
Sanjeev Mukerjee

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Professional Preparation:

Graduate Institution(s)	Major Degree	Year
Indian Institute of Technology, New Delhi, India	M.S. in Chemistry	1984
Indian Institute of Technology, Kharagpur, India	M.Tech. in Catalysis	1986
Texas A&M University, Department of Chemistry	Ph.D. Analytical Chemistry	1994

Appointments:

2008- Onwards, Director, Northeastern University Center for Renewable Energy Technology
2006 – Onwards Professor, Dept. of Chemistry, Northeastern University, Boston, MA
2004 – 2006 Associate Professor, Dept. of Chemistry, Northeastern University, Boston, MA
1998 – 2004 Assistant Professor, Dept. of Chemistry Northeastern University, Boston, MA
1996 – 1998 Assistant Scientist, Division of Applied Science, Brookhaven National Laboratory, Upton, NY
1994 – 1996 Research Associate, Division of Applied Science, Brookhaven National Laboratory, Upton, NY

Areas of Professional Expertise:

- Electrocatalysis: Understanding Electrocatalytic Pathways in Complex Reaction Centers
- Intercalation Compounds: Understanding charge compensation in complex structures as a function of intercalation
- In situ Synchrotron Spectroscopy: Development of New Methodologies for X-ray Absorption and Scattering Methods
- Fundamental Understanding of Transport Phenomenon in Polymer Electrolytes

(i) Seventy Nine Publications: [H-factor-24]**(ii) Recent Five Publications.**

1. 'Electrochemical Studies of Ferrocene in a Lithium ion Conducting Organic Carbonate Electrolyte', C. Olaoire, E. Plichta, M. Hendrickson, S. Mukerjee and K. M. Abraham, *J. Electrochim. Acta*, **54**, 6560 (2009).
2. 'Enhanced Activity and Interfacial Durability Study of Ultra Low Pt based Electrocatalysts Prepared by Ion Beam Assisted Deposition (IBAD) Method', N. Ramaswamy, T. M. Arruda, W. Wen, N. Hakim, M. Saha, A. Gulla and S. Mukerjee, *Electrochim. Acta*, **54**, 6756 (2009).
3. 'Fundamental Investigation of Oxygen Reduction on Rhodium Sulfide based Chalcogenides', J. M. Ziegelbauer, D. Gatewood, A. F. Gulla, M. J-F. Guinel, F. E. Ernst, D. E. Ramaker and S. Mukerjee, *J. Phys. Chem. C.*, **113**, 6955 (2009).
4. 'Carbon Supported PdM (M=Au and Sn) nanocatalysts for the Electro-oxidation of Ethanol in High pH Media', Q. He, W. Chen, S. Chen, F. Laufek and S. Mukerjee, *J. Power Sources*, **187**, 298 (2009).
5. 'Carbon Supported Selenium Modified Ruthenium – Molybdenum Catalysts for Oxygen Reduction in Acidic Media', M. J-F. Guinel, A. Bonakdarpour, B. Wang, P. Babu, F. Ernst, N. Ramaswamy, S. Mukerjee and A. Wieckowski, *ChemSusChem*, **2**, 658 (2009).

(iii) Five Other Recent Significant Publications:

1. 'Investigation of Durability Issues of Selected Non-Fluorinated Polymer Exchange Membranes for Fuel Cell Applications' L. Zhang and S. Mukerjee, *J. Electrochem. Soc.*, **153**, A1062 (2006).
2. 'Degradation Mechanism Study of Perfluorinated Proton Exchange Membranes Under Actual Fuel Cell Operating Conditions', N. Ramaswamy, N. Hakim, and S. Mukerjee, *Electrochim Acta*, **53**, 3279 (2008).

