Curriculum Vitae

Bruce John Tatarchuk

Charles E. Gavin III - Endowed Professor of Chemical Engineering
Director-Center for Microfibrous Materials Manufacturing

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academic record

Ph.D. in Chemical Engineering, University of Wisconsin, Madison, WI, December 1981.
Thesis: ñPhysical and Chemical Characterization of Iron/Titania Model Supported Catalysts.ò

B.S. in Chemical Engineering, University of Illinois, Champaign, IL, 1976.
Dissertation: ñOscillations in the Oxidation of Hydrogen on an Unsupported Platinum Catalyst.ò

professional experience (academic-based)

Director and Founder, 1996 to present, AU Center for Microfibrous Materials Manufacturing.
Professor, 1990 to present, Department of Chemical Engineering AU.
Associate Professor with tenure, 1986, Department of Chemical Engineering, AU.
Elected Member of the Auburn University Graduate Faculty, 1986.
Assistant Professor, 1982, Department of Chemical Engineering, AU.
Research Assistant in Chemical Engineering, 1976 to 1981, University of Wisconsin-Madison.
Chevron Graduate Research Fellow in Chemical Engineering, 1979-1980, UM-Madison.
Teaching Assistant in Chemical Engineering, 1977 to 1978, UW-Madison.

professional experience (non-academic)

Co-Founder, Board Member, former CTO, current CEO, IntraMicron, Inc.
IntraMicron is a Delaware Corporation operating in Auburn, Alabama, and is a startup commercializing microfibrous materials technology developed and patented at Auburn University by Dr. Tatarchuk and his students. IM licensed said technology from Auburn University in June of 2001. Auburn University is an equity owner in IntraMicron along with 50 other shareholders and two institutional investors. Working with Auburnôs Office of Technology Transfer (OTT), Dr. Tatarchuk helped to develop Auburn Universityôs first COI Mitigation Plan prior to company formation for faculty participating in startups. This plan is administered by the Dean of Engineering and the Vice President for Research (to protect students, the University and shareholders alike). IntraMicron currently owns and maintains 20,000ft^2 of office, laboratory and manufacturing space at 368 Industry Drive, Auburn, AL. IntraMicron employs Ph.D.ôs, degreed engineers, research technicians, manufacturing personnel, AU COOP students, and one accountant/bookkeeper. Amongst its core group of Ph.Dôs, IntraMicron has hired three Ph.Dôs from Auburn Universityôs Graduate Program. Through research subcontracts to AU, IntraMicron is currently supporting graduate students on campus conducting pre-commercialization engineering research. Dr. Tatarchuk spends one day per week in his management role.

Dr. Tatarchuk has consulted for various Fortune 500 companies as well as smaller businesses. These activities include heterogeneous reactivity as well as: precommercial R&D strategies; technology transfer; IP development, prosecution and litigation; product development and monetization; business and revenue model development; investment decisions including valuations and acquisitions.

profssorships held at auburn university

Charles E. Gavin III, Endowed Professor of Chemical Engineering, 2014 to present.
Charles E. Gavin III, Professor of Chemical Engineering, 2010 to 2014.

Samuel Ginn Distinguished Professor of Engineering, 2003 to 2006.
Philpott-Westpoint Stevens Distinguished Professor of Engineering, 1997 to 2002.
Alumni Professor, Department of Chemical Engineering, 1990 to 1995.

awards and recognitions

SEC Faculty Achievement Award (2014-2015)
Excellence in Innovation Award (2014)
Elected as a Fellow of the National Academy of Inventors, 2014
Senior Research Award of Excellence, SGCOE College of Engineering, 2006 and 1999.
Auburn University Creative Research Award, March 2003.
Industrial Energy Efficiency Award, U.S. Department of Energy, Office of Industrial Technology, Washington, D.C., February, 1999.
Fluor Corporation Young Faculty Award, October 1984 to 1988.
Olin Research Summer Grant for Work in Heterogeneous Catalysis and Surface Chemistry, Department of Chemical Engineering, University of Illinois-Champaign, 1975.
Illinois State Scholar Designate, 1972 to 1976.
University of Illinois James Scholar, 1972 to 1976.
National Science Foundation Summer Student Traineeship in Physical Chemistry, 1971.

INSTRUCTIONAL AREAS

Introduction to Chemical Engineering, ENGR 1110 & 1100; Energy and Mass Balances (ChE 2100, 2110); Thermodynamics (ChE 3370); Unit Operations Laboratory (ChE 3820, 4860); Kinetics and Reactor Design (ChE 3700); Business Aspects of Chemical Engineering (6430, 6436); Fuel Cell Integrated Power Systems (Joint with EE) (5970/6970); Undergraduate Thesis, Special Topics, and/or Directed Reading (4970, 4980, 4997); Heterogeneous Catalysis and Surface Science (8270, 8280); Graduate: Seminar, Research Proposition, Directed Reading; Thesis & Dissertation, etc. (various course numbers)

research areas

Hierarchical design of solid structures to promote heterogeneous contacting efficiency and steady-state volumetric reactivity (including microfibrous entrapment).

Heterogeneous reactive solids including molecular design of catalysts, sorbents and electrocatalysts.

Surface science of solids and surface spectroscopic/analytical characterization.

Energy storage, energy conversion, fuel production (batteries, fuel cells, double layer capacitors, hybrids, catalytic reformation, hydrocarbon processing, fuel and chemical synthesis).

System integration (catalytic, electrochemical, hybrids).

Technology transfer (prototype development, pilot activities, technology transition and commercialization).

professional activities/affiliations/service - national & international

Editorship:
Managing Business Editor, Petroleum Chemistry Preprints, American Chemical Society (1988 ï 1993).

Member:
American Chemical Society, Materials Research Society, American Vacuum Society, American Institute of Chemical Engineers

Session Chairman, Co-Chairman, Panelist, Organizer [partial listing]:

- Plenary Speaker and Panelist ï ñIntellectual Property & Engineering Research,ò Engineering Leaders Conference, Doha, Qatar, 2014, invited by the Qatar Government.
- External Reviewer for the National Intelligence Council (NIC) and CIA report on, ñEnergy and Climate Change: Impacts on Selected States and U.S. Security Interests,ò June 2013.
- External Reviewer for the Natural Sciences and Engineering Council (NSEC) of Canada for National Networks Strategic Investments on PEM Fuel Cell Research and Innovation (2013 and 2008).
- Invited (and cited) reviewer for the Institute of Medicine (IOM) Report on: ñRespiratory Protection for Healthcare Workers in the Workplace Against Novel H1N1 Influenza A,ò NRC/National Academies Press, 2009 (an expedited effort in response to a potential national pandemic emergency).
- Institute of Medicine and NRC Independent Reviewer for the Report, ñThe Personal Protective Technology Program at the National Institute for Occupational Safety and Health,ò National Academies Press, 2008.
- Appointed as one of twelve panel members (11/05-11/06) to the National Academies Board on Chemical Sciences and Technology, Review NIOSH/BLS Report on Respirator Usage (the National Academies, Washington, DC). The Panel reviewed current assessment methods and new technology/R&D directions for NIOSH-National Personal Protection Test Laboratory (NPPTL), and prepared a NRC-National Academies Press report.
- Invited Panelist, NIOSH-National Mine Health and Safety Academy, Self-Contained Self-Rescue Breathing System Workshop, June 2005 and June 2006, Beaver, WV.
- Invited Panelist, National Academies-NRC Panel on NASA-Low Emissions Alternate Power Technologies. The panel reviewed approximately one hundred NASA-NRA grant/contract applications and made funding recommendations (NRC/National Academies, Washington, DC, May, 2005).
- Invited Panelist, NASA-Air Revitalization Program, NASA-HQ, December, 2004, Washington, DC..
- Invited Panelist, NASA Exploration Initiative/H&RT, NASA-HQ, Washington, DC, July, 2004. The panel reviewed and ranked approximately 500 million dollars in NASA-IR&D research programs and directions.
- ñAdvanced Respiratory Protection Technologies,ò Invited Panelist to NIOSH/NPPTL/RAND Workshop on Developing Future R&D Directions for Protection, Pittsburgh, PA, February, 2004.
- Invited Panelist and contributing author, ñStirling Engine Regenerators,ò IECEC, August 2003.
- ñRecommended NNI Investment Strategy, Nanotechnology Innovation for Chemical, Biological, Radiological and Explosive (CBRE): Detection and Protection,ò Invited Panelist

and Contributing Author, February ï May 2002.

- Program Committee, 1993 International Congress on the Applications of the Mossbauer Effect, August 8-14, Vancouver, B.C., Canada.
- Chair of Working Group on Key Research Issues, Prospector III, ARO Sponsored Workshop on High Energy Density High Power Density Power Sources R&D, May 1992.
- Materials Research Society, ñNew Strategies for the Synthesis and Characterization of Catalysts,ò MRS National Meeting, Boston, December, 1991. Session Organizer and Technical Chairman.
- Member of Scientific Committee, First Exxon Frontiers of Science Workshop on Catalysis and Catalytic Processes, Annandale, New Jersey, November 15-18, 1991.
- ACS ï Colloids and Surface Chemistry ï General Catalysis (9/82 Kansas City, 9/86 Anaheim, 4/87 Denver).
- Seventh International Summer Institute in Surface Science (9/85 Milwaukee). Session Organizer.

Frequent Reviewer:

- Proposals ï NSF, DOE, PRF, AFOSR, ARO, etc. (approximately 4-6 panels per year).
- Manuscripts ï Chemical Engineering Communications, Journal of Catalysis, Surface Science, Surface Science Letters, Journal of Physical Chemistry, Langmuir, JCS Faraday Soc., ACS-Symposium Series, Thin Solid Films, Industrial & Engineering Chemistry Research, Fuel, Fuel Processing, Journal of Power Sources, etc.. Dr. Tatarchuk reviews approximately one to two refereed manuscripts per week.

university and departmental service activities

- Co-Founder College of Engineering Interdisciplinary Faculty Research Colloquium, 2014.
- College of Engineering Industrial Alliance Organizing Committee, 2012-2014.
- Chairman, Council on Energy, Environment and Economic Research (AU-wide) (2012-).
- AU Faculty Representative appointed by the President, ñFeasibility Study and Report for AU Development Campaign, 2011-2012.
- Chairman, Chemical Engineering Department Chair Search Committee (2012).
- Chairman, the Pendulum Committee (2009 ï present).
- Founder, Basore Distinguished Lectureship and Visitation Program (2009-).
- Member of Various Search Committees:
  - Dean of Engineering, July 2011-May 2012, and July 1987-May 1988.
  - Chemical Engineering Department Chair, 2002-2003.
  - Associate VPR, 2009.
  - Director, Alabama Center for Paper and Bioresource Engineering, 2011.
  - Faculty Search Committees: multiple including most recent cycle in 2012-2014.
- Director, Center for Microfibrous Materials Manufacturing (an AU Research Center, 1994 to present, this Center is 100% soft funded).
- Member, Tenure and Promotion Committee, College of Engineering (1988-present).
- Chairman, Departmental Awards Committee (2002-2007).
- Chairman, ChE Graduate Curriculum Model Review Committee, 2006.
- Member, Chemical Engineering Executive Committee (elected by faculty, 2002-present).
- Member, College of Engineering Committee on the Freshman Experience, 1996 ï 1997.
- Faculty Advisor, Omega Chi Epsilon, Chemical Eng. Student Honorary (1984 ï 1997).

- Chemical Engineering Representative to Engineering Faculty Council (1993 ï 1995).
- Chairman, Chemical Engineering Advisory Committee on Faculty Progressing Toward Associate Professor and/or Tenure (1993 ï 1995).
- Member, College of Engineering Strategic Committee on Quality and Productivity, 1995.
- Chemical Engineering Representative to Auburn University Faculty Senate (1991 ï 1993).
- Assistant Graduate Admissions Officer, Department of Chemical Engineering (1982 ï 1991).
- Chairman Graduate Recruitment Committee, Chemical Engineering (1982 ï 1991).
- Chairman Chemical Engineering Seminar Program (1982-83, 1985-90, 2009-10).
- Member, Department Committee on Peer Review of Teaching, 1992.
- Chemical Engineering, Graduate Program Officer (1989 ï 1991).
- Member of University Electron Microscopy Committee (1984-87), Chairman 1986 -87.

theses directed and in progress as research advisor

- Dr. Tatarchuk has advised and graduated 70 graduate students (most at the Ph.D. level); this does not include co-advisees, thesis committee memberships or outside reader activities.

1. Currently supporting and advising 12 graduate students (11 Ph.D., 1 M.S.).
2. ñInfrared Study of Adsorbates on Reduced and Sulfided Supported Ruthenium Catalysts,ò Kenneth A. Toney, M.S., 1985. Current position ï research engineer Dow Corporate Research Facility, Midland, Michigan.
3. ñAdsorption of Sulfur Containing Species on Supported and Unsupported Ruthenium Catalysts,ò Daniel A. Moran, M.S., 1985. Current Position ï research engineer, Texaco Corporate Research Facility, Port Arthur, Texas.
4. ñIn Situ X-ray Photoelectron Spectroscopic Studies of Transition Metal Oxide Reduction Using Hydrazine,ò Donald Littrell, M.S., 1986. Current Position ï research engineer, Eglin Air Force Base, Eglin AFB, Florida.
5. ñIn Situ Microgravimetric Studies of Transition Metal Oxide Reduction by Hydrazine,ò Daniel H. Bowers, M.S., 1987. Current Position ï research engineer, Dow Chemical Research Facility, Baton Rouge, Louisiana.
6. ñKinetics and Selectivity Over Sulfided Ruthenium Catalysts,ò Yeong-Jen Kuo, Ph.D., 1987. Current Position ï research engineer Tennessee Eastman, Kingsport, Tennessee.
7. ñModification of Hydrogen Chemisorption on Ruthenium Catalysts by Chlorine and Sulfur Adatoms,ò Kang Lu, Ph.D., 1987. Current Position ï research engineer, Catalyst Research Center, China Petrochemical Development Corporation, Toufen, Taiwan, T.O.C.
8. ñMossbauer Studies of High Surface Area Pillared-Clays Containing Mixed Metal Complexes,ò W. Lee, M.S., 1987. Current Position ï research engineer, United Technologies, Hartford, Connecticut.
9. ñChemical and Mechanical Evaluation of Southern Pine Wood Treated with Chromated Copper Arsenateò, PhD Thesis, June 1987, Jeffrey Ostmeyer. Current Position - EHS Advisor - Center for Offshore Safety at Anadarko Petroleum.
10. ñVibrational Spectroscopic Studies of Hydrogen, Carbon Monoxide and Thiophene Adsorption on Ruthenium Sulfide and Sulfided Ruthenium Catalysts,ò William H. Heise, Ph.D., 1988. Current Position ï research engineer, Tennessee Eastman, Kingsport, Tennessee.

10. ñTheoretical and Experimental Studies of Backscattered-Conversion Electron Mossbauer Spectroscopy,ò T-S Lee, Ph.D., 1988. Current Position ï Production Manager, Toto Ceramics, Atlanta, Georgia.
11. ñOxygen Dissolution Processes into Niobium-Based Metal Systems: In Situ Kinetic Studies Using X-ray Photoelectron Spectroscopy,ò P. Himanshu, M.S., March 1989. Research engineer, M.G. Kellog, Houston, Texas.
12. ñElectronic and Structural Modifications of Ruthenium Catalysts by Sulfur,ò R. Cocco, Ph.D., June 1989. Research engineer, catalysis research laboratory, Dow Central Research Laboratories, Midland, Michigan.
13. ñDevelopment of New High Surface Area Conductive Materials for Liquid Double Layer Capacitors,ò D. Kohler, M.S., October 1989. Research engineer, Dow Chemical Research Facility, Baton Rouge, Louisiana.
14. ñInvestigations of Buried Interfacial Reactions Using Novel Surface Science Techniques,ò J. Sanders, Ph.D., March 1990. Research engineer, Nonstructural Materials Branch, Air Force Wright Laboratories, Dayton, OH.
15. ñSurface Analytical Information from Electrons Below 15 eV During Conversion Electron Mossbauer Spectroscopy and Their Application to Chemical Reactions Between MoS2 and Iron,ò J. Zabinski, Ph.D., March 1990. Research engineer, U.S. Air Force Wright Research and Development Center, Nonstructural Materials Branch, Dayton, Ohio.
16. ñIn Situ XPS Measurements of Reactive Oxygen Sticking Coefficients and Oxidation Rates at Niobium Oxide Surfaces,ò B. King, M.S., June 1990. Research engineer, Radian Corporation, Washington, DC.
17. ñUtilization of Metal Fiber ï Carbon Fiber Composite Electrodes for the Application of Liquid Double Layer Capacitors,ò Tony Wu, M.S., June 1991. Research engineer, Gates Energy Products, Gainesville, Florida.
18. ñCharacterization of Interfacial Reactions in Fe-TaS2 Systems,ò Thomas George, M.S., September 1991. Research and design engineer, Bechtel, Savannah River, South Carolina.
19. ñFiber-Based Metal-Carbon Composite Electrode Structures for Fuel Cell Applications, ñ Soonho Ahn, Ph.D., August 1992. Research Manager, LG Industries, Korea.
20. ñDevelopment and Characterization of Sintered Nickel Fiber Electrode Structures for Alkaline Storage Batteries,ò Richard Ferro, M.S., August 1992.
21. ñCharacterization of the Tribological Properties and Buried Interfacial Reactions of Sputtered Tantalum Disulfide Films,ò Terrence Gim-Leong Lim, M.S., August 1992.
22. ñCharacterization of the Surface and Bulk Interactions of Hydrogen with Copper,ò Peter B. Lloyd, Ph.D., August 1992.
23. ñAdsorption and Reaction of Dimethylsilane on Cu(111): A TPD and SSIMS Study,ò S. Meenakshi, M.S., March 1993.
24. ñNon-destructive Characterization of Buried-Lubricant/Bearing Interfaces of MoS2 Prepared by Pulse Laser Ablation,ò Ben Esposito, M.S., March 1993.
25. ñMetal ion Removal Through Electrodeposition on High Surface Area Composite Electrodes,ò Chris J. Marrion, M.S. Dissertation, August 1993.
26. ñStudy of Atomic Oxygen Grafoil Reaction and Plasma Treated Grafoil Surface,ò C. Yendapally, M.S. Dissertation, August 1993.
27. ñDevelopment and Characterization of the Nickel Hydroxide Electrode for Use in

Alkaline Battery Systems,ò Bradley A. Johnson, M.S., June 1994.

28. ñNickel Carbon Composite Electrodes for Solid Polymer Electrolyte Fuel Cells,ò J. Wang, M.S., August 1996.
29. ñComposite-Fiber Conductive Lubricants,ò Ken A. Werhman, Ph.D. Dissertation, December 1996.
30. ñHydrogen Interactions with Pd/Cu Thin-Film Systems,ò John Kress, Ph.D., March 1997.
31. ñTribointerfacialelectrochemical Investigations of Conducting Dichalcogenide Lubricants Films,ò H. Waghwray, Ph.D. Dissertation, March 1998.
32. ñElectrochemical Impedance Spectroscopy of Metal Fiber/Activated Carbon Fiber Composite Materials for Electrochemical Capacitor,ò Donald R. Cahela, Ph.D. Dissertation, March 1998.
33. ñHigh Surface Area Composite Zinc Electrodes for Zinc-Air and Nickel-Zinc Batteries,ò Mark Flanzer, M.S. Dissertation, March 1998.
34. ñScale-Up of Microfibrous Nickel Hydroxide Electrodes,ò Peter Durbin, M.S. Dissertation, March 1998.
35. ñTheoretical and Experimental Studies of Gas Diffusion Electrode Structures for Electrochemical Oxygen Reduction,ò Robert Smith, Ph.D. Dissertation, December 1998.
36. ñDemetallation of Heavy Hydrocarbon Feeds by Selective Electrochemical Reduction Over High Surface Area Cathode Structures,ò Lance Gibson, Ph.D. Dissertation, December 1998.
37. ñDevelopment of Composite Oxygen Electrode Material for Use in Zinc-Air Batteries and Zinc-Air/Ultracapacitor Hybrids for Pulse Power Devices, Ben Poole. M.S. Dissertation, August 1999.
38. ñPreparation and Characterization of Sintered Metal Microfiber-based Composite Materials for Heterogeneous Catalyst Applications, Mike Meffert, Ph.D. Dissertation, August 1998.
39. ñPreparation and Characterization of Microfibrous Electrodes for Cathodic Hydrogen Evolution,ò Ph. D Dissertation, May 2003, Ryan Nickell.
40. ñMicrofibrous Sorbent Media for Chemical and Biological Protection,ò M.S. Thesis, December 2002, Anthony Martin.
41. ñMicrofibrous Entrapped ZnO-based Sorbent for H2S Removal in PEM Fuel Cell Application,ò M.S. Thesis, May 2003, Ping Liu.
42. ñOptimization of Gas Adsorption Using Microfibrous Materials for Polishing,ò M.S. Thesis, August, 2004, Abiola Oladapo.
43. ñFuel Processing for Fuel Cells: Preferential Oxidation (PROX) of Carbon Monoxide from Practical Reformates for PEM H2-O2 Fuel Cells Using High Contacting Efficiency Microfibrous Entrapped Catalysts,ò Ph.D. Thesis, December, 2004, Bong-Kyu Chang.
44. ñHigh Efficiency Adsorbent Filters via Packed Bed + Polishing Sorbent Architectures for Regenerable Collective Protection,ò M.S. Thesis, May, 2005, Andrew Queen.
45. ñLow Temperature Oxidation of Carbon Monoxide Using Microfibrous Entrapped Catalysts for Fire Escape Mask Application,ò Ph.D. Thesis, May, 2005, Mukund Karanjikar.
46. ñSequestration of CO2 by Chemically Reactive Aqueous K2CO3 in High Efficiency Adsorbents Using Microfibrous Media Entrapped Support Particulates,ò M.S. Thesis, December 2006, Noppadon Sathitsuksandh.
47. ñFuel Cell Cathode Air Filters: Methodologies for Design and Optimization,ò M.S.

Thesis, December 2006, Dan Kennedy.

