

PAUL RIDGWAY

1933 ½ Russell St, Berkeley, CA 94703 (510) 644-1928

RESEARCH AND DEVELOPMENT ENGINEER

HIGHLIGHTS OF QUALIFICATIONS

- 26 years of laboratory chemical, mechanical engineering and applied physics research
- Fabrication of electrochemical cells (incl. fuel), analysis by CV, complex impedance
- Extensive experience in chemical synthesis and analysis (GC, NMR, IR, XRD, etc)
- Programming and interfacing of computers with sensors and control instrumentation
- Author of peer-reviewed publications, scientific conference & DOE review presentations
- Conception of new projects, preparation of “white papers” and funding proposals

EXPERIENCE

- 10/01-present **Staff Research Associate, Lawrence Berkeley National Laboratory (LBNL)**
- Developing new Lithium ion battery electrodes for electric vehicles
 - Developed laser-based ultrasonic bending and shear stiffness sensor for paper mfg.
 - Developed laser-based method to fabricate edge-illuminated displays in glass
 - Collaborates with other labs, mentors summer interns, supervises technical staff
- 6/98-10/01 **Principal Research Associate, LBNL**
- Developed processes for fabrication of thin film electrochemical cell electrodes, superconductors, and thermo-electrics via ion beam-assisted laser ablation
- 5/94-5/95-6/98 **Research Associate, then Senior Research Associate, LBNL**
- Developed laser-based optical methods for probing electrochemical electrode processes
- 10/92 - 11/93 **Senior Staff Chemical Process Engineer, Geomatrix Consultants, Inc.**
- Designed groundwater and soil-vapor remediation systems
 - Wrote computer code for condenser and air stripper modeling
- 1/88 - 9/92 **Research Assistant, LBNL**
- Studied high temperature, high-energy sodium/phosphorus-sulfur battery system
 - Designed, built, programmed and operated PC-automated electrochemical systems
 - Reduced and interpreted data, wrote reports and publications, made oral presentations
- 5/83 - 7/87 **Research Scientist, Catalytica Associates**
- Designed and built bench-scale reactor and sampling systems
 - Synthesized organic and inorganic compounds for industrial catalysis research
 - Analyzed chemicals by ¹H and ¹³C FT-NMR, IR, GC/MS, HPLC, and X-ray diffraction
 - Studied electrochemical systems with cyclic voltammetry
- 8/81 - 5/83 **Staff Chemist, Occidental Research Corporation**
- Developed fuel cells for energy and hydrogen peroxide synthesis
 - Studied corrosion processes with electrochemical techniques

AWARDS

- 2005 – **LBNL Outstanding Performance Award**
- 2004 – **Johannes A. Van Den Akker Prize for Paper Physics**
- 2003 – **Technical Association of the Pulp and Paper Industry Outstanding Research Paper Award**
- 2000 – **LBNL Outstanding Performance Award**

EDUCATION

University of California, Berkeley
M.S. Chemical Engineering, August 1992

University of California, Santa Barbara
B.S. Chemistry, June 1980

PUBLICATIONS, PATENTS and REFERENCES – available on request

PUBLICATIONS

Journal Publications:

Paul Ridgway, Honghe Zheng, A. F. Bello, Xiangyun Song, Shidi Xun, Jin Chong, and Vincent Battaglia, "Comparison of Cycling Performance of Lithium Ion Cell Anode Graphites" *J. Electrochem. Soc.* 159 A520 (2012)

Honghe Zheng, Gao Liu, Xiangyun Song, Paul Ridgway, Shidi Xun, and Vincent S. Battaglia, "Cathode Performance as a Function of Inactive Material and Void Fractions", *J. Electrochem. Soc.* 157 (10) A1060-A1066 (2010)

Delacourt, C., Ridgway, P., Newman, J. , "Mathematical Modeling of CO₂ Reduction to CO in Aqueous Electrolytes, Part I.- Kinetic Study on Planar Silver and Gold Electrodes" *J. Electrochem. Soc.*, 157 B1911 (2010)

Ridgway, P.L., Russo, R.E., Lafond, E., Jackson, T., Habeger, C., "Laser Ultrasonic System for On-Line Measurement of Elastic Properties of Paper", *Journal of Pulp and Paper Science*, **29** (9) 289-293 (2003)

Ridgway, P., Hunt, A., Quinby-Hunt, M., and Russo, R., "Laser Ultrasonics on Moving Paper", *Ultrasonics* **37**:395-403 (1999) LBNL 43615

P.L. Ridgway, F.R. McLarnon, E.J. Cairns, "Sodium/Phosphorus-Sulfur Cells I. Cell Performance", *J. Electrochem. Soc.*, **143**, 406-411 (1996)

