Curriculum Vitae

Date: 07/15/2013

PERSONAL

Name: Xiangyang Zhou

Current Academic Rank/Title: Tenured Associate Professor, Director of Materials Research Laboratory, Member of Electrochemical Society

Primary Department: Mechanical and Aerospace Engineering, University of Miami

HIGHER EDUCATION

Institutional (institution; degree; date conferred):

Department of Mechanical, Materials, Manufacturing Engineering, University of Newcastle upon Tyne, England, PhD. June 1996.

Institute of Metal Research, Academy of Science, Shenyang, China, M.S. Materials Engineering, MS. 1988.

Wuhan University, Wuhan, China, B.S. Physics, 1984,

EXPERIENCE

Academic (institutions; rank/status; dates):

Department of Mechanical and Aerospace Engineering, University of Miami, Associate Professor, 08/2005-now
Hemispheric Center for Environmental Technology (HCET) now Applied Research Center, Florida International University (FIU), Miami, Florida, Research Assistant Professor, 03/2003-06/2005

The Energy Institute, Pennsylvania State University, University Park, Pennsylvania, Research Associate, 07/1998 –03/2003

Center for Advanced Materials, Pennsylvania State University, University Park, Pennsylvania, Postdoctoral Scholar, 06/1996 –07/1998

Institute of Metal Research, Academy of Science, China, Research Associate, 01/1988 – 08/1992

PUBLICATIONS

Books and monographs published:

1. Xiangyang Zhou, Juanjuan Zhou, and Yijin Yin, “Chapter 9: ATOMISTIC MODELING IN STUDY OF POLYMER ELECTROLYTE FUEL CELLS-A REVIEW” in Modeling and Diagnostics of Polymer Electrolyte Fuel Cells- Modern Aspects of Electrochemistry, Springer Publisher, 2010.

Juried or refereed journal articles and exhibitions: (citation >860)

1. Azzam N. Mansour, Juanjuan Zhou, **Xiangyang Zhou**, “X-ray absorption spectroscopic study of NaI/I_2 mediated PEO/$LiClO_4$ based all-solid-state supercapacitor”, Journal of Power Sources 245, 270-276, 2014.
2. Juanjuan Zhou, **Xiangyang Zhou** (corresponding), “Scanning Tunneling Microscopy of Hundred nanometer Thick Nafion Polymer Covered Pt and HOPG”, Journal of Applied Physics, 113, 234901, 2013.
3. **Xiangyang Zhou** (corresponding author), Hao Huang, and Hongtan Liu, “Study of partial oxidation reforming of methane to syngas over self-sustained electrochemical promotion catalyst”, International Journal of Hydrogen Energy, 38, 6391-6396, 2013.
4. Zedong Wang, Hao Huang, Hongtan Liu, **Xiangyang Zhou** (corresponding author), “Self-sustained electrochemical promotion catalysts for partial oxidation reforming of heavy hydrocarbons”, International Journal of Hydrogen Energy, 37, 17928-17935, 2012.
5. Hao Huang, Zedong Wang, Hongtan Liu, Hong Sun, Yongsheng Wei, **Xiangyang Zhou** (corresponding author), “A kinetic model for analyzing partial oxidation reforming of heavy hydrocarbon over a novel self-sustained electrochemical promotion catalyst”, 37, 15125 – 15134, 2012.
6. Juanjuan Zhou, Jinshu Cai, Sirui Cai, **Xiangyang Zhou**, Azzam Mansour, "Development of all-solid-state mediator enhanced supercapacitors with a PVDF/LiTFS separator", Journal of Power Sources, 196, pp. 10479-10483, 2011. 8
7. Yijing Yin, Juanjuan Zhou, Azzam N Mansour, **Xiangyang Zhou**(corresponding), "Effect of NaI/I2 mediators on properties of PEO/LiAlO2 based all-solid-state supercapacitors", Journal of Power Sources, Journal of Power Sources 196, 5997–6002, 2011. 8
8. Juanjuan Zhou, Yijing Yin, Azzam N Mansour, **Xiangyang Zhou** (corresponding), "Experimental Studies of Mediator-Enhanced Polymer Electrolyte Supercapacitors", Electrochemical and Solid-State Letters, 14(3), pp. A25-A28, 2011
9. **Xiangyang Zhou**, Yinjing Yin, Zedong Wang, Junajuan Zhou, Azzam Mansour, James Zaykoski, Jeffery Fedderly, Edward Balizer, "Effect of Hot Pressing on the Ionic Conductivity of the PEO/Li CF3SO3 based Electrolyte Membranes", Solid State Ionics, 196, pp. 18-24, 2011
10. Anchasa Pramuanjaroenkij, **Xiang Yang Zhou (corresponding author)**, Sadik Kakac¸, “Numerical analysis of indirect internal reforming with self-sustained electrochemical promotion catalysts”, International Journal of Hydrogen Energy, 36/13, 6482-6419 (2010).
11. Shujia Zhou, **Xiangyang Zhou (corresponding author)**, and Yusheng Zhao, “Study of Hardness and Deformation of Brittle Materials with a Density Functional Theory”, Journal of Applied Physics, 104, 1-6 (2008). 5