48. ñGas Phase Desulfurization Using Regenerable Microfibrous Entrapped Metal Oxide Based Sorbents for Logistic PEM Fuel Cell Applications,ò Ph.D. Thesis, August 2007, Hongyun Yang.
49. ñMicrofibrous Entrapped Catalysts and Sorbents: Microstructured Heterogeneous Contacting Systems with Enhanced Efficiency,ò Ph.D. Thesis, May 2008, Ranjeeth Kalluri.
50. Electrochemical Characterization and Modeling of Fuel Cells via AC Impedance and Residence Time Distribution,ò Ph.D Thesis, December 2008, Robert Payne.
51. ñNovel Packaging Designs for Improvements in Air Filter Performance,ò Ph.D Thesis, July 2009, Ryan Sothen.
52. ñImprovement of Indoor Air Quality Through the Development of Polymeric Microfibrous Material,ò Ph.D Thesis, December 2009, Eric Luna.
53. ñFischer Tropsch Catalyst Structures & Process Design for JP-5 Fuel Integrated with MFEC,ò M.S. Thesis, May 2010, Tunde Dokun.
54. ñDesulfurization of Hydrocarbon Fuels at Ambient Conditions Using Supported Silver Oxide-Titania Sorbents,ò Ph.D Thesis, November 2010, Sachin Nair.
55. ñPromoted ZnO Sorbents for Wide Temperature Range H2S and COS Removal from Reformate Streams for Applications in Fuel Cells,ò PhD Thesis, August 2011, Priyanka Dhage.
56. ñEnhanced Heat Transfer Catalyst Structures for Fischer-Tropsch Synthesis,ò PhD Thesis, December 2011, Min Sheng.
57. ñAerosol Filtration Performance of Novel 3-Dimensional Nonwoven Composites,ò PhD Thesis, May 2012, Amogh Karwa.
58. ñApplication of Microfibrous Materials in Air Filtration for Improving Indoor Air Quality,ò PhD Thesis, July 2012, Yanli Chen.
59. ñA Multi-Technique Comparative Evaluation of Ag Dispersion on Polycrystalline TiO2,ò M.S. Thesis, October 2012, Zenda Davis.
60. ñMicrofibrous Entrapped Catalysts for Low Temperature CO Oxidation in Humid Air,ò PhD Thesis, May 2013, Shirish Punde.
61. ñIdentification of Adsorption Mechanisms of Sulfur Heterocycles via Surface Analysis of Selected Metal Doped Adsorbent Materials for Logistics Fuels Desulfurization,ò PhD Thesis, December 2013, John M. Heinzel.
62. ñDevelopment of Cathode Air Filters for PEM Fuel Cells Using Microfibrous Entrapped Sorbents,ò PhD Thesis, December 2013, Abhijeet G. Phalle.
63. ñApplications of Electrochemical Impedance Spectroscopy to In Situ Dynamic Characterization of Energy Conversion and Storage Systems,ò PhD Thesis, December 2013, Ying Zhu.
64. ñLiquid Phase Desulfurization of Hydrocarbon Fuels at Ambient Conditions Using Regenerable Mixed Oxide Supported Silver Adsorbents,ò PhD Thesis, May 2014, A.H.M. Shahadat Hussain.
65. ñNovel Catalytic Material with Enhanced Heterogeneous Contacting Efficiency for VOC Removal at Ultra-Short Contact Time,ò PhD Thesis, May 2014, Sabrina Wahid.
66. ñMicrosecond Reaction and Contacting Using Microfibrous Monoliths,ò Qiang Gu, PhD, May, 2015.
67. ñWall Heat Transfer Mechanisms for Microfibrous Reactors,ò Carlos Garcia, MS, May,

2015.

68. ñDispersion Measurements of Ag/TiO2 Sorbents via XPS, Zenda Davis, PhD, August, 2015.
69. ñLow Temperature CO Oxidation for Critical Applications,ò Robert Henderson, PhD, August, 2015.
70. ñMulti-Element Structured Arrays for Enhanced Sorbent Based Filters,ò Guomin Xu, PhD, August, 2015.

Theses in Progress (as Major Professor)

1. Achintya Sujan, PhD (In Situ Characterization of Sulfur Adsorbents Using Fiber Optic Diffuse Reflectance Spectroscopy)
2. Xueni Sun, PhD (Photochemical Enhanced Desulfurization & Sorbents)
3. WilliamYantz, PhD (Direct Synthesis of Dimethyl Ether Using Microfibrous Entrapped Catalysts)
4. Pengfei Zhao, PhD (Novel Filter Arrays and Strategies for Removing NaCl Aerosols)
5. Peng Cheng, PhD (Sorbent Based Air Beneficiation for PPB Level Contaminants)
6. Mingyang Chi, PhD (Iron Based Composite FTS-Hydrocracking Catalysts)
7. Xinquan Cheng, PhD (Real Time Investigations of Photocatalytic Water Splitting Using Microsecond Time Resolved X-ray Photoelectron Spectroscopy)

Post Doctoral Researchers Advised

John Zabasajja
Yeong-Jen Kuo
Helen Xi
Soonho Ahn
Greg M Swain
Teh-Shing Lee
Donald R Cahela
Wen-Hua "Nick" Zhu
Laiyuan Chen
Yong Lu
Jian Dong
Shihuai "Steve" Zhao
Vivekanand Gaur
Alexander Samokhvalov

research funding, publications, presentations, patents, commercialized products and processes

COMPETITIVELY AWARDED RESEACH FUNDING

- Dr. Tatarchuk has served as PI on >39 million dollars in competitive extramural R&D, and a similar total as a Co-PI or Co-I. His work has been supported by government agencies including: NSF, NASA (MSFC, GRC/LeRC, KSC, CCDS), DOE (NREL, EERE, NETL, INL, HQ), Air Force (AFOSR, WPAFB), Army (ARO, SMDC, CECOM, TACOM, TARDEC, ERDC, SBCCOM, Materiel Command), Navy (ONR, NSWC, NSWC-CD,

DURIP), DARPA (DSO, SPO), DTRA/DNA, TSWG, SDIO, NBS/NIST and the State of Alabama (AIF, ARI). His work has also been funded by industrial firms and an assortment of other entities including: Exxon-Mobil, EPRI, ABB, Boeing, Honeywell, Raytheon, Battelle, Ballard, Research Corp., Ceramatec, UK Ministry of Defense, Qatar National Research Foundation, Kaevarner-Chemetics Inc., IntraMicron Inc., etc..

ñMaximizing the Effectiveness of Fischer Tropsch Fixed Bed Reactors: Tailoring Reaction Media,ò Qatar National Research Fund, $990,000, 6/1/2014 -5/31/2017, B.J. Tatarchuk (PI) with Nimir El-Bashir (TAMU-Q) and Ben Wilhite (TAMU), ($270,000 to AU).

ñHigh Rate Li Battery Cooling Using Microfibrous Materials and Wicked Phase Change Materials,ò OSD-SBIR, $1,000,000, 7/1/2014 to 7/1/2016, prime contractor is IntraMicron Inc., B.J. Tatarchuk is AU PI on subcontract at $400,000.

ñNovel Coal to Liquid Conversion Process Using Enhanced FTS,ò DOE-NETL, AU is a subcontractor to Ceramatec Inc. and IntraMicron Inc., B.J. Tatarchuk is PI on AU subcontract at $158,000, 9/15/14 to 9/14/16.

ñSpatial and Temporal Resolved Studies of Chemically Reactive Surface,ò DURIP Equipment Award, Navy-N00014-13-1-0812, $275,000., This grant was matched by AU cost sharing at an additional $450,000 (IGP at 120K$, and SGCOE, ChE and CM3 at 330K$).

ñDevelopment and Demonstration of Advanced Filtration Strategies and Methodologies to Supply Clean Air to Future Navy Fuel Cell Systems,ò ONR, Navy-N00014-11-1-0388, 01/05/11 to 04/30/2014, $3,211,000.

ñGas to Liquids Conversion Through Fischer Tropsch Synthesis,ò sponsored by IntraMicron, $99,600, December 1, 2013 to July 31, 2015, 2-42332.

ñRechargeable Lithium Ion Battery Testing,ò IntraMicron-Battery Testing, 5/16/2013-10/15/2013, $35,060.00.

ñUltra High Thermal Conductivity Catalyst Carriers,ò Alabama Innovation Fund, St Of Al-Aif 12-Tatarchuk, 10/30/2012-3/31/2014, $200,020.00.

ñEvaluation Test For Air Purification,ò Honeywell-PO 6400170270, 9/13/2012-12/04/2012, $41,413.14.

ñEvaluation Testing Of Air Purification Units,ò Boeing, Boeing-Pa 2011-024, 7/12/2011-12/15/2011, $250,638.90.

ñEnhanced Fischer Tropsch Catalysis and Synthesis of Naval Logistic Fuels,ò sponsored by IntraMicron, April 1, 2009-May, 2015, $226,977. Navy-N00014-09-C-0206.

ñHigh Contacting Efficiency Carrier Structures & Processes for Liquid Phase Regenerable Desulphurization,ò ONR, NAVY-N00014-06-1165, 09/27/2006-03/31/2007. $350K.

ñNano ZnO Integrated with Nano Fibers Testing,ò FuelCell Energy, FUELCELL EN-PO 29996-000, 09/15/2006-03/15/2007, $12.5K

ñHigh Performance Carriers & Structures for Logistical Fuel Processing for SOFC and PEMFC,ò U.S. Army Tank and Automotive Command, W56HZV05R0684 and other contract numbers, $11,078,000., 10/07/05 ï 12/10/12.

ñDesulfurization System,ò Ceramatec, Inc., 09/19/07/-09/18/2009, $550,000, Army-W56HZV-07-C-0577.

ñAnalysis & Adaptation of Advanced Fischer Tropsch Catalyst Structures and Resulting BOP Reductions to Fulfill Future Navy Fuel Needs,ò B.J. Tatarchuk is PI, ONR STTR, Prime Awardee- IntraMicron, Inc. on N00014-07-M-0393, 06/08/2007-12/31/2007, $50,000 to AU from a total budget of 100K$ for Phase I.

ñProtonex Technology LLC Sorbent Production,ò 2-49663, $1378.00, 5/7/08.

ñPower Systems for Mobile Radar Systems,ò U.S. Army Space Missile Defense Center, DASF-60-00-C0070, 8/30/00-8/2/06, proposal is a joint submission from CM3 and SRI, B.J.T. is Principal Investigator, Funding is at $5,304,834 as of 08/09/2007. Program supports tasks in ChE, AE, ME, EE and SRI.

ñSystem Level Design Studies and Breadboard Desulfurizer Verifications for a 500kW Fuel Cell-Based APU,ò ONR, NAVY- N00014-08-1-0340, 03/01/2008-02/28/2009, $ 208,758.00.

ñHigh Contacting Efficiency Carrier Structures & Processes for Liquid Phase Regenerable Desulphurization,ò ONR, NAVY-N00014-06-10143, 10/01/2005- 12/31/2006, $350K.

ñFabrication of URC Polishing Sorbents of the U.K. Ministry of Defense,ò Scott Health and Safety Ltd. (U.K.) via IntraMicron Inc., Task Order 001, 10/17/2005 through 03/16/2006 at $59,822. (FOP 242126 128401 2000)

ñHigh Efficiency Regenerable Systems and Devices for Advanced Cabin Air Revitalization,ò NASA-NCC8-237-AR-CM3, 4/01/05-3/31/06, $83,212.

ñGas-Life Increases & Pressure Drop Decreases for Packed-Bed Sorbent Systems Provided by Drop-In Microstructurally Engineered Polishing Sorbents,ò DoD ChemBio Defense Program (CBDP), Technology Transition Program, July, 2004. After Army, DTRA and DARPA panel review, the proposed SOW/proposal was the only effort funded from over sixty proposals submitted. Contract funded at a 2.9MM$ ceiling for 3 years, with option to extend at cost to the government for an additional three years. B.J. Tatarchuk is PI. $500,000 received to date. W911SR-04-C-0030

ñRegenerable Microfibrous H2S Polishing Sorbents for TARDEC/TACOM Fuel Cell Powered Vehicles,ò Army-W56HZV-04-CL503, $95,000 (9/15/03-10/31/04).

ñTSA, PSA, PTSA Regenerable Collective Protection Adsorbent Canister Technology Using Microfibrous Entrapped Sorbents,ò DTRA01-03-P-0183, $83,000 (1/12/04 to 6/1/04). B.J. Tatarchuk is PI.

ñNew Materials and Strategies for Mitigation of ChemBio Threats,ò DARPA-DSO via Navy-N000014-00-10282 (4-21906), $2,195,027, 2/1/00 - 6/10/04, Principal Investigator.

ñRegenerable ChemBio Filters and Sorbents,ò TSWG via Army-DAAD005-02-C0013 (4-20419), $267,000, 2/28/02-6/31/04, Principal Investigator.

ñFuel Cell IDP Directed Research,ò RAYTHEON-R-A54-02-02 (4-20537), $50,000, 9/1/02-8/31/03, Principal Investigator.

ñHeat and Mass Transport within Sintered Microfibrous Structures,ò NSF-EPS-0083045 (4-20075), $499,977, 10/1/00-9/30/02, with subcontractors and investigators at AU (Harris,

Khodadadi, El-Halwagi), UAB (Chawla, Baker), UA (Johnson) and TU (Ibrahim, Aglan), Dr. Tatarchuk is Principal Investigator and proposal coordinator.

ñMicrofibrous Materials for Mitigating TICs and TIMs,ò DTRA via Battelle (4-20156), $125,000, 11/1/00-12/31/01, Principal Investigator.

ñSmart Filters,ò DTRA via Battelle (4-20249), $265,000, 3/1/01-12/1/01, Principal Investigator.

ñImmune Building Demonstration: Phase I,ò DARPA-SPO (4-20318), $80,000, 8/1/01-9/30/01, Principal Investigator.

ñImmune Building Demonstration: Phase II,ò DARPA-SPO via Battelle (4-20420), $505,000., 2/25/02-3/31/03, Principal Investigator.

ñHigh Performance Zinc/Air-Capacitor Hybrids Using Microfibrous Cathodes,ò U.S. Army CECOM Army-DAA-B07-98-3G001, (4-21519), $200,000, 12/23/97-10/22/01, Principal Investigator.

ñMicrofibrous Materials for Prototype Air Cleaning Devices,ò NREL (4-21921), $10,000, 1/1/00-6/15/01, Principal Investigator.

Various contracts and P.O.s from Ballard Power Systems (fuel cell materials research) totaling approximately $60,000 from 2000-2001. B.J.T. is PI.

ñCanine Detection System for Large Vehicle Bombs (LVBs),ò Subcontract $1.1 million total of which $120,000 is to Dr. B.J. Tatarchuk, remainder to Principal Investigator, Dr. J. Johnstone. US Army Material Command/Institute for Biological Detection Systems (IBDS), 9/30/98 ï 8/31/00.

ñPreparation, Optimization and Testing of Microfibrous Materials for Mitigation of ChemBio Threats,ò Battelle Memorial Institute, $15,000., August, 1999, B.J.T. is PI.

ñDevelopment & Packaging of Supercapacitors for Launch Vehicle Applications,ò NASA-MSFC, $47,174., 9/10/98-1/31/2000, (B.J.T. is PI for this task), this is a portion of a larger program between the Space Power Institute and NASA-MSFC.

ñHigh Performance Nickel Hydroxide Electrodes Utilizing Composite Nickel Fibers,ò NASA Lewis, $77,500, 2/1/98 ï 11/30/99. B.J.T. is PI.

ñDevelopment of High Temperature Solid Lubricant Coatings,ò U.S. Air Force under STTR with Surfaces Research Applications, Inc., subcontract to AU is $20,860, 1/31/97-1/15/98.

ñDynamical Modeling, Prediction, Design and Verification of Tribomechanical and Triboelectromechanical Contacts,ò Pratt & Whitney, B.J. Tatarchuk (PI) with D.B. Marghitu (Co-PI), $40,000.

ñCathode Development Agreement,ò Joint Development Agreement and Option/License with Chemetics International Company, Ltd., Vancouver, British Columbia, Canada, Three-phase program with multiple option periods and fees, $29,900 in first period (Principal Investigator), 8/1/96 ï open.

ñPart Smart Continuous Hydrogen Sintering,ò Memtec America Corp., $20, 654 for 6/16/96 ï 6/15/97, also off budget contribution of $20,000/year directly from Memtec to AU graduate student (Ben Poole) as a Coop in CM^3 facility, (BJT is PI with faculty support to J. Khodadadi of Mechanical Engineering).

ñOxygen Concentrating Microfibrous Cathode Structures,ò subcontract from ICET/Freshaire/ESC on SBIR Phase II Contract from NIH, $50,050, 6/1/97 ï 12/31/98.

ñLow-Cost High-Performance Ni-Zn and Zn-Air Batteries with Thin Fibrous Electrodes by Papermaking Processes,ò EPRI, $472,820, 5/1/96 ï 8/31/99.

ñGas Diffusion Electrodes for Propylene Oxide and Propylene Glycol Synthesis,ò $25,000, Subcontract from the Electrosynthesis Company on an NSF-SBIR Phase I contract, 1/1/7 ï 6/30/97.

ñElectrochemcial and Integrated-Process Opportunities for On-Site/On-Demand Generation of Chlorine Dioxide at Reduced Cost,ò U.S. DOE, Idaho Operations Office, $365,854, 8/2/96 ï 8/1/99.

ñMicroengineered Catalyst Systems,ò Joint Development Agreement with ABB and its various subsidiary companies in U.S. and Europe, including ABB-Lummus (Bloomfield, N.J.), $717,000 plus cost/scope additions requested by ABB-Lummus, 1/1/97-12/31/99.

ñUnrestricted Research Grant to Auburn University on behalf of B.J. Tatarchuk,ò Exxon Education Foundation, $7,500, October, 1992, $7,500, October 1993.

ñExxon New Leads Program for the Liquefaction of Coal,ò a 14-school Exxon organized consortium of invitees including: Stanford, Cal Berkeley, MIT, Illinois-Carbondale, Michigan State, Louisville, Illinois-Champaign, Rochester, Texas, Toronto, CSIRO (Canberra, Australia), Kentucky and Lehigh. B.J. Tatarchuk Principal Investigator, $15,000 (Phase I, 1 year), 7/1/93 ï 6/31/96.

ñExxon New Leads Program for the Liquefaction of Coal,ò B. J. Tatarchuk (Principal Investigator), $198,500 (one of three downï selected Phase II efforts), 7/1/93 ï 6/1/97.

ñMobile Power Technology Initiatives,ò ARO, $1,999,497, 6/1/92 ï 12/31/98, Co-Principal Investigator with M.F. Rose.

ñAdvanced Electrode Development,ò SDIO through DNA, $499,234 total, 4/22/91 ï 7/31/97, 4-21829, (Principal Investigator for this Task).

ñInteractive Space Technologies,ò SDIO through NSWC, $99,935 total, 4/19/91 ï 9/15/96, 4-20850, (Principal Investigator for this Surface Chemistry Task noted in the proposal/statement of work).

ñBuried-Interfacial Analysis of Solid Lubricant Materials on Bearings,ò $100,000, 7/1/90 ï 12/31/91, Wright Patterson Research and Development Center (Principal Investigator).

ñHigh Performance Electrochemical Systems Utilizing Composite Electrode Structures,ò NASA-Lewis Research Center, $612,250 to date, 4/1/90 ï 8/11/97.

ñUnrestricted Research Grant/Gift to B.J. Tatarchuk from Anglo-American Clays Corporation,ò $28,000, 6/1/89 ï 7/31/90 (Principal Investigator).

ñDevelopment of Adherent and Electrically Conductive Solid Lubricant Films,ò Auburn University Center for the Commercial of Space, the Office of Commercial Development, NASA, NAGW1192-CCDS-AD, $1.09 million from 5/88 ï 9/97.

ñCharacterization and Optimization of Adhesion Properties of Organosilicon Coatings Through the Use of Selected Probe Molecules,ò NASA Graduate Student Researchers Program, NASA-

Lloyd, $54,000, 4-24443, 6/16/88 ï 6/15/91.

ñCharacterization of ñPaint-Onò Atomic Oxygen Resistant Coatings,ò NASA Graduate Student Researchers Program, NASA-Booher, $54,000, 4-4444. 6/16/88 ï 6/15/91. Awarded by NASA-MSFC.

ñManipulating Surface Chemistry for Strategic Applications in Outer Space,ò Center for Advanced Technologies, SDIO/NSWC, N63921-86-C-A226, $506,142, 9/86 ï 12/90.

ñOn Board Materials Characterization for Enhanced Logistical Support of SDI Structures,ò Center for Advanced Technologies, SDIO/NSWC, N63921-86-C-A226, $51, 729 for 9/9/86 ï 12/31/86 and $75,041 for 1/1/87 ï 12/31/87.

ñDevelopment of High Surface Area Conductive Materials,ò SDIO/DNA 001-85-C-0183, $535,500, 1/86 ï 1/90 (Principal Investigator).

ñBreakthrough Technologies From Mixed Composite Fibers,ò Alabama Research Institute, $420,000 from 5/87 ï 10/92 (Co-Principal Investigator, Principal Author and Organizer of Proposal).

ñKinetics and Mechanisms of Materials Degradation and Surface Behavior in Simulated Space Environments: In Situ Compositional and Structural Studies Using Electron Spectroscopic and Electron Microscopic Techniques,ò NASA-LeRC, $200,000, 4/87 ï 11/91.

ñDevelopment of New Space-Compatible Materials Surfaces Using Novel Spectroscopic Methods,ò NASA Graduate Student Researchers Program, NASA-Sanders, $54,000, 6/16/85 ï 6/15/88, 4-24424, Awarded by NASA-MSFC.

Development and Assessment Program for Electromagnetic Launcher Systems,ò Space Power Institute, SDIO, DNA 001-85-C-0183, $345,000, 6/16/85 ï 1/14/87 (Co-Principal Investigator).

ñEffective Neutralization Mechanisms for Hypergolic Fuel Spills: A Research and Development Study,ò NASA, NAS10-11027, $93,917, 9/11/84 ï 7/31/86.

Investigation of Coupled Surface and Bulk Reaction Phenomena Using Combined-Backscatter-Conversion Electron and Backscatter-Photon Mossbauer Spectroscopy (CEAPS),ò AFOSR, AFOSR-84-0301, $332,986, 9/1/84 to 4/30/88.

ñImplementation of Combined-Backscatter-Conversion Electron and Backscatter-Photon Mossbauer Spectroscopy (CEAPS) at Auburn University,ò DoD-University Research Instrumentation Program, DAAG29-84-G-0057, $295,100, 7/1/84 ï 12/31/85.

ñSurface Analysis of Space Telescope Material Specimens,ò NASA-MSFC, NAS8-35914-PS, $9,700, 6/16/84 ï 9/30/84, 4-25098 (Co-Principal Investigator).

ñCooperative Research Agreement Between Anglo-American Clays Corporation and Auburn University,ò $42,000, 2/1/84 ï 7/31/87, Anglo-Amer Clays-4-20590.

ñNew and Improved Dispersion and Recovery Techniques for Slurry Phase Catalysis,ò DOE, PRDA. RA22-83PC63334, $453,863., 10/1/83 ï 12/21/86 (Co-Principal Investigator).

