

Name

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Department of Chemical Engineering
Department of Materials Science Engineering
University of Utah
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Degrees

<u>Degree</u>	<u>Department</u>	<u>University</u>	<u>Year</u>
Ph.D	Biomedical Eng	Univ of Wisconsin-Madison	2007
M.S.	Electrical and Computer Eng	Georgia Tech	2003
B.S.	Molecular Biology	University of Chicago	1997

Positions at the University of Utah

Assistant Professor, Department of Chemical Engineering
Assistant Professor, Department of Materials Science Engineering

Other Positions

Post-Doctoral Researcher, University of California-Berkeley (Dec 2007-Nov 2010)
Graduate Research Assistant, University of Wisconsin-Madison (June 03-Dec 07)
Graduate Research Assistant, Georgia Institute of Technology (May 00- June 03)
Graduate Research Assistant, University of Utah (Jan 99 – May 00)
Research Assistant, University of Utah (Jul 97-Dec 98)
Research Assistant, Orthopedic Specialty Hospital, Salt Lake City, Utah (Sum 95 & 96)

Funded Research Grants

Nuclear Sensors Related Projects

Funding agency: NASA
Proposal title: *Europa Cubesat Concept Study: Integration of a TiO₂ Nanotube Based Sensor on Cubesat for Element Analysis (USC Subcontract)*
Award year(s): 2015-2016

Funding agency: NASA
Proposal title: *Nanosensor Integration Study for CubeSat (USC Subcontract)*
Award year(s): 2015-2016

Biomedical Sensor Related Projects

Funding agency: *NIH*

Proposal title: *Evaluation of a novel breath sensor for rapid, low-cost diagnosis of tuberculosis in children (R01)*

Award year(s): 2018-2023

Funding agency: *NSF*

Solicitation: *Nano Biosensing*

Proposal title: *Engineered Metal Functionalized Titania Nanotube Sensing Platform for Assessment of Pneumonia Volatile Biomarkers*

Award year(s): 2018-2020

Funding agency: *NIH*

Solicitation: *NIH R41PA 15-270*

Proposal title: *Rapid Monitoring and Assessment of Tuberculosis Treatment at the Point of Care Using Breath*

Funding agency: *UURF*

Solicitation: *UofU Seed Grant*

Proposal title: *Nanotube Coupled Sensor*

Award year(s): 2017

Funding agency: *UURF*

Proposal title: *Development of Handheld TB Breath Sensor*

Award year(s): 2015

Environmental Related Projects

Funding agency: *DOE*

Proposal title: *EFRC: Multi-Scale Fluid-Solid Interactions in Architected and Natural Materials(MUSE)*

Award year(s): 2018-2023

Funding agency: *Venture Well*

Solicitation: *N/A*

Proposal title: *Development of Point of Use Water Purification Device*

Award year(s): 2015-2016

Funding agency: *DOE ARPA-E*

Solicitation: *DE-FOA-0000882*

Proposal title: *Electro dynamic Sorting of Light Metals and Alloys*

Award year(s): 2015-2018

Funding agency: *GOED*

Proposal title: *TiO₂ Nanotubes for Purification of Air*

Award year(s): 2015-2018

Other Competitive Grants and Awards

Funding agency: Gates Foundation USAID

Solicitation: TB Grand Challenge

Proposal title: TB Triage Platform

Award years(s): 2015-2017

Funding agency: National Science Foundation

Solicitation: NSF-EBBT

Proposal title: Rapid Diagnosis of Tuberculosis at the Point of Care Using a Handheld Volatile Biomarker Sensor