12. **Xiangyang Zhou**, "Degradation of Pt catalysts in PEFCs: A new perspective from molecular dynamic modeling", Electrochemical and Solid-State Letters, Volume 11, Number 4, B59-B62 (2008). 6
13. A. Pramuanjaroenkij, S. Kakac, and **X. Zhou**, "Mathematical Analysis of Planner Solid Oxide Fuel Cell", International Journal of Hydrogen Energy, Volume 33, Issue 10, 2547-2565 (2008). Citation: 52
14. Sadik Kakaça, Anchasa Pramuanjaroenkij, **Xiangyang Zhou**, "A review of numerical modeling of solid oxide fuel cells", International Journal of Hydrogen Energy 32, 761-786 (2007). 221
15. **Xiangyang Zhou**, Zhen Chen, Francisco Delgado, Danny Brenner, and Rajiv Srivastava, "Atomistic Simulation of Conduction and Diffusion Processes in Nafion Polymer Electrolyte and Experimental Validation", Journal of The Electrochemical Society, 154 (1), B82-B87 (2007). Citation 36
16. Jiahua Han, **Xiangyang Zhou**, and Hongtan Liu, "*Ab initio* simulation on the mechanism of proton transport in water", Journal of Power Sources 161, 1420–1427(2006). Citation 18
17. Harindra Vedala, Jun Huang, **Xiangyang Zhou**, Gene Kim, Somenath Roy and Won Bong Choi, "Effect of PVA functionalization on hydrophilicity of Y-junction single wall carbon nanotubes", Applied Surface Science, 252(22), 7987-7992 (2006).
18. **Xiangyang Zhou**, Baili Hu, Zhen Chen, Francisco Delgado, and Rajiv Srivastava, "Non-Precious Metal Perovskite Electrocatalysts for Direct Methanol Fuel Cells", Electrochemical and Solid-State Letters, 8(11), A616-A618 (2005). 5
19. **Xiangyang Zhou**, Jamie Weston, Elena Chalkova, Michael A. Hofmann, Catherine M. Ambler, Harry R. Allcock, and Serguei N. Lvov, "High Temperature Transport Properties of Polyphosphazene Membranes for Direct Methanol Fuel Cells", Electrochimica Acta 48 (2003) 2173-2180. Citation 106
20. Fedkin M.V., **X. Zhou**, J. Kubicki, A.V. Bandura, S.N. Lvov, D.J. Wesolowski, M.L. Machesky High temperature microelectrophoresis studies of the rutile/aqueous solution interface. Langmuir, 19, (2004) 3797-3804. Citation 54
21. Elena Chalkova, **Xiangyang Zhou**, Catherine Ambler, Michael A. Hofmann, Jamie A. Weston, Harry R. Allcock, and Serguei N. Lvov, "Sulfonimide Polyphosphazene-Based H2/O2 Fuel Cells", Electrochemical and Solid-State Letters, 10 (2002) pp. 221-223. Citation 17
22. M. V. Fedkin, **X. Zhou**, M. A. Hofmann, Elena Chalkova, Jamie Weston, H. R. Allcock, and S. N. Lvov, "Experimental measurements of the diffusion coefficients of methanol in proton-conducting polyphosphazene membranes", Materials Letters, 52 (2002) pp. 192-196. Citation 89
23. S.N. Lvov, **X. Zhou**, G.C. Ulmer, S.M. Ulyanov, L.G. Liane, D.E. Grandstaff, M. Manna, E. Vicenzi, and H.L. Barnes, "Progress on Yttria-Stabilized Zirconia Sensors for Hydrogen pH Measurements", Chemical Geology, 198 (2003) 141-162.
24. **X. Zhou**, X.J. Wei, M.V. Fedkin, K.H. Strass, and S.N. Lvov, "A Zetameter for microelectrophoresis Studies of the Oxide/Water Interface at Temperatures up to 200ºC", Review of Scientific Instrument, 74(4) (2003) 2501.
25. **X. Zhou**, S.N. Lvov, X.J. Wei, G. Benning, and D.D. Macdonald, "Quantitative Evaluation of General Corrosion of Type 304 Stainless Steel in Subcritical and Supercritical Aqueous Solutions via Electrochemical Noise Analysis", Corrosion Science, 44/4 (2002) pp. 841-860.
26. D. S. Seneviratne, V. G. Papangelakis, **X. Zhou** and S. N. Lvov, "Potentiometric pH measurements in acidic sulfate solutions at 250 °C relevant to pressure leaching", Hydrometallurgy, 68(1-3), (2003) 131-139.