ñImplementation of Electron Energy Loss Spectroscopy at Auburn University,ò NSF, NSF-CPE 83-03145, $98,350, 4/15/83 ï 9/30/84.

ñEffective Neutralization Mechanisms for Hypergolic Fuel Spills: A Feasibility Study,ò NASA, NAS10-10648, $49,104, 3/23/83 ï 2/15/84.

ñInvestigation of Catalyst-Support Interactions: H_2S as a Probe Molecule,ò Research Corporation and Auburn University, RC-9936, $17,000, 10/29/82 ï 10/29/84.

ñEnhancements in Coal-Derived Synthetic Fuels Production: Influence of Adsorbate Orientation on Reaction Selectivity Over Sulfide Catalysts,ò A Collaborative Proposal Between Auburn University Energy Research Program and The National Bureau of Standards, Center for Materials Science-Reactor Radiation Division, $24,000, 1983.

ñDesign, Characterization and Evaluation of Sulfur Tolerant Catalysts for Synthetic Fuels Production,ò Auburn University Engineering Experiment Station, $43,000, 1983 - 1984.

ñHeterogeneous Catalysis of Coal Conversion Employing Well-Characterized Supported Metal Sulfide Catalysts,ò Auburn University Engineering Experiment Station, FY82-$27,472. FY83-$29,040.

ñ Equipment Awards for Establishment of Facilities in (i) X-ray Photoelectron Spectroscopy and (ii) Heterogeneous Catalysis,ò Auburn University Energy Research Program, FY81-$70,000; Department of Chemical Engineering, FY81-FY82-$45,000.

RESEARCH PUBLICATIONS

Articles in Refereed Journals (Partial Listing)

1. Tatarchuk, B.J., Chludzinski, J.J., Sherwood, R.D., Dumesic, J.A. and Baker, R.T.K. ñControlled Atmosphere Electron Microscopy Investigation of Iron Supported on Titania.ò Journal of Catalysis Vol. 70, No. 2, pp 433-439, 1981.
2. Tatarchuk, B.J. and Dumesic, J.A. ñPhysical Characterization of Fe/TiO2 Model Supported Catalysts: I. Electron Microscopic Studies of Reduction Behavior.ò Journal of Catalysis Vol. 70, No. 2, pp 308-322, 1981.
3. Tatarchuk, B.J. and Dumesic, J.A. ñPhysical Characterization of Fe/TiO2 Model Supported Catalysts: II. Electron Spectroscopic Studies of Reduction Behavior.ò Journal of Catalysis, 70, No. 2, pp 323-334, 1981.
4. Tatarchuk, B.J. and Dumesic, J.A. ñPhysical Characterization of Fe/TiO2 Model Supported Catalysts: III. Combined Electron Microscopic and Spectroscopic Studies of Reduction and Oxidation Behavior.ò Journal of Catalysis Vol. 70, No. 2, pp 335-346, 1981.
5. Littrell, D.M. and Tatarchuk, B.J. ñHydrazine Reduction of Transition Metal Oxides: In Situ Characterization Using X-ray Photoelectron Spectroscopy.ò Journal of Vacuum Science Technology A Vol. 4, No. 3, pp 1608-1612, 1986.
6. Kuo, Y.J. and Tatarchuk, B.J. ñImpact of Surface Phase Behavior on the Activity and Selectivity of Thiophene HDS Over Sulfided Ruthenium Catalysts.ò Proceedings of the 9th International Congress of Catalysis Vol. 1, 96-103, 1986.
7. Kuo, Y.J., Cocco, R.A. and Tatarchuk, B.J. ñMechanisms for the Promotion and Poisoning of Ruthenium Catalysts by Sulfur.ò Petroleum Chemistry Preprints, American Chemical Society Vol. 31, No. 1, pp 258-264, 1986.
8. Askew, R.F., Chin, B.A., Brown, J.L., Jensen, D.B. and Tatarchuk, B.J. ñRail and Insulator Erosion in Rail Guns.ò IEEE Trans. Mag. Vol 22, No. 6, pp 1380-1385, 1986.
9. Lu, K. and Tatarchuk, B.J. ñSize-Dependent Electronic Modification of Supported

Ruthenium Crystallites By Adsorbed Chlorine.ò Petroleum Chemistry Preprints, Vol. 31, No. 1, pp 319-328, 1986.
10. Lu, K. and Tatarchuk, B.J. ñActivated Chemisorption of Hydrogen on Supported Ruthenium: I. Influence of Adsorbed Chlorine on Accurate Surface Area Measurements.ò Journal of Catalysis Vol. 106, No. 1, pp 166-175, 1987.
11. Lu, K. and Tatarchuk, B.J. ñActivated Chemisorption of Hydrogen on Supported Ruthenium: II. Effects of Crystallite Size and Adsorbed Chlorine on Accurate Surface Area Measurements.ò Journal of Catalysis Vol. 106 No. 1, pp 176-187, 1987.
12. Lee, T.S., Placek, T.D, Dumesic, J.A. and Tatarchuk, B.J. ñElectron Intensities Obtained During Backscatter-Mossbauer Spectroscopy: I. Comparison Between Theory and Experiment.ò Nuclear Instruments and Methods in Physics Research Section B, Vol. 18, Nos.1-6, pp 182-193, 1987.
13. Littrell, D.M., Bowers, D.H. and Tatarchuk, B.J. ñHydrazine Reduction of Transition Metal Oxides.ò JCS Faraday Transactions 1 Vol. 83, No.11, pp 3271-3282, 1987.
14. Lee, T.S. and Tatarchuk, B.J. ñA Theoretical Model for the Analysis of Backscattered-Conversion Electron Mossbauer Spectroscopy: Angular and Energy Distributions.ò Hyperfine Interactions Vol. 42, Nos. 1-4, pp 1149-1152, 1988.
15. Sanders, J.H. and Tatarchuk, B.J. ñChemical Characterization of the Deactivation and Protection of FeTi Thin-Films Using Complementary Nondestructive Techniques.ò Journal of Thin Solid Films Vol. 166, Nos. 1-2, pp 225-233, 1988.
16. Lee, T.S, Zabinski, J.S. and Tatarchuk, B.J. ñElectron Intensities Obtained During Backscattered-Mossbauer Spectroscopy: II. Theoretical and Experimental Comparisons of Emergent Angular Distributions,ò Nuclear Instruments and Methods in Physics Research Section B Vol. 33, No. 2, pp 196-202, 1988.
17. Zabinski, J.S. and Tatarchuk, B.J. ñGeneration of Low Energy Resonant Electrons During Relaxation of 57Fe.ò Hyperfine Interactions Vol. 41, No. 1, pp 737-743, 1988.
18. Kuo, Y.J. and Tatarchuk, B.J. ñHydrogenation and Hydrodesulfurization Over Sulfided Ruthenium Catalysts: I. Catalysts Containing Partial Monolayers of Adsorbed Sulfur, Journal of Catalysis Vol. 112, No. 1, pp 229-249, 1988.
19. Kuo, Y.J., Cocco, R. and Tatarchuk, B.J. ñHydrogenation and Hydrodesulfurization Over Sulfided Ruthenium Catalysts: II. Impact of Surface Phase Behavior on Activity and Selectivity.ò Journal of Catalysis Vol. 112, No. 1, pp 250-266, 1988.
20. Lee, W.Y. and Tatarchuk, B.J. ñMossbauer Studies of High Surface Area Pillared Clays Containing Mixed Metal Complexes.ò Hyperfine Interactions Vol. 41, Nos. 1-4, pp 661-664, 1988.
21. Heise, W.H., Kuo, Y.J., Lu, K, Udovic, T.J., Rush, J.J. and Tatarchuk, B.J. ñNeutron Scattering Study of Hydrogen on Ruthenium Sulfide.ò Journal of Physical Chemistry Vol. 92, No. 18, pp 5184-5188, 1988.
22. Sanders, J.H. and Tatarchuk, B.J. ñProtection of FeTi thin films using palladium coatings.ò Journal of Physics F: Metals Vol. 18, No. 11, pp L276-L270, 1988.
23. Zabinski, J.S. and Tatarchuk, B.J. ñResonant Low Energy Electrons and Their Impact on Sampling Depth During Backscatter-Electron Mossbauer Spectroscopy.ò Nuclear Instruments and Methods in Physics Research Section B Vol. 31, No. 4, pp 576-583, 1988.
24. Zabinski, J.S. and Tatarchuk, B.J. ñResonant Low Energy Electrons and Their Impact

on Nondestructive Depth-Profiling of Thin-Film Samples.ò Journal of Thin Solid Films Vol. 166, pp 213-224, 1988.
25. Ostemeyer, J.G., Elder, T.J., Littrell, D.M., Tatarchuk, B.J. and Winandy, J.E. ñSpectroscopic Analysis of Southern Pine Treated With Chromated Copper Arsenate: I. X-ray Photoelectron Spectroscopy (XPS).ò Journal of Wood Chemistry and Technology Vol. 8, No. 3, pp 413-439, 1988.
26. Sanders, J.H. and Tatarchuk, B.J. ñActivation and Deactivation Mechanisms for Thin-Film Iron-Titanium Hydrides.ò Journal of the Less-Common Metals Vol. 147, No. 2, pp 277-292, 1989.
27. Lee, T.S., Zabinski, J.S. and Tatarchuk, B.J. ñAngular and Energy Distributions of Low Energy Electrons in Backscattered-Mossbauer Spectroscopy.ò Nuclear Instruments and Methods in Physics Research Section B Vol. 44, No. 1, pp 107-115, 1989.
28. Cocco, R.A. and Tatarchuk, B.J. ñEffects of Presulfidization on the Selectivity and Surface Structure of Ruthenium Catalysts.ò Langmuir Vol. 5, No. 6, pp 1309-1315, 1989.
29. Zabinski, J.S. and Tatarchuk, B.J. ñGeneration Mechanisms for Low Energy Electrons Produced During Relaxation of 57Fe and Their Utilization for Depth Deconvolution.ò Nuclear and Instrumental Methods in Physics Research Section B Vol. 42, No. 3, pp 379-388, 1989.
30. Lu, K., Kuo, Y.J. and Tatarchuk, B.J. ñHydrogen Adsorption and Hydrogen-Deuterium Equilibration on Sulfided Ruthenium and Bulk Ruthenium Sulfide Catalysts.ò Journal of Catalysis Vol. 116, No. 2, pp 373-382, 1989.
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32. Lee, W., Raythatha, R. and Tatarchuk, B.J. ñPillared-Clay Catalysts Containing Mixed-Metal Complexes: I. Preparation and Characterization.ò Journal of Catalysis Vol. 115, No. 1, pp 159-179, 1989.
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34. Cocco, R.A. and Tatarchuk, B.J. ñSecondary Ion Formation Mechanisms for Thiophene on Clean and Sulfur Precovered Ru(0001).ò Surface Science Vol. 218, No. 1, pp 147-166, 1989.
35. Cocco, R.A., Papageorgopoulos, C. and Tatarchuk, B.J. ñStatic SIMS Measurements During Explosive Thiophene Desorption: Desorption-Induced Recombination and Cationization.ò Surface Science Vol. 218, No. 1, pp 167-177, 1989.
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38. Lee, T.S. and Tatarchuk, B.J. ñAngular and Energy Distributions of Low Energy Electrons from Backscattered-Conversion Electron Mossbauer Spectroscopy.ò

Hyperfine Interactions Vol. 57, No.1-4, pp 1949-1954, 1990.
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41. Zabinski, J.S. and Tatarchuk, B.J. ñCEMS Investigations of Reactions and Buried MoS2-Fe Interfaces.ò Hyperfine Interactions Vol. 57, Nos. 1-4, pp 2141-2146, 1990.
42. Zabinski, J.S. and Tatarchuk, B.J. ñDepth-Deconvolution of 57Fe Conversion Electron Mossbauer Spectra Using Electrons Below 60 eV.ò Nuclear Instruments and Methods in Physics Research Section B, Vol. 51, No. 1, pp 41-52, 1990.
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44. Sanders, J.H. and Tatarchuk, B.J. ñInvestigation of Internal Interfacial Reactions of the Fe-Ti Hydride System.ò Hyperfine Interactions Vol. 57, Nos. 1-4, pp 2083-2088, 1990.
45. King, B.R., Patel, H., Gulino, D.A. and Tatarchuk, B.J. ñKinetic Measurements of Oxygen Dissolution into Niobium Substrates: In Situ XPS Studies.ò Thin Solid Films Vol. 192, No. 2 pp 351-369, 1990.
46. King, B.R. and Tatarchuk, B.J. ñMeasurements of Reactive O2 Sticking Coefficients and Oxidation Rates at Niobium Oxide Surfaces.ò Thin Solid Films Vol. 192, No. 2, pp 371-381, 1990.
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49. Sanders, J.H. and Tatarchuk, B.J. ñPinhole Plugging Characteristics of Silica/Iron/Silver Protective Coatings in Atomic Oxygen Environments.ò Thin Solid Films Vol. 192, No. 1, 79-95, 1990.
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Note: Various combinations of U.S. Patents (5,080,963; 5,102,745; 5,096,663; and 5,304,330) have resulted in well over 30 foreign patent counterparts.

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8. ñMicrofibrous Entrapment of Small Reactive Particulates and Fibers for High Contacting Efficiency Removal of Contaminants from Gaseous or Liquid Streams,ò with B.K. Chang, Y. Lu, L. Chen, E. Luna, and D.R. Cahela. US Patent # 7,501,012, issued March 10, 2009.
9. ñDoped Zinc Oxide Sorbents for Regenerable Desulfurization Applications,ò with H. Yang and P. Dhage, US Patent # 7,833,316, issued November 16, 2010.
10. ñMulti-Element Structured Arrays (MESAôs) for Cost-Effective and High Efficiency Treatment of Fluids,ò with Ryan Sothen, U.S. Patent 8,603,229, issued December 10,

2013.

11. ñProcesses for Removing Sulfur from a Hydrocarbon Stream Utilizing Silver-Based Sorbentsò with H. Yang and S. Nair, U.S. Patent 8,425,763, issued April 23, 3013.
12. ñMicrofibrous Entrapped Catalysts for Optimizing and Controlling Highly Exothermic and Highly Endothermic Reactions,ò with H. Yang; Kalluri, Ranjeeth; and Don Cahela, U.S. Patent 8,420,023, issued April 16, 2013.
13. ñMicrofibrous Media for Optimizing and Controlling Highly Exothermic and Highly Endothermic Reactions,ò with Yang, Hongyun; Kalluri, Ranjeeth; Cahela, Donald. PCT Int. Appl. (2011), WO 2011057150 A1 20110512, Application No. WO2010US55733, Priority No. US20090258741P 20091106.
14. ñDirect In Situ Monitoring of Adsorbent and Catalyst Beds, ò with P.S. Dimick and H.Y. Yang. (U.S. Application No. 61/593,563) filed on February 1, 2012. Publication Number WO 2013116484A1, Application Number PCT/US2013/024089, Publication Date August 8, 2013.
15. ñMethods for Preparing Highly Porous Microfibrous Media with Functional Particles Immobilized Inside,ò with H. Yang, T.J. Barron, and P.S. Dimick, Publication Number WO2014011227A1. Application Number PCT/US2013/030890, Publiccation Date January 16, 2014.
16. ñMethod for Loading Pre-manufactured Catalyst into Porous Media,ò with H. Yang and P.S. Dimick, U.S. Provisional Patent Application: 61/669914 (total 15 pages).
17. ñMethod to Improving Wall Heat Transfer,ò with H. Yang and P.S. Dimick, Publication Number WO2014011225A1, Application Number PCT/US2013/030837, Publication date January 16, 2014.
18. ñMethod for Recycling Microfibrous Entrapped Catalyst,ò with P.S. Dimick and H. Yang, U.S. Provisional Patent Application: 62/027,808 (total 10 pages).
19. ñThermal Management Systems for Energy Storage Cells Having High Charge/Discharge Current and Methods of Making and Using Thereof,ò with H. Yang, T.J. Barron and P.S. Dimick, PCT Provisional Patent Application: 61/969,401.

License and option agreements have been executed with Maxwell Laboratories, Kvaerner-Chemetics, ABB-Lummus, Exxon-Mobil, Siemens-Pacesetter, and IntraMicon Inc.. Royalties and equivalent cash revenues have amounted to approximately 2MM$.

PRESENTATIONS BEFORE LEARNED SOCIETIES

(invited presentations, or those with refereed/published proceedings are indicated)

1. ñPhysical Characterization of Fe/TiO2 Model Supported Catalysts,ò 179th National Meeting of the American Chemical Society, Division of Colloids and Surface Chemistry, paper no. 112, Houston, 1980, with J.A. Dumesic.
2. ñElectron Microscopic and Spectroscopic Studies of Model Supported Catalysts: Fe/TiO2,ò Second Chemical Congress of the North American Continent, Division of Colloids and Surface Chemistry, San Francisco, August 1980, with J.A. Dumesic, R.D. Sherwood and R.T.K. Baker.
3. ñCharacterization of Iron Particles on Thin-Film and High Surface Area Titania Supports,ò Materials Research Society Meeting, Boston, November 1982, with J.

Santos and J.A. Dumesic.

4. ñBackscatter Mossbauer Spectroscopy: Applications to Surface and Catalytic Phenomena,ò Invited Review Paper at the Sixth International Summer Institute in Surface Science, Milwaukee, Wisconsin, August 1983, with J.A. Dumesic.
5. ñCatalytic Hydrodesulfurization Over supported Ruthenium Sulfides: Influence of Crystallite Size on Specific Activity and Selectivity, ñ paper presented at the winter national meeting of the American Institute of Chemical Engineers, Atlanta, Georgia, March 1984, with Y.J. Kuo (published proceedings).
6. ñActivated Chemisorption of Hydrogen on Alumina and Silica Supported Ruthenium Catalysts,ò paper presented at the winger national meeting of the American Institute of Chemical Engineers, Atlanta, Georgia, March, 1984 with K. Lu (published proceedings).
7. ñMicroscopic and Spectroscopic Studies of Sulfided Ruthenium Catalysts,ò paper presented at the Fourth Annual Symposium of the American Vacuum Society, Knoxville, Tennessee, May 1984, with T.E. Saliba and D.L. Moran.
8. ñApplications of Surface Specific Mossbauer Spectroscopy,ò invited paper at the Symposium on Techniques for the Characterization of Electrode Surfaces, 188th National Meeting of the American Chemical Society, Division of Colloids and Surface Chemistry, Philadelphia, August 1984, with J.S. Zabinski and T.R. Nolen.
9. ñMetal Oxide Reduction by Hydrazine,ò paper presented at the Fifth Annual Symposium of the American Vacuum Society, Knoxville, Tennessee, May 1985, with D.M. Littrell.
10. ñElectronic and Structural Modifications of Ruthenium by Sulfur,ò American Chemical Society, Division of Colloids and Surface Chemistry, Chicago, Illinois, September 1985, with R.A. Cocco, K.A. Toney and Y-J Kuo.
11. ñAbsorption and Neutralization of Hydrazine,ò 1985 Annual JANNAF Symposium, Monterrey, CA, November 1985 with R.A. Gerron. (Refereed/published proceedings by the Chemical Propulsion Information Agency (CPIA).
12. ñHydrazine Reduction of Transition Metal Oxides: In Situ, Characterization Using X-ray Photoelectron Spectroscopy,ò 32nd National Symposium of the American Vacuum Society, Houston, Texas, November 1985 with D.M. Littrell.
13. ñRail and Insulator Erosion in Rail Guns,ò paper presented at the 3rd Symposium on Electromagnetic Launch Technology, April 1986, Austin, Texas, with R.F. Askew, B.A. Chin, J.L. Brown and D.B. Jensen.
14. ñMechanisms for the Promotion and Poisoning of Ruthenium Catalysts by Sulfur,ò American Chemical Society, Division of Petroleum Chemistry, New York, New York, April 1986, with Y-J Kuo and R.A. Cocco.
15. ñSize-Dependent Electronic Modification of Supported Ruthenium Crystallites by Adsorbed Chlorine,ò American Chemical Society, Division of Petroleum Chemistry, New York, New York, April 1986 with K. Lu.
16. ñNeutron Inelastic Scattering From Hydrogenous Species Adsorbed on Ruthenium Sulfide Catalysts,ò American Chemical Society, Division of Colloids and Surface Chemistry, New York, New York, April 1986, with T.J. Udovic, J.J. Rush, W.H. Heise, K. Lu and Y-J Kuo.
17. ñSurface and Kinetic Studies of Sulfided Ruthenium Catalysts,ò invited presentation to the American Vacuum Society, 6th Annual Symposium of the Tennessee Valley

Chapter, Surface Science Session, Oak Ridge, Tennessee, April 1986.

18. ñSubmonolayer and Multilayer Sulfur Coverages on Ruthenium Catalysts: An X-ray Photoelectron Spectroscopy Study,ò American Vacuum Society, 6th Annual Symposium of the Tennessee Valley Chapter, Oak Ridge, Tennessee, April 1986 with Y-J Kuo and R.A. Cocco.
19. ñXPS Characterization of Silicon Etched by SF6 + N2O and SF6 + O2 RF Plasmas,ò paper presented to the Electrochemical Society, Sixth Symposium on Plasma Processing, San Diego, October 1986 with Y. Tzeng, J.H. Lin, D.M. Littrell and J. Sanders (published proceedings).
20. ñHREELS Study of Thiophene on Ru (0001): Effects of Preadsorbed Sulfur,ò American Chemical Society, Division of Surface and Colloids, Anaheim, California, September 1986 with W.H. Heise.
21. ñPoisoning and Activation of Hydrogen Adsorption on Supported Ruthenium Catalysts,ò Fall Meeting of the American Institute of Chemical Engineers, Miami, Florida, November 1986, with K. Lu (published proceedings).
22. ñEffects of Presulfidization on the Activity, Selectivity and Morphology of Supported Ruthenium Catalysts, ñ Fall National Miami, Florida, November 1986, with K-J Kuo and R.A. Cocco (published proceedings paper).
23. ñThiphene Adsorption and Decomposition on Ru(0001),ò American Chemical Society, Division of Surface and Colloids, Denver, April 1987, with W.H. Heise.
24. ñStructural and Electronic Modification of Ruthenium Surfaces by Sulfur: Comparison of Supported Crystallites and Single Crystals,ò American Chemical Society, Division of Colloids and Surface Chemistry, Denver, April 1986, with Y-J Kuo and W.H. Heise.
25. ñApplications of Combined-Backscatter-Conversion Electron and Backscatter-Photon Mossbauer Spectroscopy to Thin-Film Studies,ò Annual Meeting of the Florida Chapter of the American Vacuum Society, Clearwater, Florida, February 1987, with J.S. Zabinski, J.H. Sanders and T-S Lee.
26. ñA Theoretical Model for Interpretation of Backscatter-Conversion Electron Mossbauer Spectra Obtained from Thin-Film Substrates,ò Annual Meeting of the Florida Chapter of the American Vacuum Society, Clearwater, Florida, February 1987, with T-S Lee, J.S. Zabinski and J.H. Sanders.
27. ñSpectroscopic Characterization of High Surface Area Pillared Clays Containing Mixed Metal Complexes,ò 1987 Biennial Inorganic Chemistry Symposium, Molecular Design of Materials: Applications of Mechanistic and Structural Organometallic Chemistry, July 8, 1987, Harvard University, Cambridge, Massachusetts, with W. Lee and R. Raythatha.
28. ñGeneration of Low Energy Resonant Electrons During Relaxation of 57Fe,ò International Conference on the Applications of the Mossbauer Effect, August 1987, Melbourne, Australia, with J. Zabinski. Refereed/Published proceedings in Volume III, pages 737-740 Proceedings of the International Conference on the Applications of the Mossbauer Effect, J.C. Baltzer AG, Scientific Publishing Co., Basel-Switzerland, 1988.
29. ñA Theoretical Model for the Analysis of Backscattered-Conversion Electron Mossbauer Spectroscopy: Angular and Energy Distribution,ò International Conference on the Applications of the Mossbauer Effect, August 1987, Melbourne,

Australia, with T-S Lee. Refereed/Published proceedings in Volume III, pages 1149-1152, Proceedings of the International Conference on the Applications of the Mossbauer Effect, J.C. Baltzer AG, Scientific Publishing Co., Basel-Switzerland, 1988.

