Praveen Kumar Sekhar

Electrical Engineering, School of Engineering and Computer Science (ENCS)
Washington State University Vancouver (WSU Vancouver), Vancouver, WA 98686

(360) 546- 9186 (Office) praveen.sekhar@vancouver.wsu.edu
(360) 546-9438 (FAX)

Education

Coimbatore Institute of Technology, India	Electrical Engineering	BE	2001
University of South Florida (USF), Tampa. FL	Electrical Engineering	MS	2005
University of South Florida (USF), Tampa, FL	Electrical Engineering	PhD	2008

Appointments

2012 – Present	Adjunct Faculty, WSU, Pullman.
2011 – Present	Assistant Professor, ENCS, WSU Vancouver.
2009 – 2011	Postdoctoral Research Associate, Los Alamos National Laboratory (LANL).

Research Interests

Electrochemical Gas Sensors for Emissions Control, Air Quality Monitoring, and Explosives Detection.
Biodiagnostics.
Nanomaterials.
Advanced Materials Characterization.

Teaching

Fall 2011	Circuit Modeling and Analysis II
Spring 2012	Introduction to Digital Signal Processing
Fall 2012	Circuit Modeling and Analysis II
Fall 2012	Introduction to Digital Signal Processing
Spring 2013	Signals and Systems
Spring 2013	Properties of Electronic Materials
Fall 2013	Circuit Modeling and Analysis II
Fall 2013	Introduction to Digital Signal Processing

Select Academic Honors

2013	Visiting Research Scientist, Los Alamos National Laboratory.
2010	Best Poster Presenter (First Place), 8th National Postdoc Association, Philadelphia.
2009	Outstanding Dissertation Award, USF, Tampa, FL.
2007, 2006	National Science Foundation (NSF) Pan American Advanced Studies Institute (PASI) Travel Fellowship.
2006	Visiting Scholar, Australian National University, Canberra, Australia
2006	STONE Fellowship Award, LANL User Facility Proposal.
2004	IEEE Merit Certificate for Mentoring High School Students.

Select Synergistic Activities

2010-2013	Panelist Reviewer, NSF.
2011-2012	Lead Organizer, NanoDays Event, WSU Vancouver.
2012	Volunteer, Oregon Museum of Science and Industry.
2012	Judge, Clark College Electrical and Computer Science Projects.
2012	Panelist Reviewer, Department of Energy (DOE), Office of Sciences.
2009, 2010	Judge – "Championing Scientific Careers," Student Symposium, University of New Mexico, Los Alamos, NM.
2009	Session Chair – 'Nano-Based Sensors,' 215th ECS Conference, San Francisco, CA.
2006	Manager, K-PhD Nanotechnology-Robotics, Summer Camp, USF.
2006	Lead Organizer, Southeastern Consortium of Minorities in Engineering (SECME) Summer Institute and Mini-Expo: Robotics and Nanotechnology.

Invited Talks

Year	Title	Venue
2013	Low Cost Air Quality Sensors and Associated Data Quality	Environmental Protection Agency, Research Triangle Park, NC
2012	Initiating WSU Vancouver – PNNL Collaboration in the Areas of Energy, National Security, and Health Care.	Pacific Northwest National Laboratory
2011	Micro- and Nanoengineered Surfaces for Energy, Security and Biomedical Applications	Simon Fraser University, Burnaby, Canada.
2011	Trace Detection and Discrimination of Explosives using Electrochemical Potentiometric Gas Sensors.	DoD Forensic R&D, Testing and Evaluation Expo, Tampa, FL
2011	Trace Detection and Discrimination of Explosives using Electrochemical Potentiometric Gas Sensors.	Trace Explosives Detection Workshop, Portland, OR.
2011	Trace Detection and Discrimination of Explosives using Electrochemical Potentiometric Gas Sensors.	Biometric and Forensic Summit, Ft.Huachuca Army Base, AZ.
2008	Nanotechnology: Fact or Fiction.	National Engineers Week Future City Competition, St. Petersburg, Florida
2008	Ion Beam Doping of Nanostructures for Nanophotonics Applications.	Florida Chapter of the American Vacuum Society Annual Symposium (FLAVS), Orlando, FL.
2007	Synthesis of Silica Nanowires and Applications.	NSF PASI, Chile.
2006	Ion Implantation based Synthesis of Silica Nanowires and Biosensing Applications.	NSF PASI, Costa Rica.

