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Professional Preparation:

Case Western Reserve University Cleveland, Ohio	Electrochemistry	Post doctorate, 1993-1995
Case Western Reserve University, Cleveland, Ohio, USA	Electrochemistry	Ph.D., 1993
Xiamen University, Fujian, China	Physical Chemistry	B.S., 1983

Appointments:

Associate Professor Chemical Engineering, The University of Toledo, Ohio	2017- Present
Engineering and Technology, IUPUI, Indianapolis, Indiana	2005-2017
Group Leader Delphi, Indiana Technical Center, Indianapolis, Indiana	1995-2005

Relevant Publications:

1. J. Guo, **R. Chen***, F. Zhu, S. Sun and Hebe M. Villullas, 2018. New understandings of ethanol oxidation reaction mechanism on Pd/C and Pd₂Ru/C catalysts in alkaline direct ethanol fuel cells. *Applied Catalysis B: Environmental*. 224:602–611.
2. D. Godoi, M. Villullas, F. Zhu, Y. Jiang, S. Sun, J. Guo, L. Sun and **R. Chen***, 2016. A comparative investigation of metal-support interactions on the catalytic activity of Pt nanoparticles for ethanol oxidation in alkaline medium. *Journal of Power Sources*. 311:81-90.
3. J. Guo, H. He, D. Chu, **R. Chen***. 2013. Tuning the electrochemical interface of Ag/C electrodes in alkaline media with metallophthalocyanine molecules. *Journal of Physical Chemistry C*, 117 (8):4006–4017.
4. L. Ma, A. Hsu, D. Chu, and **R. Chen***. 2013, PdRu/C catalysts for ethanol oxidation in anion-exchange membrane direct ethanol fuel cells. *Journal of Power Sources*. 241:696–702.
5. L. Ma, A. Hsu, D. Chu, **R. Chen***. 2012. Comparison of ethanol electro-oxidation on Pt/C and Pd/C catalysts in alkaline media. *International Journal of Hydrogen Energy* 37(15): 11185–11194.

Five Other Significant Products:

1. K. Liu, Y. Lei, **R. Chen**, and G. Wang. 2016. “Theoretical Aspects of Oxygen Electroreduction on M-N₄ Macrocyclic Complexes” for Book “Electrochemistry of N₄ Macrocyclic Metal Complexes”, Edited By Fethi Bedioui & José Zagal.

2. A. Strong, C. Thornberry, S. Beattie, **R. Chen** and S. Coles. 2015. Depositing Catalyst Layers in Polymer Electrolyte Membrane Fuel Cells: A Review. *Journal of Fuel Cell Science and Technology*. 064001-1 to 11.
3. L. Sun, J. Guo, J. Zhou, Q. Xu, D. Chu, **R. Chen***. 2012. Novel nanostructured high-performance anion exchange ionomers for anion exchange membrane fuel cells. *Journal of Power Sources* 202: 70-77.
4. Zhou, J., J. Guo, D. Chu, **R. Chen***. 2012. Impacts of anion-exchange-membranes with various ionic exchange capacities on the performance of H₂/O₂ fuel cells. *Journal of Power Sources* 219: 272-279.
5. **R. Chen***, H. Li, D. Chu, G. Wang. 2009. Unraveling Oxygen Reduction Reaction Mechanisms on Carbon Supported Fe-Phthalocyanine and Co-Phthalocyanine Catalysts in Alkaline Solutions. *J. Phys. Chem. C*, 113: 20689.

Synergistic Activities:

- Served as a Principal Investigator for two NSF grants, including “*Electricity from Bio-Ethanol Powered Fuel Cells*”, \$600,000 (7/15/2013-6/14/2016) and “*The Development of Multi-Functional Catalysts to Replace Pt for Fuel Oxidation Reactions in Low Temperature Fuel Cells Toward Environmentally Friendly Energy Production*”, \$389,114 (1/1/2014-12/31/2016).
- Patented ten inventions including: *Anion Exchange Ionomers for Fuel Cell Electrodes* (03/03/2005), *Composite Anion Exchange Membranes for Alkaline Fuel Cell Application*, *New Catalysts for Oxygen Reduction* (06/19/2010), *Functionalization and Membrane Preparation of Polyimides and/or Polyethers for Alkaline Anion Exchange* (01/15/2008), *Improvement of Proton Exchange Membranes by Addition of Sulfonated Super Porous Polystyrene Particles* (01/15/2008), *Anion Exchange Membranes* (WO089355Q1; 2009), *Improved Positive Electrode* (US patent 6,83,151; 10/2004), *Plate Making Process for Lead Acid Battery* (US patent 6,755,874; 06/2004), *Active Material for High Power and High Energy Lead Acid Batteries and Method of Manufacturing* (US patent 6,617,071, 09/2003).
- Invited speaker, The 233rd Electrochemical Society Meeting, May 13-17, 2018, Seattle; Energy Materials Nanotechnology (EMN) Meeting, Orlando, FL, Feb. 2016; Electrochemical Conference of Energy and Environment, E3, Shanghai, China, March, 2014; The 8th Pacific Rim International Congress on Advanced Materials and Processing (PRICM-8), Waikoloa, Hawaii, August, 2013; Electrochemical Society Meeting, Hawaii, Oct. 2012; Materials Research Society Annual Conference, Boston, MA, November 2011.

Collaborators and Other Affiliations:

Collaborators and Co-Editors: Dr. Deryn Chu (Army Research Lab), Daniel Scherson (Case Western University), R. Adzic (Brookhaven National Lab), Shi-gang Sun (Xiamen University, China); Mercedes Villullas (Depto de Físico-Química, Instituto de Química – UNESP, Brazil).

Graduate Advisors and Postdoctoral Sponsors:

Ph.D. Advisor: Ernest Yeager (Case Western Reserve University)

Postdoctoral Advisor: Daniel Scherson (Case Western Reserve University)