Award year(s): 2015-2016

Peer Reviewed Publications

1. Andama, A.O., Crowder, R.R., Jaganath, D., Asege, L., Nakaye, M., Katumba, D., Mwebe, S., Semitala, F., Joloba, M., Worodria, W. and Mohanty, S., 2019. Xpert MTB/RIF Ultra Sputum and Urine Testing and Determine LAM for Detection of Tuberculosis in Kampala, Uganda. In C55. TUBERCULOSIS DIAGNOSIS (pp. A5168-A5168). American Thoracic Society.
2. Tseng, Y.H., Mohanty, S.K., McLennan, J.D. and Pease III, L.F., 2019. Algal lipid extraction using confined impinging jet mixers. *Chemical Engineering Science*: X, 1, p.100002.
3. Tseng, Y.H., Lee, T.I., Doane, S.J., Butterfield, A.E., McLennan, J.D., Mohanty, S.K. and Pease, L.F., 2019. Periodic symmetry defined bioreactors enhance algae growth. *Environmental Science: Water Research & Technology*, 5(6), pp.1037-1045.
4. Wang, D., Fletcher, T.H., Mohanty, S., Hu, H. and Eddings, E.G., 2019. Modified CPD model for coal devolatilization at underground coal thermal treatment conditions. *Energy & fuels*, 33(4), pp.2981-2993.
5. Hassan, S.S., Carlson, K., Mohanty, S.K. and Canlier, A., 2018. Ultra-rapid catalytic degradation of 4-nitrophenol with ionic liquid recoverable and reusable ibuprofen derived silver nanoparticles. *Environmental Pollution*, 237, pp.731-739.
6. Leu, H.Y., Farhoudi, N., Reiche, C.F., Körner, J., Mohanty, S., Solzbacher, F. and Magda, J., 2018. Low-Cost Microfluidic Sensors with Smart Hydrogel Patterned Arrays Using Electronic Resistive Channel Sensing for Readout. *Gels*, 4(4), p.84.
7. Carlson, K., Misra, M. and Mohanty, S., 2018. "Developments in Micro-and Nanotechnology for Foodborne Pathogen Detection", *Foodborne pathogens and disease*, 15(1), pp.16-25.
8. Leu, H.Y., Farhoudi, N., Reiche, C., Körner, J., Mohanty, S., Solzbacher, F. and Magda, J., 2018. "Low-Cost Microfluidic Sensors with Smart Hydrogel Patterned Arrays Using Electronic Resistive Channel Sensing for Readout" , *Gels*, 4(4), p.84.