Book Chapters

1. **P.K.Sekhar** and S.Bhansali, "Growth of Silica Nanowires", Encyclopedia of Nanotechnology, **Invited**, Ed: Bharat Bhushan (Ohio State University), Springer, 2012. ISBN: 9789048197507.
2. **P.K.Sekhar and** V.Uwizeye**,** "Review of Sensor and Actuator Mechanism", MEMS for Biomedical Applications, Invited, Ed: Shekhar Bhansali (Florida International University), Woodhead Publishing, 2012. ISBN: 9780857091291.

Peer Reviewed Journal Publications

1. **P.K.Sekhar** and H.Mekonen, "Teaching Circuit Analysis Effectively to Undergraduate Electrical Engineering Students: Perspectives from Undergraduate Students", *International Journal of Electrical and Electronics Engineering*, In Review, (2013).
2. **P.K.Sekhar** and K.Subramaniyam, "Electrical Characterization of a Mixed Potential Propylene Sensor", Sensors and Actuators B: Chemical, 188, 367 (2013).
3. **P.K.Sekhar**, R.Mukundan, E.Brosha and F.H.Garzon, "Effect of Perovskite Electrode Composition on Mixed Potential Sensor Response", *Sensors and Actuators B: Chemical*, 183, 20 (2013).
4. **P.K.Sekhar,** H.Mekonen, R.Mukundan, E.L.Brosha and F.H.Garzon, "Impedance Spectroscopy based Characterization of an Electrochemical Propylene Sensor", *Sensors and Actuators B: Chemical*, 177, 111 (2013).
5. **P.K.Sekhar**, E.L.Brosha, R.Mukundan, H.Mekonen, C.Kreller, B.Farber and F.H.Garzon, "Packaging and Testing of a Hydrogen Safety Sensor Prototype", *International Journal of Hydrogen Energy*, 37, 14707 (2012).
6. C.R.Kreller, **P.K.Sekhar**, W.Li, P.Palanisamy, E.L.Brosha, R.Mukundan, and F.H.Garzon, "Application of Commercial Manufacturing Methods to Mixed-Potential NO_x Sensors", *Electrochemical Society Transactions*, 50, 307 (2012).
7. **P.K.Sekhar**, E.L.Brosha, R.Mukundan, K.L.Linker, C.Brusseau and F.H.Garzon, "Trace Detection and Discrimination of Explosives using Electrochemical Potentiometric Gas Sensors", *Journal of Hazardous Materials*, 190, 125 (2011).
8. Q.Huang, L.Wang, T.Dasgupta, L.Zhu, **P.K.Sekhar**, and S.Bhansali, "Statistical Weight Kinetics Modeling for Silica Nanowires Growth Catalyzed by Pd Thin Film", *IEEE Transactions on Automation Science and Engineering*, 8, 303 (2011).
9. G.Wu, M.A.Nelson, N.H.Mack, S.Ma, **P.K.Sekhar**, F.H.Garzon, and P.Zelenay, "Titanium dioxide Supported Non-precious Metal Oxygen Reduction Electrocatalyst", *Chemical Communications***,** 46, 7489 (2010). **(Declared as 'Hot Article')**
10. **P.K.Sekhar**, E.L.Brosha, R.Mukundan and F.H.Garzon, "Chemical sensors for environmental monitoring and homeland security", **Invited**, *ECS Interface*, Winter Edition, 2010.
11. **P.K.Sekhar**, E.L.Brosha, R.Mukundan, M.A.Nelson, and F.H.Garzon, "Effect of YSZ Sintering Temperature on Mixed Potential Sensor Performance", *Solid State Ionics*, 181, 947 (2010).
12. **P.K.Sekhar**, E.L.Brosha, R. Mukundan, T. L. Williamson, M.A.Nelson and F.H.Garzon, "Development and Testing of a Hydrogen Safety Sensor Prototype", *Sensors and Actuators B: Chemical*, 148, 469 (2010).
13. **P.K.Sekhar** and S.Bhansali, "Manufacturing Aspects of Oxide Nanowires", *Materials Letters*, 64, 729 (2010).