30. ñMossbauer Studies of High Surface Area Pillared Clays Containing Mixed Metal Complexes,ò International Conference on the Applications of the Mossbauer Effect, August 1987, Melbourne, Australia, with W. Lee. Refereed/Published proceedings in Volume II, pages 661-664, Proceedings of the International Conference on the Applications of the Mossbauer Effect, J.C. Baltzer AG, Scientific Publishing Co., Basel-Switzerland, 1988.
31. ñSize-Dependent Modification of Ruthenium Crystallites by Sulfur,ò Fall National Meeting of the American Institute of Chemical Engineers, Session on Chemical Modification of Catalysts, November 1987, New York, with Y-J Kuo and K. Lu.
32. ñSurface Chemical Characterization of Internal Interfaces Generated Within Thin-Film Hydrides,ò Fall National Meeting of the Materials Research Society, December 1987, Boston, with J.H. Sanders. Refereed/published proceedings in MRS Symposium Proceedings, Microstructure and Properties of Catalysts, Volume III, 369-374, 1988.
33. ñAdsorption and Reaction Mechanisms of Thiophene Over Sulfided Ruthenium Catalysts,ò Fall National Meeting of the Materials Research Society, December 1987, Boston, with R. Cocco. Refereed/published proceedings in MRS Symposium Proceedings, Microstructure and Properties of Catalysts, Volume III, 335-340, 1988.
34. ñStability, Activity and Selectivity Criteria of Crystalline Sulfide Overlayers on Supported Ruthenium Catalysts,ò Fall National Meeting of the American Institute of Chemical Engineers, Session on Fundamentals in Catalysis: I & II, November 1987, New York, with R. Cocco and Y-J Kuo.
35. ñInvestigation of Internal Interfacial Reactions of the FeTi Hydride System,ò 15th International Conference on Metallurgical Coatings, San Diego, California, April 1988 with J.H. Sanders.
36. ñThiophene Desorption and Reaction Over Sulfided Ruthenium Surfaces,ò 8th Annual Symposium of the American Vacuum Society, Tennessee Valley Chapter, Session IV ï Applied Surface Science, Oak Ridge, Tennessee, May 1988, with R.A. Cocco.
37. ñImpact of Surface Phase Behavior on the Activity and Selectivity of Thiophene HDS Over Sulfided Ruthenium Catalysts,ò 9th International Congress on Catalysis, June 1988, Calgary, Alberta, Canada, with Y-J Kuo. Refereed/published proceedings in Proceedings of the 9th International Congress of Catalysis, Volume I, pages 96-103, 1988, by the Chemical Institute of Canada, Ottawa, Ontario.
38. ñVacuum Annealing of Oxide Overlayers on Niobium,ò Alabama Materials Research Conference, October 1988, Auburn, Alabama, with H.C. Patel.
39. ñIn Situ Kinetic Studies of Oxygen Dissolution into Niobium Substrates,ò Symposium D ï Advanced Methods for Characterizing the Surfaces/Interfaces of Materials, Fall National Meeting of the Materials Research Society, December 1988, Boston, with H.C. Patel (Auburn), D. Gulino (NASA-LeRC) and B. Banks (NASA-LeRC).
40. ñInterfacial Chemical Reactions Between MoS2 Lubricants and Bearing Materials,ò

Fall National Meeting of the Materials Research Society, December 1988, Boston, with J.S. Zabinski, refereed/published proceedings in Symposium Proceedings of the Materials Research Society, 140, 239-244, 1988, ñNew Materials Approaches to Tribology: Theory and Applications.ò

41. Invited speaker to the Gordon Research Conference on Tribology, Plymouth, New Hampshire, June 1990.
42. 1988 Bunshah Award for best paper at the 1988 International Conference on Metallurgical Coating, San Diego, CA, April 1988 ($500) (with graduate student, J.S. Zabinski, co-author).
43. ñApplication and Performance of Silicon-Based Atomic Oxygen Protective Coatings,ò invited presentation to the 34th International SAMPE Symposium: Tomorrows Materials Today, Session on Space Environmental Effects, May 1989, Reno, Nevada, with J.H. Sanders and P.B. Lloyd (refereed/published proceedings).
44. ñMossbauer and XPS Studies of Interfacial Reactions Between Sputtered Surfaces of MoS2 and Iron,ò National Meeting of the Society of Tribologists and Lubrication Engineers, Atlanta, Georgia, May 1989, with J.S. Zabinski.
45. ñIn Situ Kinetic Studies of Oxygen Dissolution into and Oxygen Accommodation at High Temperature Radiator Surfaces,ò Symposium on Space Compatible Materials and Processing, Materials Research Society, April 1989, San Diego, California, with H.C. Patel and B.R. King.
46. ñInterfacial Analysis of Tribological Systems Containing MoS2 and Iron Using XPS and CEMS,ò 16th International Conference on Metallurgical Coatings, April 1989, San Diego, California, with J.S. Zabinski. (refereed/published proceedings).
47. ñAnalysis of Iron Promoted MoS2,ò 11th North American Meeting of the Catalysis Society, Dearborn, Michigan, May 1989, with J.S. Zabinski.
48. ñSurface and Microscopic Studies of Sulfided Ruthenium Catalysts,ò 11th North American Meeting of the Catalysis Society, Dearborn, Michigan, May 1989, with R.A. Cocco.
49. ñInterfacial Analysis of MoS2 and Iron Using XPS and CEMS,ò 9th Annual Symposium of the Tennessee Valley Chapter of the American Vacuum Society, May 1989, Oak Ridge, Tennessee, with J.S. Zabinski.
50. ñComposite Electrode Structures for High Energy Density and High Power Density Applications in Space,ò 24th Intersociety Energy Conversion Engineering Conference, August 1989, Arlington, Virginia, with D.A. Kohler, J.N. Zabasajja, A. Krishnagopalan and M.F. Rose. Published in the Proceedings of the 24th IECEC Conference, Volume 3, 1441-1446, 1989, IEEE, Piscataway, New Jersey.
51. ñInvestigations of Atomic Oxygen Diffusion Through Silica Based Coatings,ò Third International Conference on Surface Modification Technologies, Coating for Space Applications, August 1989, Neuchatel, Switzerland, with J.H. Sanders. Published in Surface Modification Technologies III, 511-521, Eds. T.S. Sudarshan and D.G. Bhat, the Minerals, Metals and Materials Society, 1990, Warrendale, Pennsylvania.
52. ñInvestigation of Internal Interfacial Reactions of the FeTi Hydride System,ò International Conference on the Applications of the Mossbauer Effect, September 1989, Budapest, Hungary, with J.S. Sanders.
53. ñTribochemical Investigations of Reactions at Buried MoS2-Fe Interfaces Using CEMS and XPS,ò International Conference on the Applications of the Mossbauer

Effect, September 1989, Budapest, Hungary, with J.S. Zabinski.

54. ñAngular and Energy Distributions of Low Energy Electrons from Backscattered-Conversion Electron Mossbauer Spectroscopy,ò International Conference on the Applications of the Mossbauer Effect, September 1989, Budapest, Hungary, with T.S. Lee.
55. ñChemical Reactivity of Iron on Molybdenite Surfaces,ò invited presentation to the Division of Petroleum Chemistry at the Spring National Meeting of the American Chemical Society, April 1990, Boston, Massachusetts.
56. ñNovel Materials, Devices and Chemical Processes from Fibrous Precursors,ò Spring Meeting of the Materials Research Society, Session on Materials for Sensors and Separations, April 1990, San Francisco, California, with S. Ahn, A. Krishnagopalan and J. Zabasajja.
57. ñFabrication of Composite Materials from Fibrous Precursors Using Paper Making Procedures,ò Spring Meeting of the Materials Research Society, Session on Materials Interactions Relevant to the Pulp, Paper and Wood Industries, April 1990, San Francisco, California, with J.N. Zabasajja, S. Ahn, T. Wu and A. Krishnagopalan. Published in the Proceedings of the Materials Research Society, Volume 197, 297-306, 1990, D.F. Caulfield, J.D. Passaaretti and S.F. Sobsczynski, Eds., MRS, Pittsburgh, Pennsylvania.
58. ñInterfacial Reactions Between Sputter-Deposited MoS2-Fe and TaS2-Fe Solid Lubricant Systems,ò 8th International Conference on Thin-Films and the 17th International Conference on Metallurgical Coatings, April 1990, San Diego, California, with T.S. Lee and T. George (refereed/published proceedings).
59. ñComposite Electrode Structures for Fuel Cell Applications,ò 25th Intersociety Energy Conversion Engineering Conference, August 1990, Reno, Nevada, with S. Ahn. Published in the Proceedings of the 25th IECEC Conference, Volume 3, 287-292, 1990, American Institute of Chemical Engineers, New York, New York.
60. ñComposite Electrode Structures for Battery Applications,ò 25th Intersociety Energy Conversion Engineering Conference, August 1990, Reno, Nevada, with J.N. Zabasajja. Published in the Proceedings of the 25th IECEC Conference, Volume 3, 393-395, 1990, American Institute of Chemical Engineers.
61. ñMetal-Carbon Composite Structures for Use in High Energy Density and High Power Density Applications,ò Fall National Meeting of the AIChE, November 1990, Chicago, with J. Zabasajja, S. Ahn and T. Wu.
62. ñCharacterization of Tribo-Interfacial Reactivity Using Backscattered Mossbauer Spectroscopy,ò presentation to the session on ñApplication of Surface Science to Problems in Tribology,ò at the 1991 Spring Meeting of the American Chemical Society, April, 1991, Atlanta, Georgia, (Invited presentation).
63. ñSurface Characterization of Buried Interfaces Using Backscattered Mossbauer Spectroscopy,ò invited presentation to the session on Methods of Surface and Interfacial Characterization at the 1991 International Conference on Metallurgical Coatings and Thin Films, San Diego, California, April 1991.
64. ñInterfacial Reactions Between Diamond Films and Metallic Iron,ò 46th Annual Meeting of the Society of Tribologists and Lubrication Engineers, April 1991, Montreal, Canada, with T.S. Lee, B. Esposito and T. Roppel.
65. ñTribological Performance of TaS2 Films as a Solid Lubricant on Stainless Steel,ò

46th Annual Meeting of the Society of Tribologists and Lubrication Engineers, April 1991, Montreal, Canada, with T. Lim, T. George, T.S. Lee, J. Zabinski and M. Donley.

66. ñEffect of Coating Techniques on the Tribochemical Behavior of Buied-MoS2-Fe Interfaces,ò 46th Annual Meeting of the Society of Tribologists and Lubrication Engineers, April 1991, Montreal, Canada, with B. Esposito, T.S. Lee, J. Zabinski and M. Donley.
67. ñCharacterization of TaS2 as an Electrically Conductive Solid Lubricant,ò 46th Annual Meeting of the Society of Tribologists and Lubrication Engineers, April 1991, Montreal, Canada, with T. George and T.S. Lee.
68. ñNovel Catalyst Supports from Fibrous Precursors,ò invited presentation to the 1991 Fall Meeting of the American Chemical Society and the Fourth Chemical Congress of the North American Continent, Division of Petroleum Chemistry, Session on Catalyst Supports: Forming and Characterization, New York, New York, August 1991.
69. ñA New Composite Electrode Architecture for Energy Storage Devices,ò 1991 NASA Aerospace Battery Workshop, October 1991, Huntsville, Alabama, with R. Ferro and G. Swain, Published in NASA CP 3143, ñThe 1991 NASA Aerospace Battery Workshop,ò pages 457-469.
70. ñMetal-Carbon Composite Electrodes from Fibrous Precursors,ò 1991 Fall Meeting of the Materials Research Society, Session U: New Strategies of the Synthesis and Characterization of Catalysts, December 1991, Boston, Massachusetts, with S. Ahn.
71. ñNovel Interactions of Hydrogen with Copper in the Absence of the Surface Dissociation Barrier,ò 1991 Fall Meeting of the Materials Research Society, Session U: New Strategies for the Synthesis and Characterization of Catalysts, December 1991, Boston, Massachusetts, with P.B. Lloyd.
72. ñStudy of MoS2/Fe Buried-Interfaces Prepared by Pulse Laser Deposition,ò Spring Meeting of the American Physical Society, March 1992, Indianapolis, Indiana, with B. Esposito, J.S. Zabinski, M.S. Donley and V.J. Dyhouse.
73. ñInterfacial Reactions Between Diamond Films and Metallic Iron Using Mossbauer Spectroscopy,ò Spring Meeting of the American Physical Society, March 1992, Indianapolis, Indiana, with T.S. Lee, R. Ramesham and T.A. Roppel.
74. ñElectrochemical Reduction of Oxygen at Nafion-Coated Composite Electrodes: The Kinetics and Mass Transport Properties at Electrocoated Film Electrodes,ò Fall Meeting of the Electrochemical Society, Paper #95, October 1992, Toronto, Canada, abstract published in J. Electrochem. Soc., 139(8), 480C, August 1992, with G.M. Swain.
75. ñHigh Surface Area, Low Weight Composite Nickel Fiber Electrodes,ò presented at Fourth Space Electrochemical Research and Technology (SERT) Conference, April 1993, Cleveland, Ohio, with B.A. Johnson, R.E. Ferro and G.M. Swain, proceedings published in NASA CP 3228, pages 49-60, 1993.
76. ñComposite Fiber Structures for Catalysts and Electrodes,ò presented at Fourth Space Electrochemical Research and Technology (SERT) Conference, April 1993, Cleveland, Ohio, with C.J. Morrison, D.R. Cahela and S. Ahn, proceedings published in NASA CP 3228, pages 219-230, 1993.
77. ñSurface and Buried-Interfacial Reactivity of Iron and MoS2: A Comparative CEMS Study of (i) Single Crystals (ii) Sputtered-Films and (iii) Laser-Deposited Materials,ò

International Congress on the Applications of the Mossbauer Effect (ICAME), August 1993, Vancouver, British Columbia, with B. Esposito, T.S. Lee, M.S. Donley and J.S. Zabinski, proceedings published.

78. ñCharacterization of Tantalum Disulfide-Iron Interfaces Using Mossbauer Spectroscopy,ò International Congress on the Applications of the Mossbauer Effect (ICAME), August 1993, Vancouver, British Columbia, with T.S. Lee and T. George, proceedings published.
79. ñLight Weight, High Surface Area Nickel Fiber Composite Battery Electrodes,ò Fall Meeting of the Electrochemical Society, October 1993, New Orleans, Louisiana, with B.A. Johnson, R.E. Ferro and G.M. Swain, extended abstract published.
80. ñIn Situ Reaction Studies of Atomic Oxygen Protective Coatings,ò 1993 AIChE Annual Meeting, St. Louis, Missouri, November 1993, with L. Gibson and T.S. Lee.
81. ñOxygen Reduction at Electrocoated Nafion-Modified Ni-Carbon Composite Electrodes in Alkaline Solution: The Effect of Temperature,ò 1993 Fall Meeting of the Electrochemical Society, October 1993, New Orleans, Louisiana, G.M. Swain, (published proceedings).
82. ñElectrocatalytic Metal-Carbon Composite Electrodes for SPE Fuel Cells,ò presented to Symposium on Novel Catalytic Materials at the Fall meeting of the AIChE, November 1994, San Francisco, California, with H. Xu, R. Killough and J. Wang.
83. ñSelective Electrochemical Oxidation of Coal in Aqueous Alkaline Electrolyte,ò Fall Meeting of the Materials Research Society, December 1994, Boston, Massachusetts, with S. Ahn, M.C. Kerby and S.M. Davis.
84. ñHigh Performance Nickel Electrodes for Space Power Applications,ò 1995 SERT Conference, NASA-LeRC, Cleveland, Ohio, May 1-3, 1995, with P. Adanuvor, J. Pearson, B. Miller and D.L. Britton, proceedings published in NASA CP 3337, pages 11-21, 1996.
85. ñHigh Performance Nickel Hydroxide Electrodes Utilizing Composite Fiber Micro-Structure,ò 1995 AIChE Southern Regional Conference, Tallahassee, Florida, April 1995, with J. Pearson.
86. ñInvestigating RF-Sputtered and Burnished NbSe2 Films Using UHV-Electrotribometry,ò 1995 International Conference on Metallurgical Coatings and Thin Films (ICMCTF95), San Diego, California, April 1995, with T.S. Lee and Y. Zhang.
87. ñA Study of Tribological and Electrical Properties of Sputtered and Burnished Transition Metal Dichalcogenide Films,ò 1995 International Conference on Metallurgical Coatings and Thin Films (ICMCTF95), San Diego, California, April 1995, with H. Waghray and T.S. Lee.
88. ñInvestigating Friction and Contact Resistance of NbSe2 Films in Vacuum Using a UHV Pin-on-Disk Electrotribometer,ò 50th Meeting of the Society of Tribologists and Lubrication Engineers (STLE), Chicago, Illinois, May 1995, with Y. Zhang and T.S. Lee.
89. ñElectrically Conductive Composite Lubricants,ò 12th Symposium on Space Nuclear Power and Propulsion (SSNPP), Albuquerque, New Mexico, January 1995, with K.A. Wehrman, Y. Zhang, T.S. Lee and G.A. Krishnagopalan (published proceedings).
90. ñElectrochemical Hydrogenation of Polyaromatics in Aqueous Emulsions Using Micro fibrous, High Hydrogen Overpotential Electrodes,ò Session on

Environmentally Benign Electrochemical Processes, AIChE Fall Meeting, Chicago, Illinois, November 1996, with L. Gibson and S. Ahn.

91. ñElectrochemical Oxidation of Refinery Sludge,ò Session on Environmentally Benign Electrochemical Processes, AIChE Fall Meeting, Chicago, Illinois, November 1996, with M. Meffert and S. Ahn.
92. ñImpedance Modeling of Metal Fiber-Carbon Fiber Composite Electrodes for Electrochemical Double Layer Capacitors,ò presented to the 37th Power Sources Symposium, Cherry Hill, New Jersey, June 17-20, 1996, with D.R. Cahela.
93. ñOxidation Electrodes Based on Composite Microfibrous Materials,ò presented to the 37th Power Sources Symposium, Cherry Hill, New Jersey, June 17-20, 1996, with R.F. Smith, S. Ahn and R. Putt.
94. ñDynamic Friction, Sliding Contact Resistance, and Wear Mechanism of NbSe2 Films,ò International Conference on Metallurgical Coating and Thin Films (ICMCTF 96), San Diego, California, 1996, with Y. Zhang and T.S. Lee.
95. ñConduction and Wear Mechanism for Composite Fiber Lubricants,ò International Conference on Metallurgical Coatings and Thin Films (ICMCTF 96), San Diego, California, April 1996, with K.A. Wehrman and T.S. Lee.
96. ñCharacteristics of Thin Palladium Films on Polycrystalline Copper,ò 24th Annual Meeting of the American Vacuum Society, Orlando, Florida, March 1996, with J.W. Kress.
97. ñMicrostructured and Nanostructured Composites for Chemical Processing,ò 4th International Conference on Composites Engineering, Hawaii, July 6-12, 1997, with G.A. Krishnagopalan.
98. ñFibrous Composites for Catalysts and Electrodes,ò 2nd Industrial Energy Efficiency Symposium, Arlington, Virginia, February 24-27, 1997, with G.A. Krishnagopalan.
99. ñPreparation and Characterization of Composite Catalytic Structures,ò Engineering Foundation Conference on Chemical Reaction Engineering VI: Reactor Engineering for Sustainable Processes and Products, Banff, Alberta, June 8-13, 1997, with M. Meffert.
100. ñImpedance Modeling of Nickel Fiber/Carbon Fiber Composite Electrodes for Electrochemical Capacitors,ò 23rd International Conference on Industrial Electronics, Control and Instrumentation, IECON 97, New Orleans, Louisiana, November 1997, with D. R. Cahela.
101. ñOverview of Electrochemical Double Layer Capacitors,ò 23rd International Conference on Industrial Electronics, Control and Instrumentation, IECON 97, New Orleans, Louisiana, November 1997, with D. R. Cahela
102. ñUsing a Debye Polarization Cell to Predict Double-Layer Capacitor Performance,ò Conference Record of the 1999 Industry Applications Society 34th IAS Annual Meeting, paper no.55.2, IEEE Catalog no 99CH36370C (published proceedings).
103. ñZinc-Air/Ultracapacitor Hybrids for Pulse Power Applications,ò 6th Workshop for Battery Exploratory Development, pp235-239, June 1999. with B.A. Poole and D.R. Cahela (published proceedings).
104. ñUsing Debye Polarization Cell to Predict Double-Layer Capacitor Performance,ò 1999 IAS Annual Meeting, Phoenix, Arizona, October 1999, with R.M. Nelms, D.R. Cahela.
105. ñMicrostructured Microfibrous Materials for Sensing and Mediation of ChemBio

Threats,ò Presentation and Poster at the Joint Services Program on Advanced Sensing, USDA, Barksville, Maryland, February 2000, with Tim Moore for IBDS.