9. Bhattacharyya, D., Kumar, P., Smith, Y.R., Mohanty, S.K. and Misra, M., 2018. "Plasmonic-enhanced electrochemical detection of volatile biomarkers with gold functionalized TiO₂ nanotube arrays", *Journal of materials science & technology*, 34(6), pp.905-913.
10. Beeman, M., Nze, U., Sant, H., Malik, H., Mohanty, S., Gale, B. and Carlson, K., 2018. "Electrochemical Detection of *E. coli* O157: H7 in Water after Electrocatalytic and Ultraviolet Treatments Using a Polyguanine-Labeled Secondary Bead Sensor. ", *Sensors*, 18(5), p.1497.
11. Hassan, S.S., Carlson, K., Mohanty, S.K. and Canlier, A., 2018. Ultra-rapid catalytic degradation of 4-nitrophenol with ionic liquid recoverable and reusable ibuprofen derived silver nanoparticles. *Environmental Pollution*, 237, pp.731-739.
12. P. Kumar, S.K. Mohanty, S. Guruswamy, Y.R. Smith, and M. Misra, 2017. Detection of Food Decay Products using Functionalized One-Dimensional Titania Nanotubular Arrays. *IEEE Sensors Letters*.
13. D. Bhattacharyya, P. Kumar, S.K. Mohanty, Y.R. Smith, and M. Misra, 2017. Detection of four distinct volatile indicators of colorectal cancer using functionalized titania nanotubular arrays. *Sensors*, 17(8), p.1795.
14. K. N. Chappanda, M. Misra, and S. K. Mohanty, "Synthesis of TiO₂-Al₂O₃ and TiO₂-Ta₂O₅ composite nanotubes on planar Si substrates," *Micro & Nano Letters*, 2016. Published, 08/01/2016.
15. K. Carlson, J. Tamlllos, A. Timmerman, M. Misra, and S. Mohanty, "Development of titanium dioxide nanotube-based arrays for the electrocatalytic degradation and electrochemical detection of emerging pharmaceuticals in water," *WIT Transactions on Ecology and the Environment*, vol. 209, pp. 53-63, 2016. Published, 06/01/2016.
16. K. Carlson, C. Elliott, S. Walker, M. Misra, and S. Mohanty, "An Effective, Point-of-Use Water Disinfection Device Using Immobilized Black TiO₂ Nanotubes as an Electrocatalyst," *Journal of The Electrochemical Society*, vol. 163, pp. H395-H401, 2016. Published, 03/08/2016.
17. D. Bhattacharyya, Y. R. Smith, S. K. Mohanty, and M. Misra, "Titania Nanotube Array Sensor for Electrochemical Detection of Four Predominate Tuberculosis Volatile Biomarkers," *Journal of The Electrochemical Society*, vol. 163, pp. B206-B214, 2016. Published, 03/04/2016.
18. H. Jayamohan, Y. R. Smith, B. K. Gale, S. K. Mohanty, and M. Misra, "Photocatalytic microfluidic reactors utilizing titania nanotubes on titanium mesh for degradation of organic and biological contaminants," *Journal of Environmental Chemical Engineering*, vol. 4, pp. 657-663, 2016. Published, 03/01/2016.
19. J. M. Huber, K. L. Carlson, O. Conroy-Ben, M. Misra, and S. K. Mohanty, "Development of a field enhanced photocatalytic device for biocide of coliform bacteria," *Journal of Environmental Sciences*, vol. 44, pp. 38-44, 2016. Published, 01/14/2016.
20. Y. R. Smith, D. Bhattacharyya, S. K. Mohanty, and M. Misra, "Anodic functionalization of Titania nanotube arrays for the electrochemical detection of tuberculosis biomarker

- vapors," *Journal of The Electrochemical Society*, vol. 163, pp. B83-B89, 2016. Published, 01/01/2016.