14. **P.K.Sekhar**, E.L.Brosha, R.Mukundan, W.Li, M.A.Nelson, P.Palanisamy, and F.H.Garzon, "Application of Commercial Automotive Sensor Manufacturing Methods for NO_x/NH_3 Mixed Potential Sensors for On-Board Emissions Control", *Sensors and Actuators B: Chemical*, 144, 112 (2010).
15. **P.K.Sekhar**, E.L.Brosha, R.Mukundan, B.Farber, P.Shuk, and F.H.Garzon, "Investigation of a New Conditioning Method for Improved Performance of non-Nernstian Sensors", *ECST*, 28 (20), 1 (2010).
16. **P.K.Sekhar**, E.L.Brosha, R.Mukundan, B.Farber, and F.H.Garzon, "Statistical Investigation of a Novel Signal Conditioning Circuit for Reliable Detection of Exhaust Gas Components", *ECS Transactions*, 33 (8), 101 (2010).
17. E.L.Brosha, **P.K.Sekhar**, R.Mukundan, T.L.Williamson, F.H.Garzon, L.Y.Woo, and R.S.Glass, "Development of Sensors and Sensing Technology for Hydrogen Fuel Cell Vehicle Applications", *ECST*, 26 (1), 475 (2010).
18. **P.K.Sekhar**, E.L.Brosha, R.Mukundan, M.A.Nelson and F.H.Garzon, "Effect of Electrolyte Sintering Condition on Mixed Potential Sensor Performance", *ECST*, 25 (31), 19 (2010).
19. S.Krishnan, **P.K.Sekhar**, R.Joshi and S.Bhansali, "Nanocrystalline Palladium Thin Films for Hydrogen Sensor Applications", *Sensor Letters*, 7, 31 (2009).
20. **P.K.Sekhar**, E.L.Brosha, R.Mukundan, M.A.Nelson and F.H.Garzon, "Application of Commercial Automotive Sensor Manufacturing Methods for NO_x/NH_3 Mixed Potential Sensors for Emission Control", ECS Transactions, 19 (22), 45 (2009).
21. M-S.Kim, **P.K.Sekhar**, S.Bhansali and J.P. Harmon, "A Spectrum Analysis of Dielectric Properties of Novel PU Composites using Silica Nanowires", *Journal of Nanoscience and Nanotechnology*, 9, 5776 (2009).
22. A.M.Shearrow, G.A. Harris, L.Fang, **P.K.Sekhar**, L.T.Nyguyen, E.B.Turner, A.Malik, and S.Bhansali, "Ionic Liquid-Mediated Sol-Gel Coatings for Capillary Microextraction", Journal of Chromatography A, 1216, 5449 (2009).
23. **P.K. Sekhar**, N.S. Ramgir and S. Bhansali, "Metal-Decorated Silica Nanowires: An Active Surface-Enhanced Raman Substrate for Cancer Biomarker Detection", *The Journal of Physical Chemistry C: Letters*, 112, 1729 (2008).
24. **P.K.Sekhar**, R.G. Elliman, A.R. Wilkinson, and S. Bhansali, "Enriched Er Emission from Nanoengineered Si Surface", *The Journal of Physical Chemistry C: Letters*, 112, 20109 (2008).
25. **P.K.Sekhar**, N.S. Ramgir, R.K.Joshi and S. Bhansali, "Selective Growth of Silica Nanowires using Au Catalyst for Optical Recognition of Interleukin-10", *Nanotechnology*, 19, 245502 (2008).
26. R.G. Elliman, A.R. Wilkinson, **P.K.Sekhar** and S. Bhansali, "Optical emission from erbium-doped silica nanowires", *Journal of Applied Physics*, 103, 104304 (2008).
27. R.G. Elliman, A.R. Wilkinson, T. Kim, **P.K.Sekhar** and S. Bhansali, "Ion beam synthesis and doping of photonic nanostructures", *Nuclear Instruments and Methods in Physics Research B*, 266, 1362 (2008).
28. N.S. Ramgir, A. Zajac, **P.K. Sekhar**, L.H. Lee, T.A. Zhukov and S. Bhansali, "Voltammetric Detection of Cancer Biomarkers Exemplified by Interleukin-10 and Osteopontin with Silica Nanowires", *The Journal of Physical Chemistry C: Letters*, 111, 13981(2007).
29. N.S. Ramgir, **P.K. Sekhar**, A. Zajac, L.H. Lee, T.A.Zhukov and S.Bhansali, "Ultrasensitive Voltammetric Detection of IL-10, a Lung Cancer Biomarker, in Serum Using SiO_2 Nanowires Template", *Sensor Letters*, 5, 1 (2007).

