

Richard E. Rocheleau
Hawaii Natural Energy Institute Director

Professional Preparation

University of Delaware	Chemical Engineering	Ph.D., 1980
University of Hawaii	Ocean Engineering	MS., 1977
University of Delaware	Chemical Engineering	BS., 1973

Appointments

1/2002 – present	Director, Hawaii Natural Energy Institute
12/1999 – 1/2002	Interim Director, Hawaii Natural Energy Institute
9/1998 – 12/1998	Acting Director, Hawaii Natural Energy Institute
1997 – 1999	Researcher, Hawaii Natural Energy Institute
1992 – present	Graduate Faculty, Department of Mechanical Engineering
1989 – present	Graduate Faculty, Department of Electrical Engineering
1988 – 1997	Associate Researcher, Hawaii Natural Energy Institute
1986 – 1988	Manager, Institute of Energy Conversion, Reactor Design and Analysis Group, University of Delaware
1980 – 1986	Engineer, Institute of Energy Conversion, University of Delaware
1977 – 1980	Research Assistant, Department of Chemical Engineering, University of Delaware
1975 – 1977	Research Assistant, Department of Ocean Engineering, University of Hawaii
1973 – 1975	Engineer, Mobil Research and Development Corp., Paulsboro, NJ.

Research Interest

While continuing to have research interests in the advancement of development of alternative energy technologies including thin film photovoltaics, fuel cells, and hydrogen technologies, since becoming Director I have primarily focused on the development of public-private partnerships to identify and reduce barriers to the integration of intermittent renewable generation technologies onto the electrical grid. These efforts have led to national and international partnerships in the development and deployment of smart grid technologies including advanced inverter technology, advanced storage systems, and the application of hydrogen as a grid management tool. Hawaii Natural Energy Institute partnerships now extend to Japan with the New Energy and Technology Development Organization (NEDO) and to Europe with the European Energy Research Alliance (EERA).

Selected Publications

- Cross, P., R. Rocheleau, L.Vega, N.Li, and K.F.Cheung, *Early research efforts at the Navy's wave energy test site*, Proceedings of the 3rd Marine Energy Technology Symposium, Washington, DC., 2015
- B. Daryanian, R. Rocheleau, J. Maskrey, R. Pikow, G. Jordan, *Smart EV Charging to Capture Curtailed Renewable Energy*, 2015 CIGRE Conference, Canada, 2015
- Corey T. Lovea, , , Maheboob B.V. Virjib, Richard E. Rocheleaub, Karen E. Swider-Lyonsa, *State-of-health monitoring of 18650 4S packs with a single-point impedance diagnostic*, Journal of Power Sources, Volume 266, pp. 512–519, 2014
- Corey T. Lovea, , , Maheboob B.V. Virjib, Richard E. Rocheleaub, Karen E. Swider-Lyonsa
- Y. Garsany, J. Ge, J. St-Pierre, R. Rocheleau, K. E. Swider-Lyons, *Analytical Procedure for Accurate Comparison of Rotating Disk Electrode Results for the Oxygen Reduction Activity of Pt/C*, J. Electrochem. Soc. 161, issue 5, F628-F640, 2014
- G. Bender, M. Angelo, K. Bethune, R. Rocheleau, *Quantitative analysis of the performance impact of low-level carbon monoxide exposure in proton exchange membrane fuel cells*, Journal of Power Sources, 228, 15, pp. 159–169, 2013

- T. V. Reshетенko, G. Bender, K. Bethune, R. Rocheleau, *A segmented cell approach for studying the effects of serpentine flow field parameters on PEMFC current distribution*, *Electrochim. Acta* 88, pp 571–579, 2013
- Y. Garsany, J. Ge, J. St-Pierre, R. Rocheleau and K. Swider-Lyons, *Standardizing Thin-Film Rotating Disk Electrode Measurements of the Oxygen Reduction Activity of Pt/C*, *J. Electrochem. Soc. Trans.* 58, issue 1, pp. 3-14, 2013
- T.V. Reshетенko, G. Bender, K. Bethune, R. Rocheleau, *Systematic studies of the gas humidification effects on spatial PEMFC performance distributions*, *Electrochim. Acta* 69, 220-229, 2012
- Y. Zhai, K. Bethune, G. Bender, R. Rocheleau, *Analysis of the SO₂ Contamination Effect on the Oxygen Reduction Reaction in PEMFCs by Electrochemical Impedance Spectroscopy*, *J. Electrochem. Soc.*, 159, B524-B530, 2012
- T.V. Reshетенko, K. Bethune, R. Rocheleau, *Spacial proton exchange membrane fuel cell performance under carbon monoxide poisoning at a low concentration using a segmented cell system*, *Journal of Power Sources*, 218, pp. 412-423, 2012
- T.V. Reshетенko, G. Bender, K. Bethune, R. Rocheleau, *Effects of local variations of the gas diffusion layer properties on PEMFC performance using a segmented cell system*, *Electrochimica Acta*, 80, pp. 368-376, 2012

Professional and Trade Associations

Member, AIChE, Electrochemical Society, Fuel Cell and Hydrogen Energy Association (trade), Ocean Renewable Energy Coalition (trade), Utility Wind Integration Group (trade)

Selected Service Activities

Member, International Coordination Board to ELECTRA for EU Smart Grids	Member, USDOD Alternative Vehicle Working Group
Member, Lt. Gov's adhoc Energy Coordination Committee	Member, Kolohala Hydrogen Advisory Committee
Member, Hawaii Clean Energy Steering Committee	Member Hawaii Energy Policy Forum
Co-chair, Energy Committee for UH-PACOM Partnership.	Member USDOE Hydrogen Fuel Quality Team
	Member, Chrysler PHEV Truck Project Advisory Group

Selected Conference/Workshop and Other Presentations, and Proceedings

R. Rocheleau, Informational Briefing for State of Hawaii Legislature, March, 2014

R. Rocheleau, *Hawaii Energy and Environmental Technology Initiative*, ONR Undersea Propulsion Workshop, Washington DC, March 2012

R. Rocheleau, *Hawaii Hydrogen Programs*, F-Cell 2011, Stuttgart, Germany, September 2011

Pacific Operational S&T Conference, *UH-PACOM Partnership*, Keynote talk. Honolulu Hawaii, 2012

Selected Recent Grants and Awards

Principal Investigator or co-Principal Investigator on over \$22 million current, extramurally funded research in photovoltaics, hydrogen technologies, fuel cells, grid integration and energy efficiency. Naval Facilities Engineering Command, to the Applied Research Laboratory, University of Hawaii and the Hawaii Natural Energy Institute, *Wave Energy Test Site*.

US Department of Energy, *National Marine Renewable Energy Center in Hawaii*, and recently the *Hawaii Hydrogen Center for the Development and Deployment of Distributed Energy Technologies*.

Office of Naval Research, *Asia Pacific Research Initiative on Sustainable Energy Systems*, over \$34 million focused on fuel cells, alternative fuels, ocean and geothermal energy, and microgrid/grid integration and energy efficiency. Significant earlier efforts were funded via the *Hawai'i Energy and Environmental Technologies Initiative*.