21. Jayamohan, Harikrishnan, York R. Smith, Lauryn C. Hansen, Swomitra K. Mohanty, Bruce K. Gale, and Mano Misra. "Anodized titania nanotube array microfluidic device for photocatalytic application: Experiment and simulation." *Applied Catalysis B: Environmental* 174 (2015): 167-175. Published, 10/01/2015.
 22. Ray, Rupashree S., Biplab Sarma, Swomitra Mohanty, Keith Prisbrey, and Mano Misra. "Assessment of metals in detection of TB biomarkers: Novel computational approach." *Materials Chemistry and Physics* 161 (2015): 1-8. Published, 07/01/2015.
 23. Robinson, David C., Swomitra Mohanty, Jason Young, Greg Jones, and Darren Wesemann. "Novel techniques for mapping infectious diseases using point of care diagnostic sensors." In *Physics and Technology of Sensors (ISPTS), 2015 2nd International Symposium on*, pp. XVI-XVIII. IEEE, 2015. Published, 06/01/2015.
 24. Kim, Younghwan, Jason Young, David C. Robinson, Greg Jones, Mano Misra, and Swomitra K. Mohanty. "Titanium dioxide nanotube based sensing platform for detection of mycobacterium tuberculosis volatile biomarkers methyl nicotinate and p-anisate." In *Physics and Technology of Sensors (ISPTS), 2015 2nd International Symposium on*, pp. 317-324. IEEE, 2015. Published, 06/01/2015.
 25. Sarma, Biplab, Abraham L. Jurovitzki, Rupashree S. Ray, York R. Smith, Swomitra K. Mohanty, and Mano Misra. "Electrochemical capacitance of iron oxide nanotube (Fe-NT): effect of annealing atmospheres." *Nanotechnology* 26, no. 26 (2015): 265401. Published, 06/01/2015.
 26. Dhiman Bhattacharyya, York R Smith, Mano Misra, and Swomitra K Mohanty, " Electrochemical detection of methyl nicotinate biomarker using functionalized anodized titania nanotube arrays, 2015 *Mater. Res. Express* 2 025002. doi:10.1088/2053-1591/2/2/025002. Published, 01/01/2015.
 27. Smith, Y.R., Chappanda, K.N., Mohanty, S. K., Misra, M. "TiO₂-WO₃ Nanotubular Composite Synthesized by Anodization of Simultaneous Multi-Target Sputtered Thin Films Characterized by Laser Ablation ICP-MS." *ECS Transactions* 58, no. 41 (2014): 115-124. Published, 10/01/2014.
 28. Ray, R.S., Sarma, B., Mohanty, S. K., Misra, M., "Theoretical and experimental study of sensing of triacetone triperoxide (TATP) explosive through nanostructured TiO₂ substrates", *Talanta* 118(2014): 304-311. Published, 06/01/2014.
 29. Smith, Y.R., Gakhar, R. Merwin, A., Mohanty, S. K. Chidambaram, D., Misra, M. "Anodic titania, nanotube arrays, sensitized with Mn-or-Co-doped cds nanocrystals", *Electrochimica Acta* 135 (2014): 503-512. Published, 05/01/2014.
 30. K. N. Chappanda, Y. Smith, L. Rieth, P. Tathireddy, M. Misra, S. K. Mohanty "Effect of sputtering parameters on the morphology of TiO₂ nanotubes synthesized from thin Ti film on Si substrate", *IEEE Transactions and Nanotechnology* 2014,14 18-25. Published, 04/01/2014.
 31. K. N. Chappanda, Y. Smith, M. Misra, S. K. Mohanty, TiO₂-WO₃ composite nanotubes from co-sputtered thin films on Si substrate for enhanced photoelectrochemical water splitting, *Journal of The Electrochemical Society* 161. no. 9 (2014): H431-H437. Published, 02/18/2014.