30. **P.K.Sekhar**, A.Sine and S.Bhansali, "Effect of Varying Process Parameters on the Performance of Pd doped Nanostructured Porous-Si Hydrogen Sensor", Sensors and Actuators B, 127, 74 (2007).
31. **P.K.Sekhar** and S.Bhansali, "Ultra-Thin Si membrane as a Sensitive Substrate for Bioscreening", IFMBE, 17, 304 (2007).
32. **P.K.Sekhar**, S.N. Sambandam, D.K.Sood and S.Bhansali, "Selective Growth of Silica Nanowires Using Pt Thin Film", *Nanotechnology*, 17, 1 (2006).
33. D.K.Sood, **P.K.Sekhar**, and S.Bhansali, "Ion Implantation Based Selective Synthesis of Silica Nanowires on Silicon Wafers", *Applied Physics Letters*, 88, 143110 (2006).
34. S.Bhansali, **P.K.Sekhar**, N.S.Ramgir, T.Zhukov, A.Zajac and L.Lee, "Use of Silica Nanowires on a Microfludics Platform for the Detection of IL-10"**,** *ECS Transactions (ECST)*, 3 (10), 249 (2006).
35. **P.K.Sekhar**, S.Akella and S.Bhansali, "A Reliable Low Loss Flexural Plate Wave Device Through Enhanced Properties of Sol-Gel PZT (52/48) Thin Film," Sensors and Actuators: A, 132, 376 (2006).

Peer Reviewed Conference Proceedings

1. **P.K.Sekhar** and K.Subramaniyam, "Synthesis, Dispersion and Functionalization of SiO_2 Nanowires for Biosensing Applications", 37th International Conference and Exposition on Advanced Ceramics & Composites (ICACC 2013) Proceedings, In Print (2013).
2. F.Garzon, E.Brosha, **P.K.Sekhar**, C.Kreller, and R.Mukundan, "The Development of Solid State Gas Sensors at Los Alamos National Laboratory", Proceedings of the Japan Association of Chemical Sensing, In Print (2013).
3. **P.K.Sekhar**, D.K.Sood and S.Bhansali, "Growth of Silica Nanowires Catalysed by Pd Ion Implantation into Si (100)", *Proceedings of the Materials Research Society*, Fall 2005 Meeting, Boston, Nov 28th - Dec 2nd (2005).

Conference Presentations

Presenters in Bold

1. **C.R.Kreller,** P.K. Sekhar, D.Spernjak, W.Li, P. Palanisamy, E.L.Brosha, R.Mukundan, and F.H.Garzon, "Impedance As a Diagnostic Tool to Characterize Mixed-Potential Sensor Response", 224th Electrochemical Society Meeting, San Francisco, CA, Oct 27 – Nov 1, 2013.
2. **C.Kreller**, J.Tsitron, P.K.Sekhar, R.Mukundan, F.H.Garzon, A.V.Morozov and E.L.Brosha, "Quantitative Decoding of Ammonia-Hydrocarbon Mixtures using Zirconia-based Mixed Potential Sensors", 224th Electrochemical Society Meeting, San Francisco, CA, Oct 27 – Nov 1, 2013.
3. **P.K.Sekhar**, and K.Subramaniyam, "Probing the Three Phase Interface to Understand Electrochemical Screening of Gas Phase Pollutants", 224th Electrochemical Society Meeting, San Francisco, CA, Oct 27 – Nov 1, 2013.
4. **P.K.Sekhar** and K.Subramaniyam, "Inexpensive Electrochemical Sensor Technology for Air Quality Monitoring", American Association for Aerosol Research 32nd Annual Conference, Portland, Oregon, Sep 30 – Oct 4, 2013.
5. **C.R.Kreller**, P.K.Sekhar, D.Spernjak, W.Li, P.Palanisamy, E.L.Brosha, R.Mukundan, and F.H.Garzon, "Mixed-Potential NO_x Sensors: Reproducibility between Devices Prepared by

Commercial Manufacturing Methods", 223rd Electrochemical Society Meeting, Toronto, Ontario, Canada, May 12-17, 2013.