27. S.N. Lvov, **X. Zhou**, S.M. Ulyanov, A.V. Bandura, “Reference Systems for Assessing Viability and Accuracy of pH Sensors in High Temperature Subcritical and Supercritical Aqueous Solutions”, Chemical Geology, 167 (2000) 105-115.
28. S.N. Lvov, **X. Zhou**, S.M. Ulyanov, D.D. Macdonald, “Potentiometric Measurements of Association Constants and pH in High Temperature HCl(aq) Solutions”, PowerPlant Chemistry, 2(1) (2000) 5-8.
29. **X. Zhou**, J. Congleton, Y.M. Han, “Mechanisms of SCC for Iron Base Alloys in Hot Ca(NO3)2 Solution”, British Corrosion Journal, 35(3) (2000) 1.
30. L.J. Liermann, B.E. Kalinowski, A. Barnes, **X. Zhou**, and S. Brantley, “Measurements of pH by Microelectrodes in Biofilms Grown on Silicate Surface”, Chem. Geology, 171 (2000) 1.
31. Allcock, H. R., Hofmann, M. A., Ambler, C. M., Lvov, S. N., **Zhou, X.**, Chalkova, E., Weston, J. Phenylphosphonic Acid Functionalized Poly[aryloxyphosphazenes] as Proton-Conducting Membranes for Direct Methanol Fuel Cells. J. Membrane Sci. 202, 2002, pp. 47-54. Citation: 98
32. Hofmann, M. A., Ambler, C. M., Maher, A. E., Chalkova, E., **Zhou, X.** , Lvov, S. N., Allcock, H. R. Synthesis of Polyphosphazenes with Sulfonimide Side Groups. Macromolecules, 35, 2002, pp. 6490-6493. Citation 142
33. S.N.Lvov**, X.Zhou**, and D.D.Macdonald, “Flow Through Electrochemical Cell at Temperature up to 400°C”, J. Electroanal. Chem, 462 (1999) 146.
34. **X.Zhou**, I.Balachov and D.D.Macdonald, “The Effects of Dielectric Coatings on SCC of Type 304 SS in the Simulated BWR Conditions”, Corrosion Science, 40 (1998), 1349.
35. **X.Zhou**, J.Congleton, and A.Bahraloloom, "Mechanism of Stress Corrosion Cracking for Iron Base Alloys in High Temperature Water", Corrosion, 54(1998) 898.
36. S.N.Lvov and **X.Zhou**, “pH Measurement in Supercritical Hydrothermal Systems”, Mineralogical, Magazine, 62A (1998) 929.
37. X.Wei, J.Li, **X.Zhou** and Wei Ke “The Influence of Anodic Current on Surface and Bulk Deformation at Crack Tip”, Corrosion Science, 38(1996) 989.
38. X.Wei, J.Li, **X.Zhou**, and W.Ke, Acta Metallurgica Sinica, 30 (1994) 254.
39. **X.Zhou**, X.Wei, J.Li, G.Lei and W.Gorbatenko, "Application of the SPI Technique to Study the Effect of Corrosion Factors on Crack-tip Deformation of Metals", Materials Letters, 18(1/2) (1993) 14.
40. X.Wei, **X.Zhou**, J.Li, G.Liu, and W.Ke, “An Application of SPI Technique for Studying Strain Distribution”, Acta Metall. Sinica, 29 (1993) 453.
41. Q.Zang, **X. Zhou**, K.Liu, and W.Ke, “Role of Pits in Corrosion Fatigue of Offshore Structural Steel”, J.Met.Sci.Tech., 8 (1992) 123.
42. **X. Zhou** and W.Ke, "The Optimal Probability Distribution Functions of Pit Geometric Parameters and Their Evolution", J. of Chinese Society of Corrosion and Protection, 12(1992) 40.
43. **X.Zhou** and W.Ke, "Evolution of Pitting and Pit-associated Cracks under Cyclic Loading", Acta Metall. Sinica, 26 (1990) 104.
44. J.Yang and **X.Zhou**, "Fractal in Fatigue Fractography", J.Met.Sci.Tech., 6 (1990) 112.
45. J.Yang and **X.Zhou**, "Spontaneous Patterning on Corroded Metal Surface: Phenomenon and Theory", J. of Applied Physics, 68(7) (1990) 3625.
46. **X.Zhou**, D.Chen and W.Ke, "Fractal Characteristics of Pitting and Cracking of a low ally Steel under Cyclic Loading", Materials Letters, 7(12) (1989) 473.