32. B. Sarma, A.L., Y.R. Smith, A.L. Jurovitzki, S.K. Mohanty, M. Misra “Supercapacitance Behavior of Porous Oxide Layer Grown on 302-type Stainless Steel Substrate,” *J. Power Sources* (Accepted, 15-Feb-13). Published, 08/01/2013.
33. B. Sarma, A.L., Jurovitzki, R.S. Ray, Y.R. Smith, S.K. Mohanty, M. Misra, “Electrochemical Capacitance of Iron Oxide Nanotube (FE-NT): Effect of Annealing Atmosphere”, *Journal of Power sources*, March 15 2013. Published, 03/2013.
34. B. Sarma, A.L. Jurovitzki, Y.R., Smith, S.K. Mohanty, M. Misra, “Redox-Induced Enhancement in Interfacial Capacitance of Titania Nanotube/Bismuth Oxide Composite Electrode,” *ACS Appl. Mater. Interfaces* (Accepted, 17-Feb-13). Published, 02/17/2013.
35. M. R. Chapman, K R. Balakrishnan, J. Liu, M.J. Conboy, H. Huang, S. K. Mohanty, E. Jabart, J. Hack, I. M. Conboy and L. L. Sohn, “Sorting single satellite cells from individual myofibers reveals heterogeneity in cell-surface markers and myogenic capacity”, *Integrated Biology* 2013, DOI: 10.1039/c3ib20203h 2013. Published, 02/06/2013.
36. Y.R. Smith, B. Sarma, S.K. Mohanty, M. Misra, “Single-Step Anodization for Synthesis of Hierarchical TiO₂ Nanotube Arrays on Foil and Wire Substrate for Enhanced Photoelectrochemical Water Splitting,” *Int. J. Hydrogen Energ.*, 2013,38, 2062-2069. Published, 02/01/2013.
37. B. Sarma, Y. Smith, S. K. Mohanty, M. Misra, “Electrochemical Deposition of CdO on Anodized TiO₂ Nanotube Arrays for Enhanced Photoelectrochemical Properties”, *Materials Letters*, Volume 85, 15 October 2012, Pages 33–36. Published, 10/2012.
38. K. N. Chappanda, Y. Smith, S. K. Mohanty, L.W. Rieth, P. Tathireddy, P., Misra, M. “Growth and characterization of TiO₂ nanotubes from sputtered Ti film on Si substrate”, *Nanoscale Res Lett.* 2012 Jul 12;7:388. Published, 07/2012.
39. Y. Smith, B. Sarma, S. K. Mohanty, M. Misra, “Formation of TiO₂-WO₃ Nanotubular Composite via Single-Step Anodization and its Application in Photoelectrochemical Hydrogen Generation”, *Electrochemistry Communications*, Volume 19, June 2012, Pages 131–134. Published, 06/2012.
40. K. N. Chappanda, Y. Smith, M. Misra, S. K. Mohanty,” Site-specific and patterned growth of TiO₂ nanotube arrays from e-beam evaporated thin titanium film on Si wafer”, *Nanotechnology* 23 (2012) 385601 (8pp.). Published, 06/2012.
41. Y.R. Smith, B. Sarma, S.K. Mohanty, M. Misra, “Light Assisted Anodized TiO₂ Nanotube Arrays, *ACS Appl. Mater. Interfaces*, 2012, 4, 5883-5890. Published, 04/01/2012.
42. S.K. Mohanty, J. Warrick, D.J. Beebe, “Accessible Micro Capillary Electrophoresis Device Using Surface Tension Driven Flow”, *Electrophoresis* 2009;30(9):1470-81. 2009
43. Carbano, S.K. Mohanty, H. Huang, L. A. Godley, and L. L. Sohn, ”Cell Characterization Using a Protein-Functionalized Pore” *Lab Chip*, 2008, 8, 1478 - 1485
44. S.K. Mohanty, D. Kim. D.J. Beebe, “Do-it-yourself microelectrophoresis chips with integrated sample recovery”, *Electrophoresis*, 2006. 27(19): p. 3772-2778.
45. J. Moorthy, G.A. Mensing, D. Kim, S.K. Mohanty, D.T. Eddington, and D. J. Beebe, ”Microfluidic tectonics platform: A colorimetric, disposable botulinum toxin enzyme-linked immunosorbent assay system.”, *Electrophoresis* 2004. 25(10-11): p. 1705-1713