106. ñWet Layup and Sintering of Metal-Containing Microfibrous Composites for Chemical Processing,ò Engineering Foundation Conference on ñFiber Processing,ò Pisa, Italy, May 2000, included partial travel support to attend conference, with D.R. Cahela, D.K. Harris. Due to a need for Dr. Tatarchuk to remain in Auburn to assist in the negotiation of a major contract with SMDC, Dr. Harris kindly substituted for Dr. Tatarchuk.
107. ñSintered Microfibrous Composites for Heterogeneous Catalysis,ò 1st International Conference on Structured Catalysts and Reactors, October 21-24, 2001, Delft, the Netherlands, with D.R. Cahela.
108. ñMeasurement of Oxygen Supersaturation in the Vicinity of Porous Microfibrous Ni Anodes During Water Electrolysis,ò 201st Meeting of the Electrochemical Society, Philadelphia, May 2002, abstract #32, with A. Sankarraj and R.D. Neuman.
109. ñEnhancements in Effectiveness Factors Using Microfibrous Entrapped Catalysts During Toluene Hydrogenation in a Three Phase Reactor,ò First Southeastern Catalysis Meeting, Clemson University, May 2002, with M. Meffert.
110. ñDevelopment of Ultrathin Microfibrous Cathodes for Zinc/Air Pulse Applications,ò presented to the 40th Power Sources Conference, Cherry Hill, New Jersey, Jun 10-13, 2002, with W. H. Zhu and D.R. Cahela.
111. ñThermal Management and Stack Pulse Operation of PEM Fuel Cells,ò presented to the 40th Power Sources Conference, Cherry Hill, New Jersey, June 10-13, 2002, with W. H. Zhu, B. R. McGee and R. M. Nelms.
112. ñSelective Catalytic Oxidation of CO for Fuel Cell Applications,ò Fuels Division, Session on Recent Advances in Fuel Cells, 224th ACS National Meeting, Boston, Massachusetts, August 18-22, 2002, with L.Y. Chen, B.K. Chang, Y. Lu and W. Yang.
113. ñMicrofibrous Materials for Electrocatalysis of the Hydrogen Evolution Reaction,ò Fall Symposium of the Southeastern Catalysis Society, September 29-30, 2002, Asheville, North Carolina, with R. Nickell.
114. ñSelective Catalytic Oxidation of CO for Fuel Cell Applications Using Microfibrous Encapsulated Catalyst Structures,ò 2002 Annual Meeting of the AIChE (proceedings), Indianapolis, Indiana, November 3-8, 2002, with B.K. Chang, L.Y. Chen, Y. Lu and W. Yang.
115. ñSulfur-free H2 for Fuel Cell: A Novel Absorbent for H2S Removal.ò 2002 Annual Meeting of the AIChE (proceedings), Indianapolis, Indiana, November 3-8, 2002, with Y. Lu, H. Xin-Qun, P. Liu, L.Y. Chen, W. Yang and J. Dong.
116. B.K. Chang and B.J. Tatarchuk, ñPreferential Catalytic Oxidation (PROX) of CO from Model Reformates for PEM Fuel Cells,ò 226th ACS National Meeting, September, 2003, New York, Div. of Fuel Chemistry: Fuel Processing for Fuel Cell Applications, Vol 48(2), 843-845, 3003.
117. B.K. Chang and B.J. Tatarchuk, ñH2S and CO Removal for PEM H2-O2 Fuel Cells Using Ultra-High Contacting Efficiency Microfibrous Entrapped Catalysts and Sorbents,ò 2003 AIChE Annual Meeting, San Francisco, CA, November, 2003, Topical Conference: Fuel Cell Technology (Fuel Processing/Catalysis & Kinetics).
118. D.R. Cahela and B. J. Tatarchuk, ñDesign of Polishing Filter Applications Using

Sintered Microfibrous Metallic Networks as Carriers for High Effectiveness Sorbent Particulates," AIChE Annual Meeting, Nov. 2003, San Francisco, CA. (with published proceedings paper)

119. D.R. Cahela and B. J. Tatarchuk, ñA Study of Second and Third Order Stiffly Accurate Generalized Runge-Kutta Integration Methods," AIChE Annual Meeting, November 2003, San Francisco, CA. (with published proceedings paper)
120. R.A. Nickell and Bruce J. Tatarchuk, "Development and Optimization of Highly Porous, Activated Cathodes for Low Overpotential Hydrogen Production," 226th ACS National Meeting, September, 2003, New York.
121. R.A. Nickell and B.J. Tatarchuk, ñComprehensive Analysis of the Hg/HgO Reference Electrode for Measuring Overpotentials in Alkaline Systems," 226th ACS National Meeting, September, 2003, New York.
122. R.A. Nickell and B.J. Tatarchuk, ñActivated Cathodes for Electrolytic Hydrogen Generation at Reduced Cost,ò AIChE Annual Meeting, November 2003, San Francisco, CA.
123. Y. Lu and B.J. Tatarchuk, ñMicrostructured Particulate Carriers for High Efficiency H2S Removal from Reformate Streams,ò 226th ACS National Meeting, September, 2003, New York.
124. Y. Lu and B.J. Tatarchuk, ñMicrofibrous Entrapped Supported-ZnO Sorbents with High Contacting Efficiency for Trace H2S Removal in PEMFC Applications,ò AIChE Annual Meeting, November 2003, San Francisco, CA.
125. Y. Lu, B. Chang, B. J. Tatarchuk ñMicrostructured Particulate Carriers for High Efficiency H2S Removal from Reformate Streamsò Oral Presentation, The 2003 AIChE Annual Meeting, San Francisco, California, November 16-21, 2003.
126. D. R. Cahela and B. J. Tatarchuk, ñSimulation of Cyanogen Chloride Adsorption in Beds of ASZM-TEDA Using Concentration Layer Approximation with Comparison to Experimental Data, ñ Poster Presentation at Eighth International Conference on Fundamentals of Adsorption, Sedona, AZ, May 2004.
127. M. Karanjikar, B. Chang, Y. Lu, B. Tatarchuk, Bread-Board Fuel Processor Demonstration, 41st power sources conference, Philadelphia PA, June 14-17, 2004.
128. M. Karanjikar, Y. Lu, B. Chang, B. J. Tatarchuk ñLogistic Fuel to Hydrogen ï Fuel Processing Using Microfibrous Entrapped Catalysts and Sorbents for PEM Fuel Cellsò Oral Presentation, The 41st Power Sources Conference, Philadelphia, Pennsylvania, June 14-17, 2004.
129. W.H. Zhu, D.R. Cahela, R.U. Payne, and B.J. Tatarchuk, ñDiagnosis of Commercial PEM Fuel Cells via the Impedance Response,ò (invited) in: Proceedings of the 41st Power Sources Conference, Philadelphia, PA, June 14-17, 2004, pp. 310-313.
130. W.H. Zhu, R.U. Payne, H. Yang, and Bruce J. Tatarchuk, ñOperation of PEM Stacks Utilizing Hydrogen Feeds with High Levels of Inert Gases,ò presented to the 41st Power Sources Conference, Philadelphia, PA, June 15, 2004.
131. B.Chang, and B. J. Tatarchuk ñMicrofibrous Entrapment of Small Catalyst or Sorbent Particulates for High Contacting Efficiency Removal of Trace Contaminants from Practical Reformates for PEM H2-O2 Fuel Cellsò Oral Presentation and Sci-Mix, The 228th ACS National Meeting, Philadelphia, Pennsylvania, August 22-26, 2004.
132. B. Chang, and Bruce J. Tatarchuk, ñHigh Contacting Efficiency Microfibrous Entrapped PROX Catalysts for Reformate Cleanup and PEM Fuel Cell Applications,ò

ACS National Meeting, Philadelphia, PA, August 22-26, 2004

133. M. Karanjikar, B. Chang, Y. Lu, and B. Tatarchuk, ñLogistical Fuel to Hydrogen; an Integrated Processing Approach Augmented by Microfibrous Entrapped Polishing Catalysts and Sorbents for PEM Fuel Cells,ò Pre-prints of Fuel Chemistry Division, 228th ACS Annual Meeting, Philadelphia, August 22-26, 2004, pp.910-911.
134. Andrew P Queen, and Bruce J. Tatarchuk, ñHigh Efficiency Adsorbent Filters for Regenerable Collective Protection Equipment Using Packed Bed + Polishing Sorbent Architectures,ò ACS National Meeting, Philadelphia, PA, August 22-26, 2004.
135. D.R. Cahela, A. W. Martin, A. P. Queen, M. W. Meffert, W. A. Jacoby and B. J. Tatarchuk, ñLow Total Ownership Cost Continuously Regenerable ChemBio Mitigation System,ò Symposium on Advanced Materials For Homeland Security, October 18-21, 2004, Columbus Ohio.
136. D.R. Cahela, A. W. Martin, A. P. Queen, M. W. Meffert, W. A. Jacoby and B. J. Tatarchuk, ñLow Total Ownership Cost Continuously Regenerable ChemBio System,ò Poster presentation at ASM Materials Solutions Conference, October 18-21, 2004, Columbus Ohio.
137. D. R. Cahela, P. Jones, C. Karwacki and B. J. Tatarchuk, ñEnhancement of Personal Protection Devices by Using High Effectiveness Sorbent Particulates Entrapped in Microfibrous Polymer Fibers as Polishing Adsorbents,ò Symposium on Advanced Materials For Homeland Security, October 18-21, 2004, Columbus Ohio.
138. B. Chang, Y. Lu, B. J. Tatarchuk ñMicrofibrous Entrapment of Small Catalyst Particulates for High Contacting Efficiency Removal of Trace CO from Practical Reformates for PEM H2-O2 Fuel Cellsò Oral Presentation, 2004 ASM Materials and Solutions Conference, Columbus, Ohio, October 18-21, 2004.
139. Ranjeeth R Kalluri, Donald R. Cahela and Bruce J. Tatarchuk, ñAlternative Heterogeneous Contacting Schemes Using Microfibrous Entrapped Catalysts/Sorbents,ò AICHE Annual Meeting, Austin, TX, November 7-12, 2004, 560w.
140. M. Karanjikar, Y. Lu, B. Chang, and B. J. Tatarchuk ñBread-Board Fuel Processor Development for Logistic Fuel to Hydrogen Using Novel Microfibrous Entrapped Catalysts and Sorbents for PEM Fuel Cellsò Oral Presentation, 2004 ASM Materials and Solutions Conference, Columbus, Ohio, October 18-21, 2004.
141. M. Karanjikar and B.J. Tatarchuk. ñDevelopment of Fire Escape Gas Mask using Advanced Microfibrous Entrapped Catalystsò - - ASM International: Materials Solutions Conference ï October18-21, 2004 - Columbus, OH
142. Y. Lu, N. Sathitsuksanoh, B. Chang, B. J. Tatarchuk ñFacile Regeneration of Vitreous Microfibrous Entrapped Supported ZnO Sorbent with High Contacting Efficiency for Bulk H2S Removal from Reformate Streams in Fuel Cell Applicationsò Oral Presentation, 2004 ASM Materials and Solutions Conference, Columbus, Ohio, October 18-21, 2004.
143. Y. Lu, B. Chang, Hongyun Yang, and Bruce J. Tatarchuk, "Microfibrous Entrapped H2S Sorbents Using Corrosion Resistant Ceramic/Glass Fibers for Regenerable Continuous Batch Fuel Processing in PEMFC Applications" ASM International, Columbus, OH, October 19, 2004 - 10:30 AM FUEL 4.5.
144. Eric A. Luna, A. P. Queen, D. R. Cahela, Bruce J. Tatarchuk, ñDevelopment of Polymeric Microfibrous Materials for Applications in Protective Equipment,ò ASM

International: Materials Solutions Conference, Columbus, OH, October 18-21, 2004, paper #3628.
145. Andrew P. Queen, Bruce J. Tatarchuk, ñHigh Efficiency CPE Filter by Redeemable Composite Bed,ò ASM International: Materials Solutions Conference, Columbus, OH, October 18-21, 2004.
146. Ahmed F. Abdelhady, Fadwa T. Eljack, Rose M. Cummings, Mario R. Eden, Bruce J. Tatarchuk, ñProcess Integration and Optimization of Logistical Fuels Processing for Hydrogen Production,ò AIChE National Meeting, Austin, TX, November 2004.
147. D. R. Cahela, B-K. Chang, M Karanjikar, E. A. Luna and B. J. Tatarchuk, ñMicrofibrous & Micro-Structured Adsorbents and Catalysts Media: Enhancement in Effectiveness Caused by Static Mixing,ò paper 262g AIChE Annual Meeting, November 7-12, 2004, Austin Texas.
148. B. Chang, M. Karanjikar, Y. Lu, D. R. Cahela, B. J. Tatarchuk ñFuel Processing for PEM Fuel Cells: In-line Adsorbent Filters for MEA Protectionò Oral Presentation, The 2004 AIChE Annual Meeting, Austin, Texas, November 7-12, 2004.
149. B. Chang, Y. Lu, H. Yang, B. J. Tatarchuk ñMicrofibrous Entrapped H2S Sorbent Using Corrosion Resistant Ceramic/Glass Fibers for Regenerable Continuous Batch Fuel Processing in PEMFC Applicationsò Oral Presentation, The 2004 AIChE Annual Meeting, Austin, Texas, November 7-12, 2004.
150. B. Chang, Y. Lu, B. J. Tatarchuk ñMicrofibrous Entrapment of Small Catalyst Particulates for High Contacting Efficiency Removal of Trace CO from Practical Reformates for PEM H2-O2 Fuel Cellsò Oral Presentation, The 2004 AIChE Annual Meeting, Austin, Texas, November 7-12, 2004.
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153. Y. Lu, N. Sathitsuksanoh, M. Karanjikar, and B. J. Tatarchuk, ñMicrofibrous Entrapped H2S Sorbents Using Corrosion Resistant Ceramic/Glass Fibers for Regenerable Continuous Batch Fuel Processing in PEMFC Applications,ò AICHE 2004 Annual Meeting, Austin Convention Center, Austin, TX, November 7-12, 2004
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155. Eric A. Luna, D. R. Cahela, and Bruce J. Tatarchuk, ñDevelopment of Polymeric Microfibrous Materials and Adsorption Applications,ò AIChE Annual Meeting, Austin, TX, November 2004, presentation #253d
156. Robert U. Payne, Wenhua H. Zhu, Dwight E. Cahela, and Bruce J. Tatarchuk, ñMeasurement of Gas Dispersion in the Anode Feed Stream of a 47 Cell PEM Stack,ò in: Proceedings of the AIChE National Meeting: Fuel Cell Technology I,

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157. Andrew P. Queen, and Bruce J. Tatarchuk, ñHigh Efficiency Adsorbent Filters for Regenerable Collective Protection Equipment Using Packed Bed + Polishing Sorbent Architectures,ò AIChE National Meeting, Austin, TX, November 2004.
158. W.H. Zhu, R.U. Payne, Y. Lu, and B.J. Tatarchuk, "Operation of a PEM Stack with High Impurity Anode Feeds in a Recycle Mode," in: Proceedings of the AIChE National Meeting: Fuel Cell Technology II, Austin, Texas, November 7-12, 2004, 514b.
159. Wenhua H. Zhu, Robert U. Payne, Donald R. Cahela, Bruce J. Tatarchuk, ñIn-Situ Assessment of PEM Fuel Cells via AC Impedance at Operational Loads,ò in: Proceedings of the AIChE National Meeting: Fuel Cell Technology I, Austin, TX, November 2004, 14g.
160. E. Luna, R. Kalluri, D. R. Cahela, B. J. Tatarchuk, ñImprovement of Adsorption Applications Using High Contacting Efficiency Microfibrous Entrapped Materials,ò AIChe 2005, Anaheim, CA, May 2005, Presentation #170.
161. Andrew P. Queen, and Bruce J. Tatarchuk, ñHigh Efficiency Adsorbent Filters for Regenerable Collective Protection Equipment Using Packed Bed + Polishing Sorbent Architectures,ò AIHce 2005, Anaheim, CA, May 2005
162. M. Karanjikar and B.J. Tatarchuk, ñNew CO Oxidation Methodology for Meeting CBRN Standards Using Microfibrous Entrapped Catalysts,ò AIHce 2005, Anaheim, CA, May 2005
163. Ranjeeth R Kalluri, Donald R. Cahela and Bruce J. Tatarchuk, ñMicrofibrous Entrapped Sorbents/Catalysts - A Novel Heterogeneous Contacting/Reaction System with Enhanced Heat and Mass Transfer,ò 19th North American Meeting, North American Catalysis Society, Philadelphia, PA, May 22-27, 2005, Session #22.
164. R. Duggirala, C. J. Roy, S. M. Saeidi, J. Khodadadi, D. Cahela, and B. Tatarchuk, ñPressure Drop Predictions for Microfibrous Flows using CFD,ò AIAA Paper 2005-4618, 17th AIAA CFD Conference, Toronto, Ontario, Canada, June 2005.
165. Yang, Hongyun; Sathitsuksanoh, Noppadon; Lu, Yong; Tatarchuk, Bruce J., ñMass Transfer Study of Hydrogen Sulfide Removal from Reformates with Microfiber Entrapped ZnO/SiO2 Sorbents for Fuel Cell Application.ò Abstracts of Papers, 230th ACS National Meeting, Washington, DC, United States, August 28-September. 1, 2005
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168. Ranjeeth R Kalluri, Donald R. Cahela and Bruce J. Tatarchuk ñMicrofibrous Supported Sorbents/Catalysts- Micro-Structured Systems with Enhanced Contacting Efficiencyò AICHE Annual Meeting, Cincinnati, OH, October 2005.
169. Karanjikar, M. and B.J. Tatarchuk. ñLow Temperature CO Oxidation Using Microfibrous Entrapped Catalysts for Fire Escape Mask Application.ò AICHE

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170. Karanjikar, M., Kennedy, D., and B.J. Tatarchuk, ñSmall Business Partnership Leading to New Product Development Based on Intellectual Property,ò AICHE Annual Meeting, Cincinnati, OH, October 2005.
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173. McGlockin, K.H., Eden, M., and B.J. Tatarchuk, ñA Study of Integration Potentials in Different Reformer Strategies for Logistical Fuels Processing.ò AICHE Annual Meeting, Cincinnati, OH, October 2005.
174. Robert U. Payne, Wenhua H. Zhu, Donald R. Cahela, and Bruce J. Tatarchuk, ñMeasurement of the Performance of a 47 Cell PEM Stack with Impurities in the Anode Feed Stream.ò AIChE Annual Meeting October, 2005. Cincinnati, OH.
175. Sathitsuksanoh, N. and B.J. Tatarchuk, ñAdsorptive Filtration of Carbon Dioxide from Wet Gases Utilizing Microfibrous Filter Media Entrapped K2CO3.ò AICHE Annual Meeting, Cincinnati, OH, October 2005.
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185. Yang, Hongyun; Nair, Sachin; Tatarchuk, Bruce. Regenerable H2S sorbents with high capacity and wide temperature characteristics. Preprints - American Chemical Society, Division of Petroleum Chemistry (2006), 51(2), 499-501.
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214. Hongyun Yang, Sachin Nair and Bruce Tatarchuk, ñOrganic Sulfur Removal from Logistic Fuels Using Microfibrous Entrapped Adsorbents at Room Temperature,ò Presented at the AICHE Annual Meeting, November 2006
215. Hongyun Yang, Sachin Nair and Bruce Tatarchuk, ñDoped ZnO Sorbents for H2S Removal with High Capacity and Wide Temperature Characteristics,ò Presented at the AICHE Annual Meeting, November 2006
216. Daniel Kennedy and Bruce Tatarchuk, ñFuel Cell Cathode Air Filters: Methodologies for Design and Optimization,ò Presented at the AIChE Annual Meeting, November 16, 2006.
217. Nappadon Sathitsuksanoh and Bruce Tatarchuk, ñMicrofibrous Supported K2CO3 for Room Temperature CO2 Capture, ò Presented at the AIChE Annual Meeting, November 15, 2006.
218. ñResidence Time Distribution Analysis From CFD Simulations Of Microscale Flows In Microfibrous Entrapped Adsorbents/Catalysts,ò AICHE Annual Meeting, November, 2007, with Donald R. Cahela, Ravi Duggirala, Chris J. Roy, Hongyun Yang, Ranjeeth Kalluri, and Bruce J. Tatarchuk.
219. Breakthrough characteristics of reformates desulfurization using ZnO sorbents for PEM fuel cell application, H. Yang, B.J. Tatarchuk, 234th ACS National Meeting, Boston, MA, United States, August 19-23, 2007.
220. A Study of Kinetic Effects Due to Using Microfibrous Entrapped ZnO Sorbents for H2S Removal, H. Yang, D.R. Cahela, and B. J. Tatarchuk, AIChE 2007 Annual Meeting, Salt Lake City, Utah, United States, November 7, 2007.
221. Novel Doped Zinc Oxide Sorbents For Regenerable Desulfurization Applications at Low Temperatures, H. Yang and B.J. Tatarchuk, AIChE 2007 Annual Meeting, Salt Lake City, Utah, United States, November 8, 2007.
222. P. Chitta and B. Tatarchuk, ñOxygen Enrichment of Air for Diesel Engines: A

Process Evaluation Study,ò 20th AFS Annual Conference, Orlando, FL March 2007.