Other works, publications, and abstracts:

(Keynote/Invited Lectures)

1. **Xiangyang Zhou**, "ATOMISTIC MODELING OF CONDUCTION AND DIFFUSION IN POLYMER ELECTROLYE FUEL CELLS", VII Minsk International Seminar "Heat Pipes, Heat Pumps, Refrigerators, Power Sources", Minsk, Belarus, September 8–11, 2008.
2. **Xiangyang Zhou**, Sadik. Kakac, And Anchasa Pramuanjaroenkij, "A REVIEW ON MINIATURIZATION OF SOLID OXIDE FUEL CELL SYSTEMS", NATO Advanced Study Institute on Mini-Micro Fuel Cells as Electric Energy Generators – July 22 – August 3, 2007, Golden Dolphin Hotel, Cesme-Izmir, Turkey.
3. **Xiangyang Zhou**, Sadik. Kakac, and Anchasa Pramuanjaroenkij, "MICRO-SOLID OXIDE FUEL CELL FOR MOBILE AND PORTABLE APPLICATIONS", NATO Advanced Study Institute on Mini-Micro Fuel Cells as Electric Energy Generators – July 22 – August 3, 2007, Golden Dolphin Hotel, Cesme-Izmir, Turkey
4. Xiangyang Zhou, "Atomistic simulation and resonant STM verification of interface between Nafion electrolyte and Pt catalysts in polymer electrolyte fuel cell", 2nd Annual International Symposium of Clean Coal Technology 2013 (CCT-2013), Chair of Fuel Cell session.