46. S.K. Mohanty, M. Graff, E. Moss and A.B. Frazier, "Micro Stenciling: A Generic Technology for Micro Scale Patterning of Vapor Deposited Materials," *Journal of Microelectromechanical Systems*, 2004. 13(6): p. 956-962
47. A.R. Han, O, Wang, M. Graff, S.K. Mohanty, et al., "Multi-layer plastic/glass microfluidic systems containing electrical and mechanical functionality", *Lab Chip* 2003. 3(3): p. 150-157.
48. T. Edwards, S.K. Mohanty, R.K. Edwards, and C.L. Thomas, "Rapid Micromold Tooling for Injection Molding Microfluidic Components," *Sensors & Materials*, (14:3) 1-12 (2002).
49. Papautsky, S. Mohanty, R. Weiss, and A.B. Frazier, "High Lane Density Slab Gel Electrophoresis using Micromachined Instrumentation," *Electrophoresis*, (22:18) 3908-3915 (2001).

Papers In Rigorously Reviewed Conferences

50. Hari Krishnan Jayamohan, York R. Smith, Bruce K. Gale, Manoranjan Misra, Swomitra K. Mohanty, "Platinum functionalized Titania Nanotube Array Sensor for Detection of Trichloroethylene in Water", *IEEE Transactions*, 2013. Conference Paper, Refereed, Presented, 11/01/2013.
51. S.K. Mohanty, S.K. Ravula, K. Engisch, and A.B. Frazier, "Micro Electrical Impedance Spectroscopy of Bovine Chromaffin Cells," *IEEE EMBS Special Topic Conference on Microtechnologies in Medicine & Biology*, Madison, WI, May 2002, pp. 485-489.
52. A. Han, O. Wang, S.K. Mohanty, M. Graff, and A.B. Frazier, "A Multi-Layer Plastic Packaging Technology for Miniaturized Bio Analysis Systems Containing Integrated Electrical and Mechanical Functionality," *IEEE EMBS Special Topic Conference on Microtechnologies in Medicine & Biology*, Madison, WI, May 2002, pp 66-70.
53. J.D. Brazzle, S. Mohanty, and A.B. Frazier, "Micromachined Multiple Output Port Needle," *IEEE International Conference on Engineering in Medicine and Biology*, Atlanta, GA, October 1999, pg. 834.
54. A. Han, O. Wang, S.K. Mohanty, M. Graff, and A.B. Frazier, "Advanced MEMS Packaging for Microfluidic Systems Containing Electrical and Mechanical Functionality," *IMAPS Advanced Technology Workshop for Packaging of MEMS and Related Micro Integrated Systems*, Scotts Valley, CA, November 2002
55. I. Papautsky, S.K. Mohanty, R. Weiss, and A.B. Frazier, "High Lane Density Slab Gel Electrophoresis by Micromachined Instrumentation," *IEEE International Conference on Engineering in Medicine and Biology*, Atlanta, GA, October 1999, pg. 843.

Conference Presentations

1. Saffary, Y., McKinnon, L., Willis, C., Carlson, K. and Mohanty, S., 2019, November. Analysis of Pneumonia Associated Volatile Organic Compounds from Bacteria Culture Using Synthesized TiO₂ Nanotube Array Sensor and Gas Chromatography/Mass Spectrometry. In 2019 AIChE Annual Meeting

2. McKinnon, L., Cho, H., Wang, B., Mohanty, S., Magda, J., Deo, M. and Bartyl, M., 2019, November. In-Situ Synthesis and Characterization of Mesoporous SBA-15 inside Enclosed Polymer Microchannels. In 2019 AIChE Annual Meeting. AIChE.
3. McKinnon, L., Saffary, Y., Carlson, K. and Mohanty, S., 2019, November. Modeling Fermi Levels in Metal Functionalized TiO₂ Sensors for Applications in Volatile Organic Biomarker Detection Associated with Pneumonia. In 2019 AIChE Annual Meeting
4. Andama, A., Crowder, R., Willis, C., McKinnon, L., Jaganath, D., Joloba, M., Cattamanchi, A., Mohanty, S., Methyl nicotinate and methyl para-anisate as breath biomarkers for tuberculosis diagnosis: a pilot study in Kampala, Uganda, The 50th Union World Conference on Lung Health, Hyderabad, India, October 29-30
5. Willis, C.N., Misra, M. and Mohanty, S.K., 2019, May. Engineered Electroactive Solutions for Electrochemical Detection of Volatile Organic Biomarkers Associated with Disease. In Meeting Abstracts (No. 44, pp. 2116-2116). The Electrochemical Society.
6. Saffary, Y., McKinnon, L., Willis, C.N., Carlson, K. and Mohanty, S.K., 2019, May. Detection of Pneumonia Volatile Organic Biomarkers Via Nanotube Sensing Platform. In Meeting Abstracts (No. 44, pp. 2118-2118). The Electrochemical Society.
7. H.-Y. Leu, F. Solzbacher, J. Magda, S. Mohanty, "Molecular-imprinted thrombin responsive hydrogels integrated into a microfluidics device with electronic readout", Point-of-Care Diagnostics and Global Health 2018, San Diego, CA, Oct 1-3, 2018
8. A. Andama, A. Cattamanchi, S.K. Mohanty, "Innovative TiO₂ Nanotube Based Breath Sensors for Diagnosis of Tuberculosis, Center for Emerging Neglected Diseases (CEND) Conference, Berkeley, CA January 6-8 2018
9. S. Mohanty, Y. Saffary, C. Willis, and M. Misra, "Point of Care Screening of Tuberculosis from Breath Using Functionalized TiO₂ Nanotube Array Sensing Platform, Translational Medicine and Bioengineering Conference, AIChE San Francisco, November 12-18. Poster, Presented, 11/13/2016.
10. Saffary, C. Willis, M. Misra, and S. Mohanty, Detection of Tuberculosis Volatile Organic Biomarkers Methyl Nicotinate and Methyl Phenyl Anisate Using Two-Step Anodized Titanium Dioxide Nanotube Arrays, Translational Medicine and Bioengineering Conference, AIChE San Francisco, November 12-18, 2016. Poster, Presented, 11/13/2016.
11. D. Bhattacharyya, M. Misra, S. Mohanty, "Rapid Screening/Diagnosis of Tuberculosis from Breath Using Functionalized TiO₂ Nanotube Array Sensing Platform", Biomedical Medical Engineering Society Annual Meeting 2016, October 5-8, Minneapolis, MN, .
12. D. Bhattacharyya, M. Misra, and S. K. Mohanty, "Fabrication of Smart Au/TiO₂ Nanotubes/Si Based Schottky-Tunneling Diode Sensors for Electrochemical Detection of Biomarkers," in Meeting Abstracts, 2016, pp. 2022-2022. Published, 05/30/2016.
13. A. Tripathy, D. Bhattacharyya, M. Misra, S. Mohanty, "Electrochemical Detection of Volatile Organic Compounds (VOCs) associated with Colorectal Cancer via Nickel Functionalized Titania Nanotube Arrays (TNAs)", Biomedical Medical Engineering Society Annual Meeting 2016, October 5-8, Minneapolis, MN. Poster, Presented, 10/06/2016.
14. York Smith, Harikrishnan Jayamohan, Manor Misra, Swomitra Mohanty, Photocatalytic Degradation and Microbial Inactivation Utilizing Titania Nanotube Arrays in a Microfluidic Format, AIChE Annual Meeting, November 8-13, 2015. Conference Paper, Refereed, Presented, 11/11/2015.