P.L. Ridgway, F.R. McLarnon, E.J. Cairns, "Sodium/Phosphorus-Sulfur Cells II. Phase Equilibria", *J. Electrochem. Soc.*, **143**, 412-417 (1996)

Conference Proceedings:

P. Ridgway, Honghe Zheng, Xiangyun Song, Shidi Xun, Gao Liu, Philip Ross, Vincent Battaglia, "Effect of Vinylene Carbonate on Graphite Anode Cycling Efficiency", *Electrochemical Society Transactions* 19 (25), 51 (2009)

P. Ridgway, Honghe Zheng, Gao Liu, Xiangyun Song, Vincent Battaglia, "Performance of Lithium Ion Cell Anode Graphites Under Various Cycling Conditions", *Electrochemical Society Transactions* 13 (19), 1 (2008)

E. Lafond, T. Jackson, P. Ridgway, G. Baum, X. Zhang, R. Russo, "Laser ultrasonics at twenty meters per second in the production environment and on a budget: from dream to reality", *2005 I.E.E.E. Ultrasonics Symposium*, Rotterdam, The Netherlands, September 2005

P. Ridgway, R. Russo, E. Lafond, T. Jackson, G. A. Baum, and X. Zhang, "Laser Ultrasonic Measurement of Elastic Properties of Paper: Mill Demonstration", in *Review of Progress in Quantitative Nondestructive Evaluation*, Vol. 25, edited by D. O. Thompson and D. E. Chimenti, AIP Conference Proceedings, American Institute of Physics, Melville, NY, 2006

E. Lafond, P. Ridgway, T. Jackson, G. A. Baum, R. Russo, "A Noncontact, On-machine, Laser Ultrasonic Sensor for Measuring Paper and Paperboard Bending Stiffness and Shear Rigidities", TAPPI

Practical Papermaking 2005 Conference Proceedings

P. Ridgway, R. Russo, E. Lafond, T. Jackson, and X. Zhang, "A Sensor for Laser Ultrasonic Measurement of Elastic Properties of Moving Paper", in *Review of Progress in Nondestructive Evaluation*, Vol. 24A, edited by D. O. Thompson and D. E. Chimenti, AIP Conference Proceedings Vol. 760, American Institute of Physics, Melville, NY, 2004, pp. 1698-1705.

P. Ridgway, R. Russo, E. Lafond, T. Jackson, X. Zhang, "A Sensor for Laser Ultrasonic Measurement of Elastic Properties During Manufacture", Proceedings of the 16th World Conference on Nondestructive Testing (2004)

E. LaFond, P. Ridgway, T. Jackson, R. Russo, X. Zhang and C. Habeger, "A Sensor for Non-Contact Monitoring of Paper Elastic Properties During Manufacture", 2004 TAPPI Paper Summit, Spring Technical & International Environmental Conference Proceedings.

Lafond E, Ridgway P, Jackson T, Habeger C, Russo R. "A laboratory laser-ultrasonic instrument for measuring the mechanical properties of paper webs", American Institute of Physics Conference Proceedings, no.657B, 2003, pp.1665-72. Publisher: AIP, USA.

P. Ridgway, R. Russo, E.Lafond, C. Habeger, and T. Jackson, "Laser Ultrasonic System for Online Measurement of Elastic Properties of Paper", Proceedings of the World Congress on Ultrasonics 2003

E. Lafond, T. Jackson, P. Ridgway, C. Habeger, R. Russo, X. Zhang, "A fully fiberized laser-ultrasonic instrument for measuring the stiffness properties of paper", Proceedings of the World Congress on Ultrasonics 2003

P. Ridgway, C. Habeger, T. Jackson, E. LaFond, R.Russo, "Laser Ultrasonic System for Online Measurement of Elastic Properties of Paper", Proceedings of the TAPPI Fall Conference 2003

P. Ridgway, R. Russo, E. Lafond, C. Habeger, T. Jackson, "Laser Ultrasonic System for Online Measurement of Elastic Properties of Paper", 2003 Wisconsin Industries of the Future Technology Symposium Proceedings

P. Ridgway, R. Russo, C. Habeger, E. Lafond," Laser Ultrasonic In-Process Inspection", 12th TANDEC International Nonwovens Conference Proceedings (2002)

PATENTS

LBNL Patent Disclosure submitted 5/6/2005: "Method for making edge-illuminated glass displays"

US 07/959,933 Oct. 9, 1992 (application, co-inventor, Na/P-S high energy battery)

US 4847421 July 11, 1989 (co-inventor, palladium catalysts)

US 4738943 April 19, 1988 (co-inventor, palladium catalysts)

REFERENCES

Vincent Battaglia	LBNL	VSBattaglia@lbl.gov	(510) 486-7172
Richard Russo	LBNL	RERusso@lbl.gov	(510) 486-4258
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