(Patents)

a. **Xiangyang Zhou**, Azzam N. Mansour, and Juanjuan Zhou, An all solid-state electrochemical supercapacitor comprising molecular pseudocapacitors, US Patent Application # 12/751322, 2010.
b. **Xiangyang Zhou**, All solid-state electrochemical sensor for detecting contamination and moisture on solid material surfaces and for detecting under-paint corrosion, US Patent application, PCT/US09/45642, 2008.
c. **Xiangyang Zhou**, New electrochemical promotion catalysts with potential stabilizing sacrificial anodic phases for NOx reduction, US Patent Application#61/168,0292008, 2010.
d. **X. Zhou**, S.N. Lvov, and S.M. Ulyanov, "Safety Yittria-Stabilised Zirconia (YSZ) pH Sensing Electrode for High Temperature Aqueous Systems", US Patent #6517694.
e. H.R. Allcock, M.A. Hofmann, S.N. Lvov, X.Y. Zhou, E.C. Kellam, III, "Polyphosphazenes as Proton Conducting Membranes", H.R. Allcock, M.A. Hofmann, S.N. Lvov, X.Y. Zhou, E.C. Kellam, III, "Polyphosphazenes as Proton Conducting Polymer Membranes", US patent#6,759,157.

(Conference papers/presentations)

1. V. Musaramthota, T. Pribanic, D. McDaniel, X. Zhou, J. Zhou and Z. Wang, S. Cai, "Effect of Surface Contamination on Composite Bond Integrity and Durability", Proceedings of the 2013 Joint Advanced Materials Structures Center of Excellence 9th Annual Technical Meeting, Seattle, WA, April 9-10, 2013.
2. Vishal Musaramthota, Tomas Pribanic, Dwayne McDaniel, Norman Munroe, Xiangyang Zhou, Juanjuan Zhou, and Sirui Cai, A Study on the Contamination Effects and Durability Assessment of Adhesively Bonded Composite Joints, 45th ISTC - Wichita, KS Oct 21 - Oct 24, 2013.
3. T. Pribanic, D. McDaniel, V. Musaramthota, X. Zhou, J. Zhou and S. Cai, "Effect of Surface Contamination on Composite Bond Integrity and Durability", Proceedings of

the 2012 Joint Advanced Materials Structures Center of Excellence 8th Annual Technical Meeting, Baltimore, MD, April 5, 2012.

4. T. Pribanic, D. McDaniel, V Musaramthota, L. Sanchez, N. Munroe, X. Zhou, J. Zhou and S. Cai, "Development of a Durability Test Procedure for Adhesively Bonded Composite Joints", International SAMPE Symposium and Exhibition (Proceedings), Baltimore, MD, May 21-24, 2012.
5. **Xiangyang Zhou**, ATOMISTIC MODELING OF CONDUCTION AND TRANSPORT PROCESSES IN MICRO-POROUS ELECTRODES CONTAINING NAFION ELECTROLYTES, Proceedings of MNHMT2009 Micro/Nanoscale Heat & Mass Transfer International Conference, 2009, peer reviewed
6. **X. Zhou**, D. McDaniel, W. Zhang and R. Burton, Development and Study of an All Solid-State Electrochemical Sensor for Detecting Contamination and Moisture on Composite Surfaces, The 215th Annual Meeting of Electrochemical Society, San Francisco, May 25-28, **2009**.
7. **X. Zhou** and A. Mansour, Experimental Study of Mediator-Enhanced Polymer Electrolyte Supercapacitors, The 215th Annual Meeting of Electrochemical Society, San Francisco, May 25-28, **2009**.
8. Y. Yin, W. Zhang, J. Zhou, A. Mansour and **X. Zhou**, Preparation and Characterization of Mediator-enhanced Solid Composite Polymer Electrolyte for Supercapcitors, The 215th Annual Meeting of Electrochemical Society, San Francisco, May 25-28, **2009**.
9. **Xiangyang Zhou**, Experimental Characterization and Modeling of Mediator-Enhanced Polymer Electrolyte Supercapacitors, 11th Electrochemical Power Sources R&D Symposium, Baltimore, MD, July 13 – 16, **2009**.
10. **Xiangyang Zhou**, Identification and Development of Surface Chemistry Analysis Technologies for Detecting Contamination and Moisture on Composite Surfaces, FAA Joint Advanced Materials and Structures (JAMS) Fifth Annual Technical Review Meeting, National Institute for Aviation Research at Wichita State University, July 21-22, **2009**.
11. **Xiangyang Zhou**, Deposition and STM Study of Nanocrystal Platinum on High Oriented Pyrolytic Graphite, Electrochemical Society Annual Meetings, Los Angles, Nov. 2005
12. **Xiangyang Zhou**, Molecular Simulation of Transport Processes in Nafion Polymer Electrolyte, Electrochemical Society Annual Meetings, Los Angles, Nov. 2005
13. Z.F. Zhou, S.N. Lvov, S.S. Thakur, **X.Y. Zhou**, P. Chou, R. Pathania, Hydrothermal Deposition of Zirconia Coating on BWR Materials for IGSCC Protection, in: International Water Chemistry Conference, San Francisco, 2004, pp. 602–624.
14. S.N. Lvov, **X.Y. Zhou**, S.M. Ulyanov, H.L. Barnes, "The Evaluation of pH in Hydrothermal Solutions", Invited Lecture in :Joint Sixth International Symposium on Hydrothermal Reactions and Fourth International Conference on Solvo-Thermal Reactions, Kochi University, Kochi, Japan, 2000.
15. **X. Zhou**, M.A. Hofmann, J. A. Weston, E. Chalkova, H. R. Allcock, S. N.Lvov, "High Temperature Methanol Crossover in Proton-Conducting Polyphosphazene Membranes" In: Direct Methanol Fuel Cells; S. Narayanan, T. Zawodzinski, and S.Gottesfeld, Editors, The Electrochemical Society Proceedings Series:Pennington, NJ, 4 (2002) pp. 34-41.
16. **X. Zhou**, A.Bandura, S.M. Ulyanov, S.N. Lvov, "Calculation of Diffusion potentials in Aqueous Solutions Containing HCl, NaCl and NaOH at Temperatures from 25 to 400°C", 13rd Inter. Conf. on Properties of Water and Steam, Spet. 12-16, Toronto, Canada, (2000) 480.