15. Yen-Hsun Tseng, Samuel Doane, Tyler Lee, Leonard F. Pease III, Swomitra Mohanty¹, John McLennan, Anthony Edward Butterfield and Rete Browning, Periodic Symmetry Defined Bioreactor AICHE Annual Meeting, November 8-13, 2015. Conference Paper, Refereed, Presented, 11/11/2015.
16. Shawn Walker, Julian Tamlos, Krista Carlson, Mano Misra, Swomitra Mohanty, Photoelectrocatalytic Degradation of Organics in Water Using TiO₂ Nanotubes, AICHE Annual Meeting, November 8-13, 2015. Conference Paper, Refereed, Presented, 11/11/2015.
17. Casey Elliott, Krista Carlson, Mano Misra, Swomitra Mohanty, Optimization of Titanium Dioxide Nanotubes for Bacterial Inactivation, AICHE Annual Meeting, November 8-13, 2015. Conference Paper, Refereed, Presented, 11/11/2015.
18. Dhiman Bhattacharyya, York Smith, Manoranjan Misra and Swomitra Mohanty, A Comparison of Cobalt and Gold Functionalized TiO₂ Nanotubes Based Sensing Platform for Enhanced Electrochemical Detection of Volatile Organic Biomarkers, AICHE Annual Meeting, November 8-13, 2015. Conference Paper, Refereed, Presented, 11/10/2015.
19. Jeff Huber, Krista Carlson, Mano Misra, Swomitra Mohanty, Electrocatalytic Inactivation of E. coli in Point of Use Drinking Water Applications Using TiO₂ Nanotubes, AICHE Annual Meeting, November 8-13, 2015. Conference Paper, Refereed, Presented, 11/10/2015.
20. Younghwan Kim, Seung Hei Cho, Jules Magda and Swomitra Mohanty Copper Functionalized TiO₂ Nanotube Sensors for Enhanced Rapid Glutathione Sensing, AICHE Annual Meeting, November 8-13, 2015. Conference Paper, Refereed, Presented, 11/10/2015.
21. Matthew Lemieux, Swomitra Mohanty and Eric Eddings, Value-Added Products from Thermal Treatment of Biomass Pyrolysis Oil, AICHE Annual Meeting, November 8-13, 2015. Conference Paper, Refereed, Presented, 11/10/2015.
22. Swomitra K. Mohanty, Younghwan Kim, Mano Misra, Detection of Mycobacterium Tuberculosis Volatile Biomarkers Using a Titanium Dioxide Nanotube Based Sensing Platform, AICHE Annual Meeting, November 8-13, 2015. Presented, 11/09/2015.
23. Smith, York R., Dhiman Bhattacharyya, Swomitra K. Mohanty, and Mano Misra. "Electrochemical Detection of Volatile Organic Biomarkers Using Next Generation Titania Nanotube Arrays." In Meeting Abstracts, no. 40, pp. 2129-2129. The Electrochemical Society, 2015. Conference Paper, Refereed, Presented, 05/21/2015.
24. Carlson, Krista, Jeff Huber, Mano Misra, and Swomitra K. Mohanty. "Voltage Assisted Photocatalytic Flow through Cell for Inactivation of Biological Pathogens Using Titania Nanotube Arrays." In Meeting Abstracts, no. 32, pp. 1861-1861. The Electrochemical Society, 2015. Conference Paper, Refereed, Presented, 05/20/2015.
25. Smith, York R., Harikrishnan Jayamohan, Lauryn Hansen, Swomitra K. Mohanty, Bruce K. Gale, and Mano Misra. "Microfluidic Photocatalytic Device Utilizing Anodized Titania Nanotube Arrays: Application and Simulation Validation." In Meeting Abstracts, no. 37, pp. 1995-1995. The Electrochemical Society, 2015. Conference Paper, Refereed, Presented, 05/19/2015.
26. Bhattacharyya, Dhiman, York R. Smith, Swomitra K. Mohanty, and Mano Misra. "Electrochemical Detection of Four Prominent Tuberculosis Biomarkers Using Functionalized Titania Nanotubular Array Sensing Platform." In Meeting Abstracts, no.