3. 'Contrast to Metal Ligand Effects on Pt_nM Electrocatalysts with M equal to Ru vs. Mo and Sn as Exhibited by *in situ* XANES and EXAFS Measurements in Methanol', F. C. Scott, S. Mukerjee, and D. E. Ramaker, *J. Phys. Chem. C.*, (In Press).
4. 'Studies of the Effect of Ion Conducting Salts on the Electrochemical Reduction of Oxygen in Acetonitrile', C. Olaoire, S. Mukerjee, K. M. Abraham*, E. J. Plichta, and M. Hendrickson, *J. Phys. Chem. C.* (In Press).
5. 'Promoting Effect of CeO₂ in the Electrocatalytic Activity of Rh for Ethanol Oxidation', Q. He, S. Mukerjee, B. Shyam, D. E. Ramaker, S. Parres-Esclapez, M. J. Illian-Gomez and A. Bueno-Lopez*, *J. Power Sources*, **193(2)**, 408 (2009).

Synergistic Activities.

- Formation of a Northeastern University Center for Renewable Energy Technology (NUCRET), for leveraging the multifaceted capabilities at the University and State level for fostering an education, research and entrepreneurial initiative aimed at cleaner more efficient energy conversion and storage.
- Initiation of unified curriculum in the area of materials research aimed towards capturing recent development in the nano-science and technology.
- Founding member of two start-up ventures in the Boston area. Protonex Corp. deals with the development of manufacturing technology for small and medium sized (5 W to 5 KW) PEM fuel cells. Encite llc. is developing new technology for MEMS based Micro-fuel cells. These ventures serve as a living laboratory on the cutting edge science and business.

Collaborations and Co-Editors

1. *Plamen Attanasov*, Professor, Department of Chemical Engineering, University of New Mexico
2. *Emory S. DeCastro*, De Nora NA Inc., Somerset, NJ.
3. *Lesia Protsailo and Sathya Motupalli*, UTC Fuel Cells, South Windsor, CT.
4. *Paul Osenar and Mohammad Enayetullah*, Protonex Corp., Southboro, MA
5. *Stephen Marsh*, Integrated Fuel Cell Technologies, Burlington, MA
6. *Thomas A. Zawodzinski*: Department of Chemical Engineering, Case Western Reserve University, Cleveland, OH.
7. *Alfred Anderson*, Department of Chemistry, Case Western Reserve University, Cleveland, OH
8. *Peter Pintauro*, Department of Chemical Eng., Vanderbilt University, Nashville, TN.

Graduate and Postdoctoral Advisors:

- (1) Graduate Advisor: Professor Manuel Soriaga, Department of Chemistry, Texas A&M University, College Station, Texas. (September 1990 to May 1994)
- (2) Postdoctoral Advisor: Dr. James McBreen, Materials Science Division, Brookhaven National Laboratory, Upton, NY (June 1994 to September 1998)

Thesis Advisor for Students Graduated:

1. Richard C. Urian, graduated May 2003
Thesis: Pt and Pt Alloys for Proton Exchange Membrane Fuel Cells: A Look at Adsorbate Interactions at the Catalysts Surface.
2. Vivek S. Murthi, graduated January 2005
Thesis: Electrochemistry at Interfaces with Low Water Activity: Application to Proton Exchange Membrane Fuel Cells and Growth of Anodic Oxide Films
2. Lei Zhang, graduated May 2005
Thesis: Interfacial Studies on Select Novel Polymer Electrolyte Membranes
4. Wen Wen, Graduated December 2005
Thesis: Electrode Materials for Energy Storage: Electrochemistry and Spectroscopic Investigations
5. Dr. Joseph Ziegelbauer, Graduated in May 2008
Thesis: Fundamental Aspects of Oxygen Reduction Reaction on Non Pt Electrocatalysts: An Electrochemical and In situ X-Ray Absorption Spectroscopy Study.
6. Dr. Thomas Arruda, Graduated November 2009
Thesis: Fundamental Studies on Enzyme Catalyzed Electrochemical Charge Transfer Reaction