223. S. Punde and B.J. Tatarchuk, ñLow Temperature CO Oxidation Catalysts,ò American Institute of Chemical Engineers Annual Meeting, Salt Lake City, Utah, November 4-9, 2007.
224. S. Punde and B.J. Tatarchuk, ñMicrofibrous Entrapped High Activity CO Oxidation Catalysts,ò American Institute of Chemical Engineers Annual Meeting, Salt Lake City, Utah, November 4-9, 2007.
225. R. K. Duggirala, C. J. Roy, R. K. Kalluri, H. Yang, D. R. Cahela, and B. J. Tatarchuk, ñComputational Fluid Dynamics Simulations of Gas Flow through Microfibrous Materials: Analysis of Dilution of Packed Beds,ò American Institute of Chemical Engineers Annual Meeting, Salt Lake City, Utah, November 4-9, 2007.
226. R. K. Duggirala, C. J. Roy, R. K. Kalluri, H. Yang, D. R. Cahela, and B. J. Tatarchuk, ñEffect of Intra-Bed Flow Maldistribution on Chemical Conversion in Microfibrous Materials using Computational Fluid Dynamics,ò American Institute of Chemical Engineers Annual Meeting, Salt Lake City, Utah, November 4-9, 2007.
227. R. N. Ladd, R. K. Duggirala, and C. J. Roy, ñEffect of Fiber Orientation on Pressure Drop in Microfibrous Materials using Computational Fluid Dynamics,ò (poster), 4th Annual Auburn University Undergrad Research Symposium, 2007.
228. R. K. Duggirala, C. J. Roy, R. K. Kalluri, D. R. Cahela, and B. J. Tatarchuk, ñSimulation of Surface Chemical Reactions in Microfibrous Gas Flows using Computational Fluid Dynamics,ò 7th Asian CFD Conference, Bangalore, India, November 26-30, 2007.
229. R. K. Duggirala, ñComparison of Pressure Drop in Immobilized Beds and Microfibers using Computational Fluid Dynamics,ò 17th Annual Graduate Student Council Research Forum, 2007.
230. ñModeling the Gas Distribution and Kinetic Effects of Dilute Anode Reactant Feeds in a 47 Cell PEM Stack,ò Robert U. Payne, Wenhua H. Zhu, Donald R. Cahela, and Bruce J. Tatarchuk, 2007 AIChE Annual Meeting, November, 2007.
231. ñDetermining Kinetic and Mass Transfer Limiting Behavior of a Solid Oxide Fuel Cell via AC Impedance,ò Robert U. Payne, Ying Zhu, Wenhua H. Zhu, and Bruce J. Tatarchuk, 2007 AIChE Annual Meeting, November, 2007.
232. ñDesign Characteristics of Pleated Filters and Their Corresponding Effect on Pressure Resistanceò presented at the AICHE National Conference on November 6th, 2007, with R. Sothen and B.J. Tatarchuk.
233. ñA Predictive Pressure Drop Model for a Multi-Filter Array Filtration Systemò presented at the AICHE National Conference on November 6th, 2007, with R. Sothen and B.J. Tatarchuk.
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235. Nair, Sachin; Yang Hongyun; Tatarchuk, Bruce. Selectivity and Reactivity of Ag-Based Adsorbents for Logistic Fuel Desulfurization, American Institute of Chemical Engineers Annual Meeting, Salt Lake City (2007)
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238. W.H. Zhu, R.U. Payne, R.M. Nelms, and B. J. Tatarchuk, "In Situ Electrical Characterization of PEM Fuel Cells at Load,ò presented to The National Meeting of the American Institute of Chemical Engineers, Salt Lake City, Utah, November 4-9, 2007.
239. Robert U. Payne, Wenhua H. Zhu, Donald R. Cahela, Bruce J. Tatarchuk, "Modeling The Gas Distribution And Kinetic Effects of Dilute Anode Reactant Feeds in a 47-Cell PEM Stack,ò presented to The National Meeting of the American Institute of Chemical Engineers, Salt Lake City, Utah, November 4-9, 2007.
240. Wenhua H. Zhu, Amar Tiwari, Hongyun Yang, Robert U. Payne, and Bruce J. Tatarchuk, ñRemoval of Tap Water Contaminants for Drinking Consideration,ò 2007 Water Resources Conference, National Resources Management & Development Institute, Auburn, AL, June 14-15, 2007.
241. ñDevelopment of Cathode Air Filters for PEM Fuel Cell Using Microfibrous Entrapped Sorbents,ò Abhijeet Phalle, Vivekanand Gaur and Bruce J. Tatarchuk. Abstract submitted to AIChE Annual Meeting, November 16-21, 2008, Philadelphia, PA.
242. Vapor Grown Carbon Fiber - Microfibrous Matrix Compositesò Amogh N. Karwa, Dr. Virginia Davis, Dr. Bruce J. Tatarchuk. 2008 Annual Meeting for American Institute of Chemical Engineers (AICHE), Philadelphia, PA November 2008
243. Abhijeet Phalle, Dr.Vivekanad Gaur and Dr. Bruce Tatarchuk, Development of Cathode Air Filters for PEM Fuel Cell Using Microfibrous Entrapped Sorbents, AIChE Annual Conference, Nov. 19th, 2008, Philadelphia,PA.
244. ñPreparation and Characterization of Nanodispersed Ag-Based Sorbent for Removal of Sulfur from Logistic Fuelsò. Alexander Samokhvalov, Sachin Nair and Bruce Tatarchuk. Poster for 2008 AIChE Annual Meeting: Philadelphia, PA, November 16-21, 2008;
245. Interactions of Aryl- and Alkyl-Substituted Thiophenes with Surface of Metallic Silver. Alexander Samokhvalov, Sachin Nair, Zenda Davis and Bruce Tatarchuk. Poster for 2008 AIChE Annual Meeting: Philadelphia, PA, November 16-21, 2008.
246. ñMinimization of CO Poisoning in PEMFC Using In Situ PROX Catalysts," Naren Pari, Bruce Tatarchuk and Jeff Fergus, Poster to be presented at the 213th ECS Conference May 20, 2008.
247. ñMinimization of CO Poisoning in PEMFC Using In Situ PROX Catalysts" Naren Pari, Bruce Tatarchuk and Jeff Fergus, Proceedings of 43rd Power Sources Conference July 8, 2008
248. ñPromoted ZnO Sorbents for Wide Temperature H2S Removalò ACS/AIChE Spring National Meeting, April 6-10, New Orleans, LA, with Priyanka Dhage, V. Gaur, and B.J. Tatarchuk.
249. ñMechanistic Discrimination of Circuit Elements in Fuel Cell Equivalent Circuit Model,ò Robert U. Payne, Wenhua H. Zhu, and Bruce J. Tatarchuk, 43rd Power

Sources Conference, July 7-10, 2008.

250. ñOverview of MicroFibrous Media for Airborne Contaminant Removal,ò 2008 Self Contained Self Rescuer Workshop, The National Technology Transfer Center at Wheeling Jesuit University, Wheeling, WV, April 4, 2008, Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, with R. Putt and B.J. Tatarchuk.
251. ñDesign Characteristics of Pleated Filters and Their Corresponding Effect on Flow Resistance,ò presented at the Auburn GSC Forum on March 12th, 2008.
252. ñA Predictive Pressure Drop Model for Designing and Optimizing Cathode Air Filters,òsubmitted to 43rd Power Sources Conference, July, 2008, with R. Sothen and B.J. Tatarchuk.
253. ñA Predictive Pressure Drop Model for Multi-Element Cathode Air Filtersò submitted to AICHE National Conference, November, 2008, with R. Sothen and B.J. Tatarchuk.
254. W.H. Zhu and B. J. Tatarchuk, in: Proceedings of the 16th DICP Symposium on Fuel Cells, in print, Dalian, China, May 25-28, 2008.
255. R.U. Payne, W.H. Zhu, and B. J. Tatarchuk, in: Proceedings of the 43rd Power Sources Conference, paper #15.1, in print, Philadelphia, Pennsylvania, July 7-10, 2008.
256. W.H. Zhu, R.U. Payne, Ying Zhu, and B. J. Tatarchuk, " Electrical Characterization of Lead-Acid Battery at Load for HEV Applications,ò abstract submitted to AIChE Annual Meeting, Philadelphia, PA, November 16-21, 2008.
257. R.U. Payne, Ying Zhu, W.H. Zhu, and B. J. Tatarchuk, "Determining Kinetics and Mass Transfer Limiting Behavior of a Solid Oxide Fuel Cell via AC Impedance,ò abstract submitted to AIChE Annual Meeting, Philadelphia, PA, November 16-21, 2008.
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259. W.H. Zhu and B. J. Tatarchuk, ñAn Application of AC Impedance Technique in PEM Stacks,ò to be presented to the 16th DICP Symposium on Fuel Cells, Dalian, China, May 25-28, 2008.
260. S. Nair, A. Samokhvalov, E. Duin, Z. Davis, J. Heinzel, B. Tatarchuk, ñSelective Desulfurization of Hydrocarbon Fuels by Ag/TiO2: Preparation, Performance and Characterization,ò 21st NAM Meeting 2009, San Francisco, CA, USA. June 7-12, 2009. Paper OC19.
261. P. Dhage, A. Samokhvalov, D. Repala, E. Duin, B. Tatarchuk, ñPromoted ZnO/Silica for Wide-Temperature Range H2S Removal, while Inhibiting COS Formation,ò 21st NAM Meeting 2009, San Francisco, CA, USA. June 7-12, 2009. Paper P-W-93.
262. S. Punde and B.J Tatarchuk, ñNovel Heterogeneous Contacting System ï Microfibrous Entrapped Catalysts for Low Temperature Carbon Monoxide Oxidation,ò 21st NAM Meeting 2009, San Francisco, CA, USA. June 7-12, 2009.
263. S. Punde and B.J. Tatarchuk, ñLow-temperature Carbon Monoxide Oxidation Using Microfibrous Entrapped Pt-Ceria/Silica Catalyst,ò 21st NAM Meeting 2009, San Francisco, CA, USA. June 7-12, 2009.
264. A. Samokhvalov, S. Nair, E. Duin, Z. Davis, B. Tatarchuk, ñSurface Science and Operando Multiple-Technique Spectroscopic Studies of Chemical Composition and

Surface Chemical Reactions of the Silver-doped Titania Sorbent for Selective Desulfurization of Logistic Fuels,ò ACS Fall National Meeting 2009, Washington, DC, USA. August 16-20, 2009. Paper 148.

265. P. Dhage, A. Samokhvalov, H. Yang, E. Duin, B. Tatarchuk, ñPromoted Supported ZnO Sorbents for Low Temperature H2S/COS Removal in PEMFCs,ò ACS Fall National Meeting 2009, Washington, DC, USA. August 16-20, 2009. Paper 144.
266. S. Punde and B.J. Tatarchuk, ñMicrofibrous Entrapped Catalysts for Low Temperature CO Oxidation,ò MRS Fall Meeting, Boston, MA, December 2009.
267. S.Punde and B.J Tatarchuk, ñMicrofibrous Entrapped Catalysts for Low Temperature Carbon Monoxide (CO) Oxidation,ò AIChE Annual Meeting, Nashville, November 2009.
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270. M. Sheng, D.R. Cahela, H. Yang, T. Dokun and B. J. Tatarchuk, ñEnhanced Thermal Conductivity Catalyst Structure for FTS,ò AIChE National Meeting, Nashville, TN, November 2009.
271. R.A. Sothen, Y. Chen and B.J. Tatarchuk, ñUtilization of Microfibrous-Supported Sorbent Materials and Novel Packaging Designs for Improved Indoor Air Quality at Reduced Energy Consumption,ò AIChE National Meeting, Nashville, TN, November, 2009.
272. ñSynthesis of Vapor Grown Carbon Fibers (VGCF) On Sintered Metal Fibers (SMF) for Air-Filtrationò Amogh N. Karwa, Virginia A. Davis and Bruce J. Tatarchuk. 2009 Annual Meeting for American Institute of Chemical Engineers (AICHE), Nashville, TN November 2009.
273. W.H. Zhu, Ying Zhu, and B. J. Tatarchuk, "Massive Deep-Cycle Pb-Acid Batteries for Energy Storage Applications,ò Sustainable Electricity: Generation and Storage,ò AIChE Annual Meeting, #676d, Nashville, TN, November 8-13, 2009.
274. Ying Zhu, W.H. Zhu, and B. J. Tatarchuk, "AC Impedance in Characterization of SOFC and Interpretation of a Low Frequency Inductive Loop,ò Fuels and Petrochemicals Division: Fuel Cell Technology, AIChE Annual Meeting, #89e, Nashville, TN, November 8-13, 2009.
275. D. Repala, A. Samokhvalov, B Tatarchuk, ñPreparation, Characterization and Surface Chemical Properties of Model Cu-ZnO/Silica Sorbents Upon H2S Adsorption,ò AIChE Annual Meeting, Nashville, TN, USA, November 8-13, 2009, Paper 91b.
276. Z. Davis, S. Nair, A. Poda, A. Samokhvalov, B, Tatarchuk, ñDesorption of Aromatic Sulfur Heterocycles from Silver Based Sorbents,ò AIChE Annual Meeting, Nashville, TN, USA, November 8-13, 2009, Paper 338r.
277. A. Samokhvalov, E. Duin, S.Nair, B.J. Tatarchuk, ñSurface Science and Temperature-Dependent ESR Spectroscopic Studies of Surface Chemical Reactions of Silver-doped Titania with Thiophenes,ò AIChE Annual Meeting, Nashville, TN, USA, November 8-13, 2009, Paper 561e.
278. ñNovel Sorbents for Wide Temperature H2S/COS Removal in Fuel Cell Applications,ò P.Dhage, H.Yang and B.J. Tatarchuk, AIChE 2009, Nashville, TN.
279. "Cathode Air Filtration for PEM Fuel Cell Using Microfibrous Entrapped Sorbents,ò

A. Phalle, and B.J. Tatarchuk, Session- Fuel Cell Technology III ; 2009 AIChE Annual Meeting, Nashville, TN.

280. A. Samokhvalov, E. C. Duin, and B. J. Tatarchuk, ñStudies of the molecular mechanisms of adsorption and surface chemical reactions of aromatic vs. thio-aromatic compounds by the combination of the surface and bulk-sensitive operando UV-Vis diffuse reflectance spectroscopy and Operando ESR,ò Proceedings of the 32nd Annual Symposium on Applied Surface Analysis, March 7-10, 2010, University of Central Florida, Orlando, FL.
281. Zhu, Y., Zhu, W.H., Tatarchuk, B.J. ñAC Impedance Study of Mass Transfer Processes and Hydrogen Oxygen Reaction in Solid Oxide Fuel Cells.ò Proceedings of the 44th Power Sources Conference. June 14-17, 2010. 401-404. Las Vegas, NV.
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283. ñBimetallic-Doped ZnO Sorbents for Simultaneous H2S Removal and COS Hydrolysis From Reformate Streams.ò P. Dhage, A. Samokhvalov, D. Repala, B.J. Tatarchuk, and E. Duin. AIChE 2010, Salt Lake City, UT.
284. ñTemperature Excursions of Fischer-Tropsch Synthesis Occurring in a Fixed Bed Investigated Using a 2-D (r,z) Reactor Model.ò D.R. Cahela, M. Sheng, T. Dokun and B.J. Tatarchuk. AIChE 2010, Salt Lake City, UT.
285. ñSelf-Discharge Evaluation of Ni-MH Battery Using Metal Hydride Alloy for Energy Storage Applications.ò W. Zhu, Y. Zhu and B.J. Tatarchuk. AIChE 2010, Salt Lake City, UT.
286. ñSelective Adsorption of Refractory Organosulfur Compounds From Low Sulfur Commercial Fuels by Novel Regenerable Sorbents at Room Temperature.ò A.H.M.S. Hussain, S. Nair and B.J. Tatarchuk. AIChE 2010, Salt Lake City, UT.
287. ñDevelopment of Cathode Air Filters for PEM Fuel Cell Using Microfibrous Entrapped Sorbents.ò A. Phalle and B.J. Tatarchuk. AIChE 2010, Salt Lake City, UT.
288. ñSilicon Micro-Reactors to Power Portable Electronics.ò S. Gururaj, N. Ansari, W. R. Ashurst and B.J. Tatarchuk. AIChE 2010, Salt Lake City, UT.
289. ñMicrofibrous Entrapped Catalyst Structure for Alternative Fuel Production.ò H.Y. Yang, N.E. Sammons Jr., T.J. Barron and B.J. Tatarchuk. AIChE 2010, Salt Lake City, UT.
290. ñInvestigation Into the Sensitivity of Low Temperature CO Oxidation On a Pt Based Catalyst.ò R. Henderson, S.S. Punde and B.J. Tatarchuk. AIChE 2010, Salt Lake City, UT.
291. ñMechanism of Sulfur Removal in Adsorptive Desulfurization of Hydrocarbon Fuels Using Ag-Titania Sorbents.ò S. Nair and B.J. Tatarchuk. AIChE 2010, Salt Lake City, UT.
292. ñPerformance and Costs of Multi-Element Structured Arrays in Air Filtration.ò Y. Chen, G. Xu and B.J. Tatarchuk. AIChE 2010, Salt Lake City, UT.
293. ñApplications for Microfibrous Entrapped Catalysts: VOC Oxidation at Microsecond Residence Times.ò S. Wahid and B.J. Tatarchuk. AIChE 2010, Salt Lake City, UT.
294. ñEnhanced Heat Transfer Catalyst Structure for Fisher Tropsch Synthesis.ò M. Sheng, D.R. Cahela and B.J. Tatarchuk. AIChE 2010, Salt Lake City, UT.
295. ñRegeneration Studies of Ag/TiO2 Sorbent with Thiophene Derivatives for Sulfur

Removal.ò Z. Davis, S. Nair and B.J. Tatarchuk. AIChE 2010, Salt Lake City, UT.

296. ñCharacterization of a Prismatic SOFC Stack by AC Impedance Spectroscopy.ò Y. Zhu, W. Zhu and B.J. Tatarchuk. AIChE 2010, Salt Lake City, UT.
297. ñCharacterization and Surface Chemical Reactions of Doped ZnO/Silica Sorbents Upon H2S Adsorption.ò D. Repala, A. Samokhvalov and B.J. Tatarchuk. AIChE 2010, Salt Lake City, UT.
298. ñSynthesis of Vapor Grown Carbon Fibers (VGFs) On Pretreated Metal Foil Using Thermal CVD.ò A. Karwa and B.J. Tatarchuk. AIChE 2010, Salt Lake City, UT.
299. ñHigh Volumetric Reactivity Structure and Testing.ò Q. Gu and B.J. Tatarchuk. AIChE 2010, Salt Lake City, UT.
300. ñParticulate Air-Filtration Characteristics of Microfibrous Materials.ò A. Karwa and B.J. Tatarchuk. AIChE 2010, Salt Lake City, UT.
301. P. Dhage, A. Samokhvalov, E. C. Duin, H.Yang, and B. J. Tatarchuk, ñNovel Sorbents for Removal of H2S/COS for Applications in Fuel Cells over Wide Temperature Range,ò 10th International Conference on Fundamentals of Adsorption, May 23-28, 2010, Hyogo, Japan.
302. Davis, Z. and Tatarchuk, B.J. ñDesorption and Surface Chemical Reactions of Aromatic Sulfur Heterocycles from silver based sorbents.ò NObCChe 38th Annual Meeting, March 28-April 1, 2010. Atlanta, GA.
303. A. Samokhvalov, E. C. Duin, A. Hussain, S. Nair, and B. J. Tatarchuk, ñMolecular Mechanisms of Adsorption, Desorption and Surface Chemical Reactions of Thiophenes with Deep and Ultradeep Desulfurization Sorbents Based on Doped Metal Oxides, by Multiple Surface and Bulk-Sensitive Temperature-Dependent Spectroscopiesò, 10th International Conference on Fundamentals of Adsorption, May 23-28, 2010, Hyogo, Japan.
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305. Dhage, P. and Tatarchuk, B.J. "Bimetallic Doped Supported Sorbents for Simultaneous H2S and COS Removal from Reformate Streams over Wide Temperature Range.ò NAM 2011, Detroit, MI.
306. Sheng, M., Yang, H.Y., Cahela, D.R. and Tatarchuk, B.J. "Enhanced Heat Transfer Catalyst Structure.ò NAM 2011, Detroit, MI.
307. Hussain, A.H.M., Nair, S. and Tatarchuk, B.J. ñAdsorptive Desulfurization of Transportation Fuel using Regenerable Adsorbents at Room Temperature: Relationship with Surface Acidity.ò NAM 2011, Detroit, MI.
308. Ying Zhu, Wenhua H. Zhu, and Bruce J. Tatarchuk, ñPerformance Analyses and Comparisons of Traditional and High Temperature PEM Stacksò, 45th Power Sources Conference (June 2012)
309. Gu. Q. and Tatarchuk, B.J. ñOzone Removal at Micro-second Contact Time using Microfibrous Entrapped Catalysts.ò NAM 2011, Detroit, MI.
310. Repala, D. and Tatarchuk, B.J. ñCharacterization and surface reactions of Cu doped Zinc Oxide sorbents,ò AIChE 2011, Minneapolis, MN.
311. Min Sheng, Donald Cahela, Bruce Tatarchuk, ñA Novel Structured Catalyst with Enhanced Heat Transfer Characteristics for FTS.ò AIChE Annual Meeting, Minneapolis, Oct 2011.

312. Davis Z., Tatarchuk B., ñSurface Characterization Studies of Silver-Titania Adsorbentsò, Paper 766f, AIChE Annual Meeting, Minneapolis, MN, Oct 2011
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318. Amogh N. Karwa and Bruce J. Tatarchuk. ñEnhancement in aerosol filtration performance using 3-dimensionally dispersed carbon nanofibers for depth filtrationò, American Filtration Society, Oct. 2011. Oral Presentation
319. Amogh N. Karwa and Bruce J. Tatarchuk, òSemi-empirical models for estimating aerosol filtration efficiency and pressure-drop performance of catalyst/sorbent particles entrapped in microfibrous matricesò, American Filtration Society, Oct. 2011. Oral Presentation
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334. Zhu, Y.; Zhu, W. H.; Tatarchuk, B. J. An In-Situ Dynamic Performance Study on a HT-PEM Stack and Its Comparison to a Traditional PEM Stack, in: Proceedings of the 45th Power Sources Conference, pp.139-142, Las Vegas, Nevada, June 11-14, 2012.
335. Wahid, S., Tatarchuk, B. J., New Structure of Matter for High Performance Heterogeneous Catalytic VOC Oxidation at Ultra-Short Contact Times, Am. Chem. Soc., Division of Energy & Fuels, 57(2), 109-110, 2012.
336. Wahid, S., Tatarchuk, B. J., Microfibrous Entrapped Catalysts for Cleaning Aircraft Cabin Air: VOC Removal at Ultra-Short Short Contact Times, Am. Ins. Aero. Astro., 42nd Intl. Conf. Env. Sys., 2012.
337. Zhao, P.; Chen, Y,; Tatarchuk, B.J. Design and optimization of sea salt aerosols filtration for Naval Fuel Cells, AICHE Annual Meeting, 2012
338. Gu, Q; Tatarchuk, B.J. A CFD Pressure Drop Model for Microfibrous Entrapped Catalyst Filters using Scanning Electron Microscopy Imaging. American Filtration and Separation Society Fall Conference 2012.
339. Gu, Q; Tatarchuk, B.J. Ozone Removal At Micro-Second Contact Time for Aircraft Cabin Air Using Microfibrous Entrapped Catalysts. 42nd International Conference on Environmental Systems 2012.