- 39, pp. 2069-2069. The Electrochemical Society, 2015. Conference Paper, Refereed, Presented, 05/19/2015.
27. Swomitra Mohanty, Mano Misra, " Titanium Dioxide Nanotube Based Sensing Platform for Detection of Mycobacterium Tuberculosis Volatile Biomarkers", 2nd International Symposium on Physics Technology of Sensors, March 8-10, 2016, Pune India. Invited Talk/Keynote, Presented, 03/10/2015.
 28. Electrodynamic Sorting of Light Metals and Alloys, ARPA-E Show Case, January 29-Feb 2, 2015, National Harbor, Maryland. Other, Presented, 01/30/2015.
 29. Bhattacharyya, D., Smith, Y.R., Misra, M., Mohanty, S.K."Solid State Functionalized Titania Nanotube Array Sensor for TB Biomarker Detection, COMS NanoUtah 2014, October 12-14, Salt Lake City, UT USA. Conference Paper, Refereed, Presented, 10/12/2014.
 30. Jeff Huber, Casey Elliott, Krista Carlson, Mano Misra, Swomitra Mohanty, "Solar-driven Water Purification via Photocatalytic Oxidation of Chemical Pollutants and E. Coli with Titanium Dioxide Nanotube Arrays" COMS NanoUtah, October 12-15, Salt Lake City, UT USA. Conference Paper, Refereed, Presented, 10/11/2014.
 31. Y.R. Smith S.K., Mohanty, "What's in our Breath? TEDxReno, Lear Theater, Reno, NV, 06-June-2014. Invited Talk/Keynote, Presented, 06/06/2014.
 32. Kim, Y.; Smith, Y.