edward Granger, TVA, (M.Sc., 2006)

Dr. William Adams, EPA, Cincinnati, (Ph.D. 2006)

Dr. Roger Campbell, University of West Alabama, (Ph.D., 2008)

Dr. Vishal Warke, Intel, (Ph.D. 2008)

Mr. Jason Manning, Delta State Community College (M.Sc., 2008)

Current Students

Mr. Nikolas Cordes, Ph. D. expected 2010

Mr. Chris Redden, Ph. D. expected 2011

Ms. Franchessa Maddox, Ph. D. expected 2012

Total Graduate Students: 11, Postdoctorals, 1
Postdoctorals; Dr. Soumen Basu, 2008-2009

Total Graduate Students: 11, Postdoctorals, 1