6. **P.K.Sekhar**, T.Karacolak, and M.Asili, "Investigating Electromagnetic Properties of YSZ for Wireless Sensor Applications", 223rd Electrochemical Society Meeting, Toronto, Ontario, Canada, May 12-17, 2013.
7. **P.K.Sekhar**, H.Mekonen, T.Karacolak, and M.Asili, "Investigation of Electromagnetic Properties of Carbon Nanotube-Silica Nanowire Composite", 223rd Electrochemical Society Meeting, Toronto, Ontario, Canada, May 12-17, 2013.
8. H.Mekonen and **P.K.Sekhar**, "Synthesis, Dispersion and Functionalization of SiO_2 Nanowires", 37th International Conference and Exposition on Advanced Ceramics and Composites, Jan 27-Feb 1, Daytona Beach, Florida, 2013 .
9. **C.R.Kreller**, P.K.Sekhar, W.Li, P.Palanisamy, E.L.Brosha, R.Mukundan, and F.H.Garzon, "Application of Commercial Manufacturing Methods to Mixed-Potential NOx Sensors", 222nd Electrochemical Society Meeting, Honolulu, Hawaii, October 7-12, 2012.
10. **P.K.Sekhar** and E.L.Brosha, "Towards Nanoscale Gas Sensor Design: Trace Detection and Discrimination of Explosives", 4th Annual Workshop on Trace Explosives Detection, Apr 16-20, Boston, MA, 2012.
11. P.K.Sekhar and **H.Mekonen**, "Solving Critical Barriers Impeding Trace Detection of Explosives", 9th Annual Research Showcase, WSU Vancouver, April 19th, 2012.
12. E.L.Brosha, C. Kreller, **P. K. Sekhar**, W. Li, R. Mukundan, P. Palanisamy, and F. Garzon, "Application of Commercial Manufacturing Methods to the Fabrication of Mixed Potential Sensors for Energy, Environmental, and National Security Roles", 221st Electrochemical Society Meeting (ECS), May 6-11, 2012, Seattle, WA.
13. **C.R.Kreller**, P.K.Sekhar, R.Mukundan, E.Brosha and F.Garzon, "Influence of Design Parameters on Performance of Mixed Potential Sensors", 221st Electrochemical Society Meeting (ECS), May 6-11, 2012, Seattle, WA.
14. **R.Ratnadurai**, P.K.Sekhar and E.K.Stefanakos, "Electrical and materials characterization of PANI nanoparticles infused polymers for battery Applications", 221st Electrochemical Society Meeting (ECS), May 6-11, 2012, Seattle, WA.
15. P.K.Sekhar**, E.L.Brosha**, R.Mukundan, and F.H. Garzon, "Electrochemical Gas Sensors based Detection and Discrimination of Trace Explosives/Energetic Materials", 221st Electrochemical Society Meeting (ECS), May 6-11, 2012, Seattle, WA.
16. **P.K.Sekhar**, "Towards Nanoscale Gas Sensor Design: From Emissions Control to Trace Detection and Discrimination of Explosives", 2011 Nanotechnology for Defense Conference (NT4D), Oct 24-27, 2011, Bellevue WA.
17. **P.K.Sekhar**, R.Mukundan, E.L.Brosha and F.H. Garzon, "Electrical Characterization of a Mixed Potential NO_x Sensor", 220th ECS Meeting, Oct 9-14, Boston, MA, 2011.
18. **P.K.Sekhar**, E.L.Brosha, R. Mukundan, and F.H.Garzon, "Detection and Discrimination of Harmful Benzene, Toluene, Ethylbenzene, Xylenes (BTEX) Vapors using Electrochemical Gas Sensors", 219th ECS Meeting, May 1-5, Montreal, QC, Canada, 2011.
19. P.K.Sekhar, **E.L.Brosha**, R. Mukundan, and F.H.Garzon, "Packaging and Testing of an Electrochemical Hydrogen Safety Sensor Prototype", 219th ECS Meeting, May 1-5, Montreal, QC, Canada, 2011.
20. V.Dupont, D.Kuiper, B. Rollin, **J. Baca**, P.K.Sekhar, K.Page, S.Dayeh, R.Singh, R.Trovitch and M.A.With, "Los Alamos Postdoc Association Career Fair", 2011 Annual National Postdoc Association Meeting, Bethesda, MA, 2011.