17. **X. Zhou**, S.N. Lvov, D.D. Macdonald, X.J. Wei, and L.G. Benning, “Measuring Corrosion Rate in Subcritical and Supercritical Aqueous Solutions via Electrochemical Noise Analysis, CORROSION 2001, Paper# 368, Houston, Texas.
18. **X. Zhou**, S.M. Ulyanov, S.N. Lvov, “Advanced Yittria-Stabilized Zirconia pH Sensing Electrode for Chemistry Monitoring in SCWO Environments”, CORROSION 2001, Paper #359, Houston, Texas.
19. **X. Zhou**, Q.Zang and W.Ke, "Statistical Study of Pitting and Pit-associated Cracking of A537 Steel in Seawater", Proc. of Inter. Conf. for Corr. and Protec., Xiamen, China, 1988.
20. **X. Zhou**, J.Chen, E.A.Charles and J.Congleton, “SCC of Iron Base Alloys in High Temperature Water”, 8th Int. Conf. on Degradation of Materials in Nuclear Reactors, Amelia Island, FL, U.S.A., Aug. 1997.
21. Ulmer, G.C., M. Manna, D.E. Grandstaff, E.P. Vicenzi, H.L. Barnes, S.N. Lvov, **X. Zhou**, S. Ulyanov, and D.D. Macdonald, Impurity Phases and the Quest for a Robust ZrO2-based Hydrothermal Sensor, Balkema Publisher, Rotterdam, 2000.
22. S.N. Lvov, G.C. Ulmer, **X. Zhou**, S.M. Ulyanov, L.G. Liane, D.E. Grandstaff, M. Manna, E. Vicenzi, and H.L. Barnes, “Electrochemistry and Structure of Yttria-Stabilized Zirconia Membranes for Potentiometric Measurements in Hydrothermal Systems”, Ninth Annual V.M. Goldschmidt Conf., August 22-27, 1999, Harvard University, Massachusetts.
23. **X. Zhou**, A.Charles and J.Congleton, "Stress Corrosion Cracking and Corrosion Fatigue of Iron Base Alloys in High Temperature Water", Proc. of Inter. Conf. for EAC, Guilin, China, Oct.1995.
24. J.Congleton, J.W.Chen, **X. Zhou** and E.A.Charles, “The Effect of Sulphur Content on SCC of IRA in High Temperature Water”, ICG-EAC Annual Meeting, Bristol, UK, April, 1997.
25. **X. Zhou**, I.Balachov, and D.D,Macdonald, “Inhibition of SCC in Water-Cooled Nuclear Reactors by Dielectric Coatings”, Proc. of 192nd Annual Meeting of American Electrochemical Society, Paris, France, Paper no.353, June, 1997.
26. S.N.Lvov, **X. Zhou**, and D.D.Macdonald, “Potentiometric pH Measurements in Supercritical Aqueous Solutions”, Proc of 193rd Annual Meeting of American Electrochemical Society, San Diego, CA, Paper no. 1016, May, 1998.
27. **X. Zhou** and S.N.Lvov, “High Temperature Streaming Potential Measurements for Studying Aqueous Electrolyte Adsorption Processes on Oxide Surface”, Proc. of 72nd ACS Colloid & Surface Science Symposium, University Park, PA, Paper No. 353, June, 1998.
28. S.N. Lvov, **X. Zhou**, M.V. Fedkin, H.R. Allcock, M.A. Hofmann, A. M, E.C. Kellam, III, “Development of Proton Conducting Membranes for High Temperature Direct Methanol Fuel Cells”, Inter. Sym. On Energy Engineering in the 21st Century, Hong Kong, Jan. 9-13, 2000.
29. S.N. Lvov, **X. Zhou**, E. Chakova, M.V. Fedkin, H.R. Allcock, and M.A. Hofmann, “Development of Direct Methanol Fuel Cell Using Polyphosphazene Membranes,” accepted for 199th Electrochemical Society Meeting, Washington DC, March, 2001.
30. J. Congleton, J.W. Chen, E.A. Charles, and **X. Zhou**, “Corrosion Fatigue and Stress Corrosion Cracking of Iron Base Alloys in High Temperature Water, in Recent Advances in Corrosion Fatigue,” The Institute of Materials, Sheffield, UK, April, 1997