340. Xu, G.; Tatarchuk, B.J., Application of Multi-Element Structured Array On Activated Carbon Filter In HVAC Systems, AIChE Annual Meeting, 2012.
341. Wahid, S., Tatarchuk, B. J., Microfibrous Entrapped Catalyst for Cleaning Air: VOC Oxidation at Ultra-Short Contact Time, AIChE Annual Meeting, 2012
342. Wahid, S., Tatarchuk, B. J., Pressure Drop Modeling for Heterogeneous Contacting Schemes: Pleated Microfibrous Entrapped Catalyst At High Face Velocity, AIChE Annual Meeting, 2012
343. Wahid, S., Tatarchuk, B. J., New Structure of Matter for High Performance Heterogeneous Catalytic VOC Oxidation at Ultra-Short Contact Times, 244th ACS National Meeting, 2012
344. Wahid, S., Tatarchuk, B. J., Microfibrous Entrapped Catalysts for Cleaning Aircraft Cabin Air: VOC Removal at Ultra-Short Short Contact Times, 42nd Intl. Conf. Env. Sys., 2012
345. Hussain, A. H. M. S.; Yang, H.; Tatarchuk, B. J. Desulfurization of Commercial Fuels Using Mixed Oxide Supported Silver Adsorbents At Room Temperature for Fuel Cell Applications. AIChE Annual Meeting, 2012.
346. Hussain, A. H. M. S.; Tatarchuk, B. J. Adsorptive Desulfurization of Hydrocarbon Fuels by Ag/TiOx-Al2O3 Adsorbents: Mechanism of Sulfur Adsorption at Ambient Conditions. AIChE Annual Meeting, 2012.
347. Hussain, A. H. M. S.; Tatarchuk, B. J. Desulfurization of JP5 and JP8 using Mixed Oxide supported Silver Adsorbents at Room Temperature for Fuel Cell Applications. 244th ACS National Meeting, 2012.
348. Zhu, Y.; Zhu, W. H.; Tatarchuk, B. J., ñDynamic Analysis and Diagnostics of a High Temperature PEM Fuel Cell Stackò, presented to PRiME 2012 (222nd ECS Meeting & the Electrochemical Society of Japan 2012 Fall Meeting): B9 ï Polymer Electrolyte Fuel Cells 12 (PEFC 12), #1500, Honolulu, HI, October , 2012.
349. Zhu, Y.; Zhu, W. H.; Tatarchuk, B. J., ñAn In-situ Dynamic Performance Study on an HT-PEM Stack and its Comparison to a Traditional PEM Stackò, presented to the 45th Power Sources Conference: Fuel Cells, Fuel Processing and Storage I, #8.4, Las Vegas, Nevada, June 11th, 2012.
350. Zhu Y.; Zhu, W. H.; Tatarchuk, B. J., ñIn-situ Performance Analysis of a High Temperature Proton Exchange Membrane Fuel Cell Stack at Loadsò, presented to 221st ECS Meeting: I8 ï Electrochemical Impedance Spectroscopy: Modeling and Interpretation, #1595, Seattle, WA, May 9th, 2012.
351. Zhu Y.; Zhu, W. H.; Tatarchuk, B. J., ñIn-situ Electrochemical Characterization of a Solid Oxide Fuel Cell at Loadsò, presented to Graduate Student Council Research Week, Auburn University, Feb. 28th & April 2nd, 2012.
352. Sujan. A; Tatarchuk. B., UV-Vis Spectroscopy via optical Fiber technology to study the dynamics of adsorbents for desulfurization of gaseous reformates for application in low temperature PEM Fuel Cells, GSC Research Forum Oral Presentation, Auburn University, Auburn, AL (ORAL), February 2012.
353. Sujan. A; Tatarchuk. B., In-situ spectroscopic analysis of adsorbents for desulfurization of industrial reformate gases for application in low temperature PEM Fuel Cells, Annual AIChE Meeting, Pittsburgh, PA (ORAL), November 2012.
354. Phalle, A.G.; Tatarchuk B.J., Development of Cathode Air Filters for PEM Fuel Cells Using Microfibrous Entrapped Sorbents. Poster presented at AIChE Annual Meeting,

Pittsburgh, PA., Separations Division, Poster Session on Fundamentals and Applications of Adsorption and Ion Exchange, 2012.

355. Henderson, R.; Tatarchuk, B., Effect of Prepartion pH on Catalytic Activity during Carbon Monoside Oixdation Auburn Graduate Student Council Poster Session. Feb 2012.
356. Zhu, W. H.; Zhu, Y.; Tatarchuk, B. J., Energy Efficiency of Ni-MH Battery for Rapid Storage Application, PITTCON 2012 ï The Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Session 1690 ï Energy & Fuels: Advanced Materials and Characterization Methods, #1690-6, Orlando, FL, March 14, 2012.
357. Davis Z., Tatarchuk B.,ñExperimental Studies in the Characterization Occurring At the Catalytic Surfaces of Silver On Titania Adsorbentsò, Paper 88b, AIChE Annual Meeting, Pittsburgh, PA. 2012.
358. Davis Z., Tatarchuk B., ñInvestigation of the Heterogeneous Nature of Ag-TiO2 Adsorbents; Comparing and Contrasting Crystallite Size using Oxygen Chemisorption and XPS Techniquesò, Advancing Science Award, NOBCChE 39th Annual Meeting, Washington, D.C. 2012.
359. Chen, Y. and Tatarchuk, B.J., Improved Filtration Performance of a Novel Filter Housing Design, 2012 AFS Annual Conference, Jun 4-7, Boca Raton, FL., 2012.
360. Gonzalez, C. F.; Cahela, D. R.; Yantz Jr., W. R.; Tatarchuk, B. J. Enhanced reactor wall heat transfer through novel micro metal fiber catalyst support structures. ICOSCAR-4. 2013 (Poster Accepted Dec. 18th, 2012).
361. Zhu, Y.; Zhu, W. H.; Tatarchuk, B. J. presented to the 45th Power Sources Conference, Section 8: Fuel Cells, Fuel Processing, and Storage I, # 8.4, Las Vegas, Nevada, June 11-14, 2012.
362. Zhu, W. H.; Zhu, Y.; Tatarchuk, B. J. presented to the 45th Power Sources Conference, Section 1: Battery Safety/Quality/Testing I, #1.5, Las Vegas, Nevada, June 11-14, 2012.
363. Cheng, P. ; Tatarchuk, B. J. Multicomponent ppb Competitive Adsorption in the Presence of Varying Relative Humidity, AIChE Annual Meeting, 2013.
364. Davis Z., Tatarchuk B. ñCharacterization of Ag/TiO2 Adsorbents; Comparing and Contrasting Crystallite Size Using Oxygen Chemisorption and XPS Techniques ò, Paper 662g, AIChE Annual Meeting, 2013.
365. Qiang Gu, Bruce Tatarchuk, ñA CFD Pressure Drop Model for Microfibrous Entrapped Catalyst Filters Using Micro Scale Imaging,ò presented at the 2013 AIChE Fall National Meeting, San Francisco, CA (Nov. 3-8, 2013).
366. Qiang Gu, Bruce Tatarchuk, ñOzone Removal Using New Structure of Matter for High Performance Heterogeneous Catalysis At Short Contact Time,ò presented at the 2013 AIChE Fall National Meeting, San Francisco, CA (Nov. 3-8, 2013).
367. Qiang Gu, Bruce Tatarchuk, ñHigh performance heterogeneous catalysis at ultrashort contact time for fuel cell cathode air using microfibrous entrapped catalysts,ò presented at the 246th ACS National Meeting, Indianapolis, IN (Sep. 8-12, 2013).
368. Zhu, W. H.; Zhu, Y.; Tatarchuk, B. J., Impedance and self-discharge mechanism studies of nickel metal hydride batteries for energy storage applications. APS April Meeting 2013, Session Q15. Energy Research and Applications, American Physical Society, APR13-2013-000439, Denver, CO, April 15, 2013.

369. Xu, G., Tatarchuk, B.J., Assessing the Performance of Microfibrous Entrapped Sorbent Enhanced Gas Phase Filter in a Full Scale Test Rig. AIChE Annual Meeting, 2013
370. Sujan, A.;Tatarchuk, B.J. COS Removal from Fuel Reformates at Ambient Conditions during H2 Production for PEM Fuel Cells, AIChE Annual Meeting, 2013
371. Zhao P, Tatarchuk B.J, Filtration of Sea Salt Particles (SSP) Using Composite Media At Different Relative Humidities (RH), AICHE Annual Meeting November 2013.
372. Zhao, P; Tatarchuk, B.J. Sea Salt Particles (SSP) Filtration Using Nonwoven Composite Media at Varying Relative Humidities (RHs), American Filtration and Separation Society Fall Conference 2013.
373. Sun, X.; Tatarchuk, B.J. Adsorption Desulfurization (ADS) of Liquid Fuels by Ag/TiO2 and Ag/TiOxï Al2O3 Assisted by Ultraviolet Pre-Treatment, AIChE Annual Meeting, 2013.
374. Hussain, A. H. M. S.; Tatarchuk, B. J., Role of Titanium Oxide in the Adsorptive Desulfurization of Hydrocarbon Fuels at Ambient Conditions. Material Research Society (MRS) Spring Meeting, 2013.
375. Hussain, A. H. M. S.; Tatarchuk, B. J., Adsorptive Desulfurization of Hydrocarbon Fuels using Mixed Oxide supported Silver Adsorbents: Effect of Surface Acidity at Ambient Conditions, 11th International Conference on the Fundamentals of Adsorption (FOA), International Adsorption Society, 2013.
376. Hussain, A. H. M. S.; Tatarchuk, B. J., Desulfurization of Refined Fuels by Mixed Oxide Supported Silver Adsorbents: Sulfur Adsorption Pathways. 23rd North American Catalysis Society Meeting (NAM), 2013.
377. Sujan. A; Tatarchuk. B., Process Dynamics & Characterization of Sulfur Adsorbents via Fiber Optic UV/Vis Spectroscopy, GSC Research Forum Poster Presentation, Auburn University, Auburn, AL (POSTER), February 2013.
378. Sujan. A; Tatarchuk. B., An embedded sensor approach for monitoring the desulfurization process of industrial reformates on doped supported zinc oxide adsorbents using fiber optic based diffuse reflectance spectroscopy, Pittcon, Philadelphia, PA (ORAL), March 2013.
379. Sujan. A; Tatarchuk. B., An embedded sensor approach via fiber optics and diffuse reflectance spectroscopy of doped supported zinc oxide adsorbents for H2S removal from reformate streams at room temperature, 11th International Conference on The Fundamentals of Adsorption, Baltimore, MD (POSTER), May 19-24 2013.
380. Phalle, A. G.; Tatarchuk, B.J., Development of Cathode Air Filters for PEM Fuel Cells Using Microfibrous Entrapped Sorbents. Accepted for paper presentation at 11th International Conference of the Fundamentals of Adsorption (FOA), Baltimore, MD., Session: Adsorption in Energy Technology, 2013.
381. Zhu, W.H.; Zhu, Y.; Tatarchuk, B.J., Impedance and Self-Discharge Mechanism Studies of Nickel Metal Hydride Batteries for Energy Storage Applications, APS April Meeting 2013, American Physical Society, APR13-2013-000439, Session Q15. Energy Research and Applications, 2013.
382. Yantz Jr., W. R.; Cahela, D. R.; Gonzalez, C. F.; Tatarchuk, B. J. Catalyst entrapment within a highly conductive catalyst support structure. ICOSCAR-4. 2013 (Poster Accepted Dec. 18th, 2012).

383. Yantz Jr., W.; Gonzalez, C.; Sheng, M.; Yang, H.; Dimick, P.; Cahela, D.; Tatarchuk, B. J. Catalyst Support Structure with High Thermal Management Capabilities for Use in Large Diameter Gas-to-Liquid Reactors. Oral Presentation, *23rd NAM.* **June 2-7th, 2013.**
384. Gonzalez, C.; Yantz Jr., W.; Yang, H.; Cahela, D.; Tatarchuk, B. J. Enhanced reactor wall heat transfer through metal microfibrous catalyst support structures. Poster Presentation, *23rd NAM.* **June 2-7th, 2013**
385. Wahid, S., Tatarchuk, B. J., Novel Catalytic Material with Enhanced Heterogeneous Contacting Efficiency for VOC Removal, 23rd North Am. Catal. Soc. Meeting, 2013.
386. Wahid, S., Tatarchuk, B. J., Novel catalytic material with enhanced contacting efficiency for VOC decomposition at ultra-short contact time, 3rd North Am. Sym. on Chem. Reac. Eng., 2013.
387. Wahid, S., Cahela, D. R., Tatarchuk, B. J., An experimental, computational, and theoretical comparison of pressure drops occurring in pleated catalyst structure, 4th Intl. Conf. on Struct. Catal. Reac., 2013.
388. Cheng, P.; Tatarchuk, B. J. PPB-level Contaminant Adsorption for SOFC Cathode Protection. 46th Power Source Conference, June 2014, Orlando, FL (with published proceedings).
389. Zhao, P; Tatarchuk, B.J. Sea Salt Particles Filtration for SOFC Using Pleated Filters via Various Nonwoven Filter Media in Newly Designed Packaging Configurations, Proceeding of the 46th Power Sources Conference, June 2014 Orlando, FL (with published proceedings).
390. Zhu, W. H.; Tatarchuk, B. J. Electrochemical Double-Layer Capacitors for Applications in Efficient Energy Storage and High Power Demand. Accepted by the 46th Power Sources Conference, Section 27: Capacitors I, Orlando, FL, June 9-12, 2014. (with published proceedings).
391. Zhu, W. H.; Tatarchuk, B. J. Battery Deterioration Mechanism Analysis for Nickel-Metal Hydride Batteries. Accepted by the 46th Power Sources Conference, Section 34: Aqueous Batteries (Primary & Secondary), Orlando, FL, June 9-12, 2014. (with published proceedings).
392. Gu, Q., Tatarchuk, B.J., "Ozone Removal using New Structure of Matter for High Performance Heterogeneous Catalysis at Short Contact Time", 46th Power Sources Conference, June 2014, Orlando, FL (with published proceedings).
393. UV-Assisted Adsorptive Desulfurization (ADS) of Liquid Fuels Using TiO2 Based Adsorbents, Xueni Sun and Bruce J. Tatarchuk, AIChE Annual Meeting, Poster Session 417, Nov 2014, Atlanta, GA.
394. Factors Affecting H2S Desulfurization Performance of ZnO Based Adsorbents for Wide Temperature Applications (20-400°C) Effect of COS Formation and Moisture Adsorption on H2S Removal Efficiency, Achintya Sujan and Bruce Tatarchuk, AIChE Annual Meeting, Poster Session 417, Nov 2014, Atlanta, GA.
395. Comparison of Filtration Performance for Sea Salt Particles between Nonwoven and Woven Activated Carbon Fiber Media, Pengfei Zhao and Bruce J. Tatarchuk, AIChE Annual Meeting, Poster Session 414, Nov 2014, Atlanta, GA.
396. Deep SO2 Adsorption at Parts per Billion Level by Alumina-Based Mn/Ce Mixed Oxides for SOFC Cathode Protection, Peng Cheng and Bruce Tatarchuk, AIChE Annual Meeting, Paper 106b, Nov 2014, Atlanta, GA.

397. Cathode Filtration System Design and Optimization for PEM Fuel Cells, Guomin Xu and Bruce J. Tatarchuk, AIChE Annual Meeting, Paper 293b, Nov 2014, Atlanta, GA.
398. Ultracapacitor and Its Applications in Rapid Energy Storage and Conversion, Wenhua H. Zhu and Bruce J. Tatarchuk, AIChE Annual Meeting, Paper 625c, Nov 2014, Atlanta, GA.
399. A CFD Pressure Drop Model for Microfibrous Entrapped Catalyst Filters Using Micro Scale Imaging, Qiang Gu and Bruce Tatarchuk, AIChE Annual Meeting, Paper 20e, Nov 2014, Atlanta, GA.
400. Ultra-Deep Desulfurization of Hydrocarbon Fuels Using TiO2 and Ag-TiO2 Adsorbents Assisted By UV Irradiation, Xueni Sun and Bruce J. Tatarchuk, AIChE Annual Meeting, Paper 380i, Nov 2014, Atlanta, GA.
401. Promoting Efficient Adsorbent Bed Operation through Direct in-Situ Monitoring for Desulfurization of Distributed Energy Resources, Paul S. Dimick, Hongyun Yang, Travis Williams, Stephen Milton, Kylie Webb, Taylor Neumann and Bruce Tatarchuk, AIChE Annual Meeting, Paper 483f, Nov 2014, Atlanta, GA.
402. Low Temperature Catalytic Hydrolysis of Carbonyl Sulfide (COS) during Hydrogen Production for Fuel Cell Applications, Achintya Sujan and Bruce Tatarchuk, AIChE Annual Meeting, Paper 72d, Nov 2014, Atlanta, GA.
403. Ozone Removal Using New Structure of Matter for High Performance Heterogeneous Catalysis at Short Contact Time and High System Pressures, Qiang Gu and Bruce Tatarchuk, AIChE Annual Meeting, Paper 242g, Nov 2014, Atlanta, GA.
404. Oxidative Sulfur Removal for Distributed Energy Resources, Hongyun Yang, Paul Dimick, Steven Rath, Travis Williams, Taylor Neumann, Stephen Milton, Kylie Webb and Bruce Tatarchuk, AIChE Annual Meeting, Paper 539f, Nov 2014, Atlanta, GA.
405. Renewable H2/CO Fuels for FTS and SOFC Applications via Electrochemical Conversion Wenhua H. Zhu and Bruce J. Tatarchuk, AIChE Annual Meeting, Paper 215a, Nov 2014, Atlanta, GA.
406. The Effect of Various Fibrous Filter Media and Newly Designed Packaging Configurations on Sea Salt Particles Loading Performance, Pengfei Zhao and Bruce J. Tatarchuk, AIChE Annual Meeting, Paper 688c, Nov 2014, Atlanta, GA.

Invited Lectures and Presentations (Partial Listing)

(Presentations with refereed/published proceedings are so indicated)

1. ñChemical Characterization of Supported Catalysts,ò University of Rochester, Department of Chemical Engineering, December 1980.
2. ñPhysical Characterization of Fe/TiO_2 Catalysts,ò University of Buffalo, Department of Chemical Engineering, January 1981.
3. ñSupported Iron Catalysts,ò University of Massachusetts, Department of Chemical Engineering, February 1981.
4. ñSupport Effects in Heterogeneous Catalysis,ò Washington University, Department of Chemical Engineering, February 1981.
5. ñCharacterization of Supported Iron Catalysts,ò Rice University, Department of Chemical Engineering, April 1981.

6. ñElectron Spectroscopic Characterization of Iron Catalysts,ò National Bureau of Standards, Surface Science Division, April 1982.
7. ñPhysical and Chemical Characterization of Fe/TiO_2 Catalysts,ò University of Florida, Department of Chemical Engineering, December 1982.
8. ñApplications of Backscatter Mossbauer Spectroscopy,ò U.S. Army Workshop on Principles and Applications of Electrochemistry, Charleston, South Carolina, December 13-15, 1983.
9. ñHypergolic Fuel Spills: The Feasibility of Potential Neutralization Schemes,ò Invited Report to the National Aeronautics Safety Committee, NASA ï Headquarters, Washington, D.C., February 17, 1984.
10. ñPreliminary Studies of Adsorption and Reaction Over Ruthenium and Sulfided Ruthenium Catalysts,ò Surface Science Group, Exxon Corporate Research Laboratory, Clinton, New Jersey, May 1984.
11. ñCatalysis Over Supported Ruthenium: Effects of Adsorbed Sulfur,ò Georgia Institute of Technology, Department of Chemical Engineering, September 1984.
12. ñImproved Dispersion Techniques for Slurry Phase Catalysis,ò Direct Liquefaction Program, U.S. DOE, Albuquerque, New Mexico, October 1984.
13. ñSurface Studies at Auburn University,ò Propulsion Directorate, U.S. Army Redstone Arsenal, Huntsville, Alabama, February 1985.
14. ñX-ray Photoelectron Spectroscopy,ò Department of Physics, Auburn University, April 1985.
15. ñInvestigation of Coupled Surface and Bulk Reaction Phenomena Using Combined-Backscattered-Conversion Electron and Backscattered-Photon Mossbauer Spectroscopy,ò AFOSR Surface Chemistry Conference, Dayton, Ohio, November 1985.
16. ñComplementary Surface Science and Kinetic Studies of Sulfided Ruthenium Catalysts: Understanding Activity and Selectivity Enhancements Induced During Sulfidization,ò Louisiana State University, Department of Chemical Engineering, January 1986.
17. ñSurface Science Investigations of Sulfided Catalysts,ò Clemson University, Department of Chemical Engineering, February 1986.
18. ñDevelopment of High Surface Area Conductive Materials for Electrical Double Layer Capacitors,ò Auburn University Space Power Institute, First Annual Technical Symposium, Auburn, Alabama, December 1986.
19. ñReactivity at Surfaces,ò Auburn University, Department of Electrical Engineering ï Microelectronics Seminar, October 1986.
20. ñEnhancements in Selectivity During Hydrodesulfurization,ò University of Alabama, Department of Chemical Engineering, February 1987.
21. ñSurface Science Studies of Heterogeneous Catalyst Systems,ò University of Texas at Arlington, Department of Chemistry, February 1987.
22. ñSurface Science and Kinetic Studies of Sulfided Ruthenium Catalysts,ò University of South Carolina, Department of Chemical Engineering, Columbia, South Carolina, March 1987.
23. ñDevelopment of New High Surface Area Electrode Materials for High Energy Density Liquid Double Layer Capacitors,ò American Defense Preparedness Association in conjunction with the Strategic Defense Initiative/IST, Huntsville, Alabama, May 1987.

