

ANDRZEJ WIECKOWSKI

Professional Experience

University of Illinois at Urbana-Champaign:

Professor of Chemistry, Departments of Chemistry (100%) and Materials Science (0%), 1996-present;

Assistant/Associate Professor, 1985-96,

Principal Investigator: Frederic Seitz Materials Research Laboratory (UIUC); 1990-2005,

Professor of Chemical Sciences (Honorary) in Poland, 2003-present;

North American Editor of *Electrochimica Acta* (Elsevier), 2002-present.

Recognition

Professor Wieckowski publishes in the area of electrochemistry, spectroscopy and imaging, surface science, single crystals, nanostructured surfaces and materials, electrocatalysis and fuel cells. The work has had high impact as evidenced by over 5000 citations received. He is currently co-PI of the Zawodzinski MURI Program "Computational Design of Fuel Cell Materials" and PI on the NSF project "Metal-Metal and Metal-Molecule Interactions on Nanoisland Covered Single Crystal Electrodes" (with P. S. Bagus).

Honors and Awards

Gold Medal of the International Society of Electrochemistry (ISE), 2006/2007

The Fellow of ECS (The Electrochemical Society), 2006

Invited lectureship in Japan: January 18, 2004 - February 16, 2004

The David C. Graham Award of the Electrochemical Society, 2003

Jacques Tacussel Prize of the International Society of Electrochemistry, 1998

The US Department of Energy Prize for Outstanding Scientific Accomplishment in Materials Chemistry, 1992

Recent awards to graduate students

Jacob Spendelow, NSF fellowship, 2003/2006

Christina Johnston, NSF fellowship, 2000/2003

Alechia Crown, ACS Analytical Division Summer Fellowship, 2001

Main research accomplishment

Development of electrochemical NMR spectroscopy (EC-NMR)

Education

University of California at Santa Barbara, postdoctoral study 1983/85

Laval University, Quebec, Canada, Visiting, 1981/83

University of Warsaw, Warsaw, Poland, PhD 1973, DSc (habilitation) 1981

Affiliations

ECS (The Electrochemical Society), ACS (American Chemical Society), ISE (International Society of Electrochemistry), SEAC (Society of Electroanalytical Chemists)

Recent Meeting Organization

Organizing program chair: International Symposium on Surface Imaging/Spectroscopy at the Solid/Liquid Interface, May 28 - June 1, 2006, Krakow, Poland, sponsored by ISE;

Co-organizer (G. Jerkiewicz et al.): Structures, Dynamics and Reactivity at the Electrochemical Interface, in Physical and Theoretical Chemistry, Pacificchem 2005, Honolulu, Hawaii, USA, December 16-21, 2005;

Lead organizer: Symposium on Electrocatalysis, as part of the 207th Electrochemical Society (ECS) Meeting, May 15-20, 2005, Quebec City, Canada;

Organizer: ARO Workshop on the Theory-Experiment Interface in Fuel Cell Electrochemistry, Quebec City, May 20, 2005 (in conjunction with the 207th ECS meeting).

Scholarly

EDITING, BOOKS, CHAPTERS: 10

INVITED TALKS, 340 in last 20 years

PUBLICATIONS: 261

Recent books edited

S.-G. Sun, P.A. Christensen and A. Wieckowski (Editors), "In-situ Spectroscopic Studies of Adsorption at the Electrode and Electrocatalysis", Elsevier, submitted July **2006**.

A. Wieckowski, E. Savinova and C. Vayenas (Editors), "Catalysis and Electrocatalysis at Nanoparticle Surfaces", Marcel Dekker Inc., New York, Basel, **2003** (ISBN: 0-8247-0879-2), pp 1-970.

A. Wieckowski (Editor), "Interfacial Electrochemistry: Theory, Experiment and Applications", Marcel Dekker Inc., **1999**, Pp. 1 – 996.

Selected peer-reviewed publications

C. M. Johnston, S. Strbac, A. Lewera, W. Zhou, and A. Wieckowski, "Methanol Electrooxidation Studies of Pt(111)/Os Surfaces Prepared by Spontaneous Deposition", *Langmuir*, in press.

J. S. Spendelow, P.K. Babu, A. Wieckowski, *Curr. Opinion Solid St. and Mat. Science*, **9**, 37-48 (2006). "Electrocatalytic Oxidation of Carbon Monoxide and Methanol on Platinum Surfaces Decorated with Ruthenium".

