

Table of Contents

Oxygen cathodes

Sl#	Title	Page #
1	The Life and Legacy of Professor Ernest B. Yeager – T. Gilligan and J. Payer (Case Western Reserve University)	1
2	Electrode Potential-Dependent Stages in OH_{ads} Formation on the Pt_3Cr Alloy (111) Surface – J. Roques and A. Anderson (Case Western Reserve University)	10
3	Oxygen Electroreduction on Carbon Materials - D. Tryk, C. Cabrera (University of Puerto Rico), A. Fujishima (Kanagawa Academy of Science and Technology), and N. Spataru (Institute of Physical Chemistry)	45
4	The Kinetics of the Oxygen Reduction Reaction on Steel in Alkaline Solution – D. Gervasio (Arizona State University) and J. Payer (Case Western Reserve University)	58
5	One Dimensional Diffusion-Controlled Kinetic Model for Oxygen Reduction – W. Mustain and J. Prakash (Illinois Institute of Technology)	71

Fuel Cells

6	A Review of Electrode Kinetics of PEM Fuel Cell Reactions - S. Sarangapani and F. Luczak (ICET, Inc)	91
7	Electrocatalytic Oxidation of Methanol on High Surface Area Unsupported Catalysts - K. Jambunathan (Pennsylvania State University), R. Liu (Nuvant Systems Inc), L. Pan, E. Dickey, J. Shallenberger (Pennsylvania State University), E. Smotkin (Nuvant Systems Inc), and T. Mallouk (Pennsylvania State University)	108
8	Gravimetric Determination of Methanol Crossover Through Nafion 117 Electrolyte Membrane in a Direct Methanol Fuel Cell – R. Jiang and D. Chu (U.S. Army Research Laboratory)	121

9	Mechanistic and Bifurcation Analysis of Anode Potential Oscillations in PEM Fuel Cells with CO in Anode Feed – J. Zhang, J. Fehribach, and R. Datta (Worcester Polytechnic Institute)	134
10	Manufacturing Process for Low-Cost PEM Fuel Cells- M. Enayetullah, P. Osenar, P. Sabin, R. Formato, and N. Lauder (Protonex Technology Corporation)	168
11	Lifetime Studies of Catalyst Activity and Microstructure in a PEMFC – X. Cheng, C. Peng, Y. Ma, L. Chen, Y. Zhang (Xiamen University), and Q. Fan (Gas Technology Institute)	177
12	Thermal Effusivity Measurements: A Simple, Rapid, and Non-Destructive Technique for Characterizing Gas Diffusion Electrodes – P. Faguy, A. Menjak, and T. Hopper (Energy Conversion Devices)	189
13	FTIR Studies of Oxygen Reduction Reaction on SOFC Cathode Materials – H. Abernathy, Q. Wu, and M. Liu (Georgia Institute of Technology)	199

In Situ Spectroscopy

14	In Situ Determination of O(H) Adsorption Sites on Pt Based Alloy Electrodes Using X-ray Absorption Spectroscopy - M. Teliska, D. Ramaker (George Washington University), V. Srinivasamurthi, and S. Mukerjee (Northeastern University)	212
15	The Electrochemistry of Sulfite in Aqueous Solutions: UV-Visible Reflectance Spectroscopy Studies at Rotating Disk Electrodes – Y. Tolmachev (Argonne National Laboratory), and D. Scherson (Case Western Reserve University)	217
16	In Situ Potential-Dependent FTIR Emission Spectroscopy: A Novel Probe for High Temperature Fuel Cell Interfaces – P. Faguy (Energy Conversion Devices), X. Lu, and M. Liu (Georgia Institute of Technology)	230
17	A New Design of an In Situ ATR-FTIR Method and Its Applications - S. Moon, C. Bock, and B. MacDougall (National Research Council of Canada)	245

- 18 New Electrode System by Using Three Dimensionally Ordered Macroporous Li⁺ Ion Conductor – N. Akutagawa (Tokyo Metropolitan University), Y. Rho (Japan Science and Technology Corporation), and K. Kanamura (Tokyo Metropolitan University) 252
- 19 Thermal Studies of Li-Ion Electrodes at Elevated Temperatures – H. Yang, H. J. Bang, H. Joachin (Illinois Institute of Technology), K. Amine (Argonne National Laboratory), and Jai Prakash (Illinois Institute of Technology) 259

Advanced Batteries

- 20 Thermal Investigation of Li-Ion Cells Using Isothermal Microcalorimeter - H. Yang, H. J. Bang, and J. Prakash (Illinois Institute of Technology) 267
- 21 Thermodynamics of Lithium Intercalation into Graphites and Disordered Carbons - Y. Reynier, R. Yazami, and B. Fultz (California Institute of Technology) 281
- 22 Evaluation of Real Interface Area Between Graphite Particles and Electrolyte – H. Yang, H. Bang, and J. Prakash (Illinois Institute of Technology) 291
- 23 The Dependence of Heat Generation of Li_xMn₂O₄ and LiAl_{0.17}Mn_{1.83}O_{3.97}S_{0.03} on Entropy Change (Compared by the Isothermal Micro-Calorimetry Method) – H. J. Bang, H. Yang (Illinois Institute of Technology), Y. Sun (Hanyang University), and J. Prakash (Illinois Institute of Technology) 300
- 24 A Band Model Picture for a Chemi-Conducting Passive Film on Iron - B. Cahan (Case Western Reserve University) 310
- 25 Electrochemical Oxidation of Ru(0001) and Ru(10-10) Surfaces - M. Vukmirovic K. Sasaki, J. Wand, and R. Adzic (Brookhaven National Laboratory) 320
- 26 Theory for the Potential shift for OH_{ads} Formation on the Pt-skin on Pt₃Cr(111) in Acid – J. Roques and A. Anderson (Case Western Reserve University) 330
- 27 Adlayer of Hydroquinone on Rh(111) in Solution and in Vacuum Studied by STM and LEED – J. Inukai, M. Wakisaka, M. Yamagishi, and K. Itaya (Tohoku University) 360
- 28 Electrochemical Behavior of Prussian Blue Monolayer on a Gold Electrode and Its Electrocatalytic Activity for NADH Oxidation – L. Shi and J. Li (Chinese Academy of Science) 372

29	Zn-Cu Alloy Formation Rates on Cu Electrodes in Alkaline Solutions at Ambient Temperatures – I. Bae (Gillette Advanced Technology Center)	381
30	Ernest B. Yeager - An Appreciation - R. Brodd (Broddarp of Nevada) and A. Salkind (Rutgers University)	387
	Subject Index	392