21. P.K.Sekhar, **R. Mukundan**, E.L.Brosha and F.H.Garzon, "Understanding the Mixed Potential Sensor Response through Four Electrode Measurements", 219th ECS Meeting, May 1-5, Montreal, QC, Canada, 2011.
22. **L.Y.Woo**, R.S.Glass, E.L.Brosha, P.K.Sekhar, R.Mukundan, and F.H.Garzon, "Tin-doped Indium Oxide/Yttria-Stabilized Zirconia Composite Electrode Prepared by Impregnation for Electrochemical Hydrogen Sensors", Materials Research Society Spring Meeting, Apr 25-29, San Francisco, 2011.
23. **P.K.Sekhar**, E.L.Brosha, R. Mukundan, and F.H.Garzon, "Development of a Reliable, Miniaturized Hydrogen Safety Sensor Prototype", Fuel Cell Seminar and Exposition, Oct 18-22, 2010.
24. **P.K.Sekhar**, E.L Brosha, R. Mukundan, B.Farber, and F. H. Garzon, "Statistical Investigation of a Novel Signal Conditioning Circuit for Reliable Detection of Exhaust Gas Components", 218th ECS Meeting in Las Vegas, NV, Oct 10-15, 2010.
25. **R.Mukundan**, P.K.Sekhar, E.L.Brosha, R.W.Lujan, and F.H.Garzon, "Controlled interface Mixed-potential gas sensors", 13th International Meeting on Chemical Sensors, July 11-14, Perth, Western Australia.
26. **P.K.Sekhar**, E.L.Brosha, R.Mukundan, and F.H. Garzon, "Development of Robust and Mass Manufacturable Potentiometric Gas Sensors", Los Alamos Postdoc Research Day, Los Alamos, Jun 16, 2010.
27. Q.Huang, L.Wang, T.Dasgupta, L.Zhu, **P.K.Sekhar** and *S.Bhansali*, "Statistical Weight Kinetics Modeling for Silica Nanowires Growth Catalysed by Pd Thin Film", *6th* Annual *IEEE Transactions on Automation Science and Engineering*, Toronto, Ontario, Canada, Aug 2010.
28. **L.Y.Woo**, R.S.Glass, P.K.Sekhar, E.L.Brosha, R.Mukundan, M.A.Nelson and F.H.Garzon, "Electrode Stability in Hydrogen Sensors Based on Yttria-Stabilized Zirconia Electrolyte", 217th ECS Meeting in Vancouver, BC, Canada, April 2010.
29. P.K.Sekhar, M.A.Nelson, **E.L Brosha**, R. Mukundan, T.L.Williamson and F. H. Garzon, "Investigation of a Mixed Potential Sensor Prototype for Reliable Detection of Hydrocarbons and NO_x for Emissions Control", 217th ECS Meeting in Vancouver, BC, Canada, April 2010.
30. P.K.Sekhar, B. Farber, **E.L.Brosha**, R.Mukundan, M.A.Nelson and F.H. Garzon, "Application of Pulsed Discharge Technique for Reliable Detection of Exhaust Gas Components", 217th ECS Meeting in Vancouver, BC, Canada, April 2010.
31. **P.K.Sekhar**, S.A.Dayeh, K.L.Page, D. Kuiper, A.Kligensmith, S.Balasubramanian, and M.A.With, "Combinatorial Strategies Adopted by Los Alamos Postdoc Association for Personal and Professional Growth of Postdocs", 8th Annual Postdoc Association Meeting, Philadelphia, Pennsylvania, Mar 11-14, 2010.
32. **M.A.Nelson**, P.K.Sekhar, E.L.Brosha, R.Mukundan, and F.H.Garzon, "Fabrication and Structural Optimization of Novel Mixed Potential Sensors for Vehicle On-Board Emissions Control", 34th International Conference and Exposition on Advanced Ceramics and Composites, Jan 24-29, 2010.
33. **P.K.Sekhar**, E.L.Brosha, R.Mukundan, M.A.Nelson and F.H.Garzon, "Electrical Characterization of a Mixed Potential Sensor based on Indium Tin Oxide and Lanthanum Strontium Chromite Electrodes and Yttria-Stabilized Zirconia Electrolyte", 34th International Conference and Exposition on Advanced Ceramics and Composites, Jan 24-29, 2010.