PROFESSIONAL

FUNDED RESEARCH

Total >$3 million

1. PI-Hybrid molecular modeling and experimental study of structure and reaction kinetics at interface between electrode and polymer electrolyte phases, National Science Foundation, 2010-now, Total $300,000.
2. PI- Development and study of self-sustained electrochemical promotion catalysts for hydrocarbon reforming, National Science Foundation, 2009-2013, total $300,000.
3. PI-Development and study of mediator-enhanced polymer electrolyte supercapacitors, Office of Naval Research, 2008-2012, total $300,000.
4. PI-Identification and validation of analytical surface chemistry-development of an electrochemical sensor for certification of bonded structures, Phase II. This project has been selected for Phase II of the Joint Advanced Materials and Structure Center of Excellence (JAMS-COE), Federal Aviation Administration (FAA) for a period of 2005-2015. Funding 75,000/year.
5. PI-Research experience for undergraduate (REU), NSF, $12,000
6. Co-PI - Molecular Modeling and Experimental Study of Electrocatalytic and Transport Processes in High Temperature Polymer Electrolyte Fuel Cells, US Air Force, $500,000. 2003-2005.
7. Co-PI - Research & Training Program for Development of Low Cost, High Temperature Proton Exchange Membrane Fuel Cells using Rare-Earth Metal Perovskite and Mixed Oxide Catalysts, $300,000, US Navy, 2004-2006.
8. Co-PI - Identification and Development of Analytical Chemistry Methods for Detecting Composite Surface Contamination, FAA project, $200,000, 2004.
9. Co-PI-Inhibition of Stress Corrosion Cracking in high temperature water by hydrothermal deposition of dielectric coatings, $300,000, EPRI, 2000-2003.

Editorial responsibilities:
Panelist for US NSF and Swiss National Science Foundation

Book review
Mechanical behaviors of materials

Manuscript review
Journal of Power Sources, Applied Energy Technology, Renewable Energy, ASME meetings, Ionics, etc.

Professional and Honorary Organizations (member; officer; date):
Member of Electrochemical Society since 1998.

Honors and Awards:

- Early Career Award, College of Engineering, University of Miami, 2009
- The Best Performance Award, The Energy Institute, Pennsylvania State University, 2000.