24. ñSurface Science and Kinetic Studies of Sulfided Ruthenium Catalysts,ò North Carolina State University, Department of Chemical Engineering, August 1987.
25. ñEffective Neutralization of Hydrazine Fuel Spills Using Supported Cupric Oxide Powders,ò Third Conference on the Environmental Chemistry of Hydrazine Fuels,ò Tyndall AFB, Panama City, Florida, September, 1987 (published proceedings).
26. ñHydrazine Reduction of First Row Transition Metal Oxides: Fundamental Surface and Kinetic Studies Using In Situ X-ray Photoelectron Spectroscopy and In Situ Microgravimetry,ò Third Conference on the Environmental Chemistry of Hydrazine Fuels,ò Tyndall AFB, Panama City, Florida, September 1987 (published proceedings).
27. ñSurface Chemistry at External and Internal Interfaces,ò AFOSR Surface Chemistry Meeting, U.S. Air Force Academy, Colorado Springs, Colorado, September 1987.
28. ñPerformance Characteristics of Large Surface Area Chemical Double Layer Capacitors,ò U.S. Army Workshop on Capacitors and Batteries for Pulse Power Applications, Asbury Park, New Jersey, November 1987.
29. ñCharacterization of Surface Chemical Effects Occurring at Internal Interfaces Using Novel Spectroscopic Probes,ò Rice University, Department of Chemical Engineering, December 1987.
30. ñResonant Low Energy Electrons and Their Impact on Nondestructive Depth-Profiling of Thin-Film Samples,ò 15th International Conference on Metallurgical Coatings, San Diego, California, April 1988.
31. ñKinetic and Surface Science Studies of Ruthenium Sulfide and Sulfided-Ruthenium Catalysts,ò Division of Chemical Sciences Seminar Speaker, Oak Ridge National Laboratory, September 1988.
32. ñThiophene HDS Over Sulfided Ruthenium Catalysts: Comparison of Activity and Selectivity with Surface Structure,ò Session I. ñMetal Catalyzed Reactions of Heteroatom-Containing Molecules: Structure and Dynamics,ò American Chemical Society, Los Angeles, California, September 1988.
33. ñSurface Science and Catalysis Studies at Auburn University,ò Dow Chemical Company, Central Research-Catalysis Laboratory, Midland, Michigan, December 1988.
34. ñDiagnostic Assessments of Silicon-Based Atomic Oxygen Protective Coatings,ò Industry-Government Atomic Oxygen Working Group, NASA-MSFC, January 1989.
35. ñSurface Science Research at Auburn University,ò Department of Chemical Engineering, University of Florida, Gainesville, Florida, February 1989.
36. ñSurface Science and Catalytic Studies of Sulfided Ruthenium Catalysts: Understanding Observed Selectivity Trends,ò Department of Chemistry, Lehigh University, Bethlehem, Pennsylvania, March 1989.
37. ñCatalytic Studies of Sulfided Ruthenium,ò Exxon Research and Development Laboratories, Baton Rouge, Louisiana, March 1989.
38. ñDesign, Fabrication and Optimization of High Energy Density and High Power Density Composite Electrode Structures,ò Department of Chemical Engineering, SUNY-Buffalo, September 1989.
39. ñXPS/CEMS Characterization of MoS_2 Films,ò at the Air Force Tribology Technical Review, Fairborn, Ohio, November 13-17, 1989.
40. ñNew Electrode Structures and Materials from Fibrous Precursors,ò Department of Chemical Engineering, Virginia Polytechnic Institute, Blacksburg, Virginia, February

1989.

41. Iron-Molybdenite Interfaces and Tribology,ò Gordon Research Conference on Tribology, Plymouth, New Hampshire, June, 1990.
42. ñBackscattered Conversion Electron Mossbauer Spectroscopy,ò Ninth International Summer Institute in Surface Science, Milwaukee, Wisconsin, August, 1989.
43. ñComposite Electrode Structures for High Energy Density and High Power Density Application,ò presented to the SDIO Technology Applications Review, April 24, 1990, Auburn, Alabama.
44. ñSurface Chemistry at Buried Interfaces: Adhesion of Molybdenite Solid Lubricant Films to Iron Bearings,ò Department of Chemical Engineering, Ohio University, Athens, Ohio, October 1990.
45. ñMetal-Carbon Composite Electrode Structures for High Energy Density and High Power Density Applications,ò Department of Chemical Engineering, University of Akron, Akron, Ohio, October 1990.
46. ñNovel Catalyst Supports from Fibrous Precursors,ò presented at the First Exxon Frontiers of Science Workshop on Catalysis and Catalytic Processing, November 1991, Annandale, New Jersey.
47. ñCharacterization of Tribo-Interfacial Reactivity Using Backscattered Mossbauer Spectroscopy,ò presented to the session on Applications of Surface Science to Problems in Tribology, Spring Meeting of the American Chemical Society, April, 1991, Atlanta Georgia.
48. ñSurface Characterization of Buried Interfaces Using Backscattered Mossbauer Spectroscopy,ò session on Methods of Surface and Interfacial Characterization, International Conference on Metallurgical Coatings and Thin Films, San Diego, CA, April, 1991.
49. ñTemporally Coordinated Catalyst Attack,ò presented at the University/Exxon Coal Depolymerization New Leads Program, Conroe, Texas, May 1992.
50. ñComposite Electrode Structures from Fibrous Precursors,ò presented at Prospector III, ARO Sponsored Workshop on High Energy Density and High Power Density Power Sources, May 1992, Auburn, Alabama.
51. ñHigh Surface Area Electrode Structures from Micronic Fibers,ò presented at the DOE Workshop on Advanced Battery Technology R&D, Office of Basic Energy Sciences, Argonne National Laboratory, Willowbrook, Illinois, June 1992.
52. ñComposite Fiber Electrodes and Filters,ò U.S. Army, ERDEC, Aberdeen, Maryland, March 1993.
53. ñComposite Electrode Structures,ò the Electrosynthesis Company, Buffalo, New York, February 1995.
54. ñActivated Chloralkali Cathodes,ò Dow Chemical Company, Plaquemine, Louisiana, July 1995.
55. ñComposite Electrodes for Hydrogen Peroxide,ò Chemetics International, Vancouver, British Columbia, November 1995.
56. ñPerformance and Fabrication of Tailored Composite Fiber Electrode Structures,ò presented to the Ninth International Forum on Electrolysis, Applied Electrochemical Technologies, Clearwater Beach, Florida, November 5-9, 1995 (published proceedings).
57. ñExperimental and Theoretical Analyses of Microengineered Catalyst Structures,ò

presented to ABB-Lummus Crest, Bloomfield, New Jersey, January 1996.

58. ñChemical Catalysis: Getting by with Dumb Materials,ò presented to Department of Materials Engineering, Auburn University, Alabama, November 1996.
59. ñMicrostructured Materials for Chemical Processing,ò Department of Chemical Engineering, Auburn University, Alabama, March 1997.
60. ñMicrofibrous Materials and Manufacturing,ò Auburn University Research Advisory Council of the OVPR, Auburn, Alabama, March 1997. "Microfibrous Materials and Manufacturing," Auburn University Research Advisory Council of the OVPR, Auburn, AL, March, 1997.
61. Electrochemical Generation of Sodium Chlorate,ò Super TAPPI Meeting, Nashville, TN, October, 1997.
62. ñMicrostructured Materials for Chemical Processing,ò Department of Chemical Engineering, University of Missouri, Columbia, Missouri, April, 1998.
63. ñUltra-High Value Added Materials from Wet Lay Processing,ò Auburn Pulp and Paper Foundation Meeting, Auburn, AL, May, 1998.
64. ñMicrostructured Materials and CM3,ò Auburn Alumni Engineering Council, Auburn, AL, April, 1998.
65. ñUltra-Thin Air Cathode Development and Testing,ò The Gillette Company World Wide Technology Center, Needham, Massachusetts, October 20, 2000.
66. ñNew Materials and Processes for Mitigation of ChemBio Threats,ò AVS Topical Conference on Understanding and Operating in Threat Environments, sponsored by AVS, NIST, ONR, NRL, NSTC, etc., Monterey, California, May 1-2, 2002.
67. ñMitigation of ChemBio Threats Using New Materials and Methods,ò First Conference on Scientists Helping America, sponsored by DARPA, NRL and U.S. Special Operations Command, Washington, D.C., April 2002.
68. ñRegenerable Collective Protection Systems,ò Homeland Security Summit, sponsored by Aviation Week, Business Week, McGraw-Hill Construction and Platts, New York, New York, May 2002.
69. ñMobile Power Technologies for Radars and Transportation,ò Raytheon Electronic Systems, Sudbury, Massachusetts, May 2002.
70. ñCommercial Opportunities for Microfibrous Materials,ò Spring 2002 Southwest Regional DoD Technology Applications Review, Albuquerque, New Mexico, May 2002.
71. ñFuel Processing for Mobile Radar Power Needs,ò Department of Defense Logistic Fuel Reforming Conference, Panama City, Florida, August 27-28, 2002.
72. ñApplication of Microfibrous Entrapped Solids to High Efficiency Chemical Processing Opportunities,ò Swalm School of Chemical Engineering, Mississippi State University, October 8, 2002.
73. ñNew Materials and Processes for Regenerable Collective Protection Air Purification Systems,ò NBC Defense Collective Protection Conference (COLPRO2002), October 29-31, 2002.
74. ñFlow Characterization Through Sintered Microfibrous Materials: Potential Ramifications for Stirling Engine Regenerators," invited presentation to the International Energy Conversion Engineering Conference, Topical Conference on Stirling Engine Regenerators, August, 2003, Portsmouth, VA (with refereed proceedings).

75. ñJP-8 Logistics Fuel to Electrons,ò 3rd Annual DoD Logistics Fuel Reforming Conference, October, 2003, Philadelphia, PA at NSWCCD.
76. ñDesign and Characterization of Microfibrous Materials,ò Department of Materials Engineering, Auburn University, October 2003.
77. ñMicrofibrous Catalyst and Adsorbent Entrapment Technology,ò Engelhard Corporation, Iselin, NJ, December, 2003.
78. ñMicrofibrous Polishing Sorbents for Personal Protection Applications,ò Drager Inc., Lubek, Germany, December, 2003.
79. ñMicrofibrous Materials for Chemical Processing,ò presented to Air Products and Chemicals, Inc., Corporate Technology Round Table Invitee, January, 2004, Allentown, PA.
80. ñMicrofibrous Materials for Enhanced Personal Protection Applications,ò Scott Health and Safety (Tyco Inc.), January 2005, Charlotte, NC.
81. ñLogistic Fuel Reforming Using High Efficiency Heterogeneous Contacting Materials,ò 4th Joint DoD Symposium on Logistic Fuel Reforming, Panama City, FL, January, 2005
82. ñEnhanced Methods for Personal Protection,ò NIOSH-National Personal Protection Test Laboratory, May, 2005, Pittsburgh, PA.
83. ñThe Future of Fuel Cell Technology,ò SWE Region D Conference, March, 2005, Auburn, AL.
84. ñNew Materials for CO Oxidation,ò Sundstrom Safety Systems, Lyngby, Sweden, May, 2005.
85. ñMaterials for BioSecurity,ò Frontiers in Chemical Engineering, AIChE National Student Meeting, October, 2005, Cincinnati, OH.
86. ñMicrostructured Reaction Media for Logistic Fuel Processing: Materials and Methodologies to Achieve Miniaturization and Process Intensification,ò 5th DOD Logistic Fuel Processing Conference, May 16-17, 2006, Panama City Beach, Florida.
87. ñEnergy and the Environment,ò University of North Alabama, Florence, Alabama, April 20, 2006.
88. ñDesigning for Durability and Performance in Extreme Environments: Contaminated Feeds and Mechanical Vibrations,ò 2nd Annual International Symposium on Fuel Cell Durability and Performance, Miami Beach, FL, December 6-8, 2006, (An Invited Plenary Lecture).
89. ñEnergy and the Environment,ò Plenary Speaker at the Awards Dinner Banquet of the Alabama Academy of Sciences, March, 2007, Tuskegee University, Kellogg Center.
90. ñMicrofibrous Enhancement of Heterogeneous Contacting Processes,ò Exxon-Mobil Chemicals Research Headquarters, Baytown, TX, August, 2007.
91. ñHeterogeneous Contacting Using Entrapped Small Particulate Sorbents,ò Praxair Corporate Research Center, Buffalo, NY, October, 2007.
92. ñOverview of Microfibrous Media for Airborne Contaminant Removal,ò 2008 Self-Contained Self Rescuer Workshop, the national Technology Transfer Center at Wheeling Jesuit University, Wheeling, WV, April 4, 2008, Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health.
93. ñCathode and Anode Contaminants and Mitigation,ò Office of Naval Research sponsored conference on new developments in fuel cell R&D, Arlington, VA, May,

2008.

94. ñImproved Heterogeneous Contacting Efficiency using Microstructured Materials,ò BASF Corporate R&D Center, Iselin, NJ, November, 2008.
95. ñHigh Volume Reactivity Heterogeneous Contactors Using New Structures of Matter Borrowed from the Textiles Industry,ò Department of Polymer and Fiber Engineering, Auburn University, March, 2009.
96. ñImproved Ozone Converters using Microfibrous Entrapped Catalysts,ò FAA-Center for Aircraft Cabin Air, Kansas State University, April, 2009.
97. ñSynthetic Fuel Development,ò Plenary Lecture at Alternative Energy for Defense, Institute for Defense and Government Advancement, June 28-30, 2010, Washington, DC.
98. ñNew Structures of Matter for High Performance Heterogeneous Catalytic Beneficiation of Cabin Air,ò AIAA Meeting on Environmental Control Systems, Barcelona, Spain, July, 2010.
99. ñMicrofibrous Materials R&D at Auburn Universityò Filtration and Separation Chapter of the 3M Technology Forum, Minneapolis, MN, October 2010.
100. ñSynthetic Fuel Development,ò 8th Annual Tactical Power Sources Summit, Arlington, VA, January 24-27, 2011.
101. ñMicrofibrous Entrapped Catalysts for Scalable and Cost Effective FTS,ò Department of Chemical Engineering, September 12, 2013, Brigham Young University.
102. ñResearch and Technology Transition at Auburn University,ò Annual Meeting of the Southern Aerosol Technical Association, San Destin, FL, October, 2013.
103. ñPerspectives on Small Business Innovative Research Programs,ò Alabama Launchpad SBIR/STTR Program in Partnership with the Office of the Vice President for Research and Economic Development and the Office of Technology Transfer Office of Sponsored Programs at Auburn University, Auburn, Alabama April 23, 2014.
104. ñImpact of Intellectual Property Issues on Research,ò 2014 Engineering Leadership Conference, sponsored by Maersk Oil and Texas A&M University-Qatar, Doha, Qatar, November 9-11th, 2014.

AWARDS RECEIVED BY DR. TATARCHUK'S GRADUATE STUDENTS (PARTIAL AND INCOMPLETE LISTING)

The following research and fellowship awards include only those awards made on a competitive basis at the: regional, national or international level. Departmental fellowships, Auburn University awards and other intramural awards and recognitions are not included. Due to conversion from hard copy to electronic media, and amongst various work processing software packages, the listing is incomplete over some time periods.

- William H. Heise: American Vacuum Society ï Tennessee Valley Chapter Graduate Student Award, awarded on the basis of outstanding research and academic achievements, includes $1000 stipend supplement, approximately six awards are make per year throughout the southeastern region. Awarded 1984-1985, 1985-1986, 1986-1987.
- Raymond A. Cocco: American Vacuum Society ï Tennessee Valley Chapter Graduate Student Award, awarded on the basis of outstanding research and academic

achievements, includes $1000 stipend supplement, approximately six awards are make per year throughout the southeastern region. Awarded 1987 ï 1988.

- Richard T. Booher: NASA-Graduate Student Researchers Program Fellowship, awarded on the basis of outstanding research and academic achievements as well as a competitive research proposal. The fellowship award is for a total of $54,000 for three years, approximately sixty awards are made per year to U.S. Citizens from over ca. 333 applicants. Awarded from 6/16/88 to 6/15/91 through NASA-MSFC.
- Jeffrey H. Sanders: NASA-Graduate Student Researchers Program Fellowship, awarded on the basis of outstanding research and academic achievements as well as a competitive research proposal. The fellowship award is for a total of $54,000 for three years, approximately sixty awards are made per year to U.S. Citizens from over ca. 333 applicants. Awarded from 6/16/85 to 6/15/88 through NASA-MSFC.
- Ray Cocco, Graduate Student Research Award presented by the Materials Research Society. Awarded on the basis of a research paper and subsequent presentation to the National meeting of the Materials Research Society, Boston, Massachusetts, December 1987. Award includes $250 and is presented annually to ca. nine students from the U.S., Western Europe and the Far East.
- Jeff Zabinski, Graduate Student Research Award presented by the International Congress on Metallurgical Coatings. Awarded on the basis of a research paper and subsequent presentation to the International Congress on Metallurgical Coatings, San Diego, California, April 1988. Award includes $500 and was presented to only one student in 1988 from across the free world and eastern bloc countries.
- Jeffrey H. Sanders, Graduate Student Travel Award to attend 1989 ICAME Meeting in Budapest, Hungary, $250-Graduate School, Auburn University, $300-ICAME Organizing Committee.
- Peter B. Lloyd: NASA-Graduate Student Researchers Program Fellowship, awarded on the basis of outstanding research and academic achievements as well as a competitive research proposal. The fellowship award is for a total of $54,000 for three years, approximately sixty awards are made per year to U.S. Citizens from over ca. 300 applicants. Awarded from 6/16/88 to 6/15/91 through NASA-MSFC.
- Jeffrey H. Sanders, South Eastern Regional Ph.D. Fellowship in Chemical Engineering, awarded on the basis of outstanding academic achievements and research potential. The fellowship consists of a $2,000 per year stipend supplement for four years and is awarded by a committee of south eastern department heads to about twenty students per year from ca. 60 applicants. Awarded from September 1986 to September 1990.
- Jeffrey S. Zabinski: South Eastern Regional Ph.D. Fellowship in Chemical Engineering, awarded on the basis of outstanding academic achievements and research potential. The fellowship consists of a $2,000 per year stipend supplement for four years and is awarded by a committee of south eastern department heads to about twenty students per year from ca. 60 applicants. Awarded from September 1985 to September 1989.
- Jeffrey Zabinski, American Vacuum Society ï Tennessee Valley Chapter Graduate Student Award, awarded on the basis of outstanding research and academic achievements, includes $1000 stipend supplement, approximately six awards are make per year throughout the southeastern region. Awarded 1988-1989.
- Jeffrey Zabinski, Travel Grant awarded by the International Congress on the

Applications of the Mossbauer Effect (ICAME) to present invited paper at ICAME 87, Melbourne, Australia, August 1987.

- Jeffrey Zabinski, 1988 Bunshah Award for best paper at the 1988 International Conference on Metallurgical Coatings, San Diego, California, April 1988, with co-author B.J. Tatarchuk ($500).
- Jerry H. Sanders, Travel Grant awarded by the International Conference on Metallurgical Coatings ($250), San Diego, California, April 1989.
- Teh-Shing Lee: Travel Grant awarded by the International Congress on the Applications of the Mossbauer Effect (ICAME) to present invited paper at ICAME 87, Melbourne, Australia, August 1987.
- Martin R. Kruger: Dupont Ph.D. Fellowship in Chemical Engineering, awarded on the basis of outstanding academic achievements and research potential to graduate students attending one of the ca. thirty departments participating in the Dupont Consortium. Award includes a $4,000 per year stipend supplement for four years and was presented to 20 students in the 1987-1988 competition from ca. 80 applicants. Award period: September 1987 to September 1991.
- Lance C. Gibson: Dupont Ph.D. Fellowship in Chemical Engineering, awarded on the basis of outstanding academic achievements and research potential to graduate students attending one of the ca. thirty departments participating in the Dupont Consortium. Award includes a $4,000 per year stipend supplement for four years and was presented to 20 students in the 1987-1988 competition from ca. 80 applicants. Award period: September 1990 to September 1994.
- CAST Directorôs Award (cash award) to Tunde Dokun with D.R. Cahela, M. Sheng, H. Yang and B. Tatarchuk, best student poster award at the AIChE Annual Meeting, Salt Lake City, UT, November, 2010.
- Priyanka Dhage: Richard J. Kokes Award, 22nd Meeting of the North American Catalysis Society, June 2011.
- A.H.M. Shahadat Hussain: Richard J. Kokes Award, 23nd Meeting of the North American Catalysis Society, June, 2013.
- Sabrina Wahid, Young Research Award at the 3rd Symposium of the North American Society of Chemical Reaction Engineering, 2013.
- Zenda Davis, multiple travel awards to attend and present technical papers at various NOBCHE National Meetings 2010 to 2013.

Professional Experience (Private consulting, partial Listing)

- Berkowitz et al. (Birmingham, AL, 1999), various technology and design issues related to electrolytic capacitor failure. Dr. Tatarchuk provided expert analysis and evaluation for a defendant that allowed them to reach a favorable settlement.
- Fish and Neaves (New York, New York), various intellectual property and design issues relating to zinc-air button cell batteries. Served as the lead expert witness in the federal trial of Rayovac v.Gillette-Duracell (1998-1999). Dr. Tatarchuk represented Duracell in this action and helped to overturn 13 claims at trial, as contained in three separate issued U.S. patents. Following this action, corresponding suits brought by Rayovac, based on related foreign patents, were dropped.
- ñHydrodesulfurization Using Ruthenium Sulfide Catalysts.ò Exxon-ERDL, Baton Rouge, LA, 4/98.

- Exxon Research and Development Laboratories, Catalysis Group, Baton Rouge, Louisiana (1989, 1992-1998).
- Quantegy (formerly Ampex), Opelika, Alabama, Tribology and wear issues, 3/96 ï 6/97.
- Master Lock, Auburn, Alabama, Process coating operations and galvanic corrosion issues, 6/93 ï 6/96.
- Exxon Polymers, Baytown, Texas, Separations issues, 1996.
- Memtec America, DeLand, Florida, Design of Continuous Hydrogen Sintering Furnace, 4/95 ï 9/95.
- Exxon, Coal Conversion Efforts, including Corporate Research Laboratories (Clinton, NJ), Exxon Research and Development Laboratories (Baton Rouge, LA), Exxon Engineering (Florham Park, NJ), and Exxon Chemicals (Baton Rouge, LA and Baytown, TX) (1992-1995).
- SLM International, Montreal, Canada and other locations in the U.S. and Canada, Alkaline battery recharging, September 1992 to August 1994.
- Yardney Technical Products, Pawcatuck, CT, Nickel electrode collector structures, 3/94-9/94.
- EMCO Industries, Gadsden, Alabama (1993). Surface Coating for Lubrication During Machining and/or Subsequent Passivation.
- Imperial Oil Resources Limited, Research Centre, innovation workshops aimed at unlocking the heavy oil resources of the western Canadian basin, Calgary and Banff, Alberta, Canada (1992).
- Siemens-Pacesetter, Sylmar, California (1991). Electrode Design for High Energy Density and High Power Density Implantable Medical Electronics.
- Maxwell Laboratories, Inc., San Diego, California (1991). Electrode Design for High Energy Density Liquid Double Layer Capacitors.
- Exxon Research and Development Laboratories, Catalysis Group and Legal Department, Baton Rouge, LA (1989)
- Proprietary Consultant on Contract with: Anglo-American Clays Corporation Sandersville, Georgia, January 1984 ï 1989. Research and Consulting in Surface Chemistry, Surface Characterization and Surface Modifications. Supervisor ï Dr. P.E. Jones.
- MG and Associates Architectural Engineers, Nashville, Tennessee (1988). Laboratory design work for Surface Science and Analytical Laboratories.
- Dow Chemical Company, Central Research Catalysis and Surface Science Groups, Midland, Michigan (1988)
- U.S. Army Redstone Arsenal, Propulsion Directorate, Huntsville, Alabama (1985). Activities relating to Catalyzed Combustion and Reaction.
- U.S. Army Aberdeen Proving Ground, Aberdeen, Maryland (1984). Catalytic Decomposition of Toxic Materials.
- Exxon Corporate Research Laboratory, Surface Science Group, Clinton, New Jersey (1984). Catalytic Effects of Adsorbed Sulfur.