34. **E.L.Brosha**, P.K.Sekhar, R.Mukundan, T.L.Williamson, F.H.Garzon, L.Y.Woo, and R.S.Glass, "Development of Sensors and Sensing technology for Hydrogen Fuel Cell Vehicle Applications", 2009 Fuel Cell Seminar, Palm Springs, CA.
35. P.K.Sekhar, E.L.Brosha, R.Mukundan, M.A.Nelson and **F.H.Garzon**, "Effect of YSZ Sintering Conditions on Mixed Potential Sensor Performance", 216th ECS Meeting, Vienna, Austria, 2009.
36. **P.K.Sekhar**, E.L.Brosha, R.Mukundan, M.A.Nelson and F.H.Garzon, "Application of Commercial Automotive Sensor Manufacturing Methods for NOx/NH3 Mixed Potential Sensors for Emission Control", 215th ECS Meeting, San Francisco, California, USA, 2009.
37. **P.K.Sekhar**, K.Belay, R.G.Elliman and S.Bhansali, "A Single Use Microvalve for Implantable Drug Delivery Applications", 215th Meeting Electrochemical Society, San Francisco, California, 2009.
38. **P.K.Sekhar**, K.Belay, T-H.Kim, R.G.Elliman and S.Bhansali, "Enriched Erbium Emission from Nanoengineered Silicon Surface", 215th Meeting Electrochemical Society, San Francisco, California, 2009.
39. **P.K.Sekhar**, R.G.Elliman, and S.Bhansali, "Engineered Silica Nanowires for Nanophotonic Applications", Nanomaterials for Defense Conference, Arlington, VA, 2008.
40. N.S. Ramgir, K.Sun, **P.K.Sekhar** and S.Bhansali, "Cortisol Detection in Saliva using Silica Nanowires as Template for Immunoassay, 213th Meeting Electrochemical Society, Phoenix, Arizona, 2008.
41. **P.K.Sekhar**, R.G.Elliman, K.Belay and S.Bhansali, "Development of a One Shot Microvalve through Ion Implantation based Exfoliation", Eurosensors XXII, Dresden, Germany, 2008.
42. **P.K.Sekhar** and S.Bhansali, "Engineered Silica Nanowires for Nanophotonic Applications", NSF Civil, Mechanical (CMMI) Conference, 2008.
43. R.G.Elliman, A.R.Wilkinson, T-H.Kim, S.Alvi, **P.K.Sekhar** and S.Bhansali, "Optical Emission from Er-Implanted Silica Nanowires", IBMM, Germany, 2008.
44. **P.K.Sekhar** and S.Bhansali, "Ultra-Thin Si membrane as a Sensitive Substrate for Bioscreening", 13th International Conference on Electrical Bioimpedance (ICEBI), Graz, Austria, 2007.
45. M-S.Kim, B.Hilkera, **P.K.Sekhar**, J.P.Harmon, S.Bhansali, "Design and Dielectric Analyses of Novel PU Composites with Silica Nanowire", The 83rd Annual Florida Meeting and Exposition, FAME, Orlando, May 2007.
46. **P.K.Sekhar**, D.Price and S.Bhansali, "Implementation of a Single Use Microvalve for Implantable Microsystems", NSF International Research and Education in Engineering (IREE) Conference, 2007.
47. R.G. Elliman, A.R. Wilkinson, Taehyun Kim, **P. K. Sekhar** and S.Bhansali, "Ion Beam Synthesis and Doping of Photonic Nanostructures", 18th International Conference on Ion Beam Analysis, Hyderabad, India, 2007.
48. N.S. Ramgir, **P.K.Sekhar** and S. Bhansali, Early Detection of IL-10 Biomarkers Using Silica Nanowires, 210th Meeting Electrochemical Society, Cancun, Mexico, 2006.
49. **P.K.Sekhar** and S.Bhansali, "Design and Fabrication of a Low Loss Surface Acoustic Wave Device Using Sol-gel PZT (52/48)", 209th Meeting Electrochemical Society, Denver, Colorado, 2006.
50. **P.K.Sekhar**, A.Sine and S.Bhansali, "Effect of Process Parameters on the Performance of Porous Silicon based H2 Sensor", Eurosensors XX, Sweden, 2006.