J. S. Spendelow, J. D. Goodpaster, P. J. A. Kenis, and A. Wieckowski, *J. Phys. Chem. B*, **110**, 9545-9555, 2006. "The Mechanism of CO Oxidation on Pt(111) in Alkaline Media".

D. Cao and A. Wieckowski, J. Inukai, N. Alonso-Vante, *J. Electrochem. Soc.*, **153**, A869-A874 (2006). "Oxygen Reduction Reaction on Ruthenium and Rhodium Nanoparticles Modified with Selenium and Sulfur".

H. Imai, P. K. Babu, E. Oldfield, Andrzej Wieckowski (UIUC); D. Kasuya, T. Azami, Y. Shimakawa, M. Yudasaka, Y. Kubo, and S. Iijima (NEC), *Physical Review B* **73**, 125405 (1-7) (2006), "¹³C NMR Spectroscopy of Carbon Nanohorns".

P. S. Bagus, A. Wieckowski, and H. Freund, *Chem. Phys. Letters*, **420**, 42-46 (2006), "Initial and Final State Contributions to Binding-Energy Shifts Due to Lattice Strain: Validation of Auger Parameter Analyses".

C. M. Johnston, S. Strbac and A. Wieckowski, *Langmuir*, **21**, 9610-9617, 2005. "In situ STM Study of Au(111)/Os Bimetallic Surfaces: Spontaneous Deposition and Electrochemical Dissolution".

T. Kobayashi, P. K Babu, L.Gancs, J.-H. Chung, E. Oldfield and A. Wieckowski, *J. Am. Chem. Soc.*, **127**, 14164-14165 (2005). "An NMR Determination of CO Diffusion on Platinum Electrodes".

P. K. Babu, H.-S. Kim, S. T. Kuk, J. Ho Chung, E. Oldfield, A. Wieckowski (UIUC) and E. S. Smotkin (UPR), *J. Phys. Chem. B*, **109**, 17192-17196 (2005). "Activation of Nanoparticle Pt/Ru Fuel Cell Catalysts by Heat Treatment: A ¹⁹⁵Pt NMR and Electrochemical Study".

F. Maillard, G. -Q. Lu, A. Wieckowski and U. Stimming, *J. Phys. Chem. B feature article*, **109**, 16230-16243 (2005). "Ru-Decorated Pt Surfaces as Model Fuel Cell Electrocatalysts for CO Electrooxidation".

E. R. Choban, J. S. Spendelow, L. Gancs, A. Wieckowski, P. J. A. Kenis, *Electrochimica Acta*, **50**, 5390-5398, 2005. "Membraneless Laminar Flow-Based Micro Fuel Cells Operating in Alkaline, Acidic, and Acidic/Alkaline Media".

G. Q. Lu, A. Lagoutchev, D. Dlott and A. Wieckowski, *Surface Science*, **585**, 3-16 (2005). "Quantitative Vibrational Sum-Frequency Generation Spectroscopy of Thin Layer Electrochemistry: CO on a Pt Electrode".

D. Cao, G.-Q. Lu, A. Wieckowski (UIUC); S. A. Wasileski and M. Neurock (UVa), *J. Phys. Chem. B*, **109**, 11622-11633 (2005). "Mechanisms of Methanol Decomposition on Platinum: A Combined Experimental and Ab Initio Approach".

P. K., J.-H. Chung, S. T. Kuk, T. Kobayashi, E. Oldfield and A. Wieckowski, *J. Phys. Chem. B*, **109**, 2474-2477 (2005). "Metallic Nature and Surface Diffusion of CO Adsorbed on Ru Nanoparticles in Aqueous Media: A ¹³C NMR Study".

S.T. Kuk and A. Wieckowski, *J. of Power Sources*, **141**, 1-7 (2004). "Methanol electrooxidation on platinum spontaneously deposited on unsupported and carbon-supported ruthenium nanoparticles".

P. K. Babu, H. S. Kim, J. H. Chung, E. Oldfield, A. Wieckowski, *J. Phys. Chem. B*, **108**, 20228-20232 (2004). "Bonding and Motional Aspects of CO Adsorbed on the Surface of Pt Nanoparticles Decorated with Pd".

Cover Page, invited article: J. S. Spendelow, A. Wieckowski, *Phys. Chem. Chem. Phys.*, **6**, 5094-5118 (2004). "Noble Metal Decoration of Single Crystal Platinum Surfaces to Create Well-Defined Bimetallic Electrocatalysts".