51. A.R.A Rahman, J.Gulledge, **P.K.Sekhar** and S.Bhansali, "Impedance Spectroscopy for Bacterial Suspensions Using Radial Microelectrode Array Biosensor", 12th International Conference on Biomedical Engineering, 2005, Singapore.
52. S. Aravamudhan, **P.K.Sekhar**, S. Bhansali, "Structure and Morphology of Magnetic Nanowires", 207th Meeting of The Electrochemical Society, Quebec City, Canada, May 15 – 20th, 2005.
53. P.K.Sekhar, S. Akella and **S. Bhansali**, "Process Development For Enhancing The Texture and Morphology Of Sol-gel PZT For Fabrication of A Flexural Plate Wave Sensor", Eurosensors XIX, Barcelona, Spain, September 11 – 14th, 2005.

Journal Referee

1. Solid State Communications.
2. Sensors and Actuators A and Sensors and Actuators B.
3. IEEE Transactions on Industrial Electronics.
4. Journal of Physical Chemistry C.
5. American Society for Mechanical Engineers (ASME) Conference.
6. American Society for Engineering Education (ASEE) Conference.
7. Journal of Nanomaterials.
8. Nanotechnology.
9. Talanta.
10. Journal of Emerging Technologies in Computing.
11. Journal of Electrochemical Society.
12. ACS Applied Materials and Interfaces.
13. Electrochimica Acta
14. Materials Science and Engineering B

Mentoring Experience

2013	Kumar Subramaniyam, Undergraduate Student, WSU Vancouver.
2012	Hanna Mekonen, Undergraduate Student, WSU Vancouver.
2011	Vianney Uwizeye, Undergraduate Student, WSU Vancouver.
2010	Calita Quesada, Post Baccalaureate Student, LANL.
2009	Jean Weatherwax, NSF – Research Experience for Undergraduate Students (REU), USF.
2008	Chenwi Zony, NSF – Bridge to the Doctorate Fellow, USF.
2007	Al-Aakhir Rogers, NSF – Bridge to the Doctorate Fellow, USF.
2005	Venessa Gonzalez, NSF – REU, USF.

Funding Record

Title	Funding Source	Amount ($)	Role	Status	Year
CAREER: Addressing Critical National Security Challenges through Research-	NSF	460,002	PI	In Review	2013

Education Nexus in Electrochemical Sensing					
REU Site: Citizen Science – Low cost wireless air quality and data management	NSF	312,917	PI	Pending	2013
Probing the Three Phase Interface to Understand Electrochemical Screening of Gas Phase Pollutants	EMSL, Pacific Northwest National Laboratory	0 (Estimated cost of complex instrumentation: $375,000)	PI	Pending	2013
Feasibility Study: Growth of New Metal Chalcogenide & Lanthanide Chalcogenide Nanomaterials	WSU	22,000	PI	Funded and Ongoing	2013
Revising Nano Summer Camp	NISE Network	2990	PI	Funded and Ongoing	2012
Learning Fundamentals of Hydropower Production Through Hands-On Experiments	BPA, DOE	4990	PI	Funded and Ongoing	2012
Feasibility Study on Ion Implantation as a Scalable and Inexpensive Nanomanufacturing Technique	OGRD WSU Vancouver	4983	PI	Funded and Ongoing	2012
Detection and Discrimination of High Explosives	War Fighters Support Group, LANL	25,000	Co-PI	Funded and Completed	2011
Robust, Low Power and Miniature Mixed Potential Sensors for the Detection and Discrimination of high explosives	LDRD Reserve, LANL	200,000	Co-PI	Funded and Completed	2010

Collaborators

James Broach: Princeton University.
Eric L. Brosha, Fernando H. Garzon: Los Alamos National Laboratory.
William Buttner: National Energy Renewable Energy Laboratory.
Tutku Karacolak: Washington State University Vancouver.
Joseph Cote: Washington State University Vancouver.
Robert G. Elliman: Australian National University.
Neil J. Henson: Los Alamos National Laboratory.
Qiang Huang: University of Southern California.
Kevin Linker, Charles Brusseau: Sandia National Laboratory.
Eric Lynch, Chemring Detection Systems.
Alex Morozov: Rutgers University.
Boris Farber, BJR Sensors, Ohio.
Ponnusamy Palanisamy: ESL Electroscience Laboratories, Pennsylvania.
Ash Parameswaran: Simon Fraser University, Burnaby, Canada.
Shutta, Theva, Scott, Russell: Pacific Northwest National Laboratory

Postdoc Mentor: Rangachary Mukundan, LANL.
PhD Advisor: Shekhar Bhansali, (Formerly at USF), Florida International University.
MS Advisor: Shekhar Bhansali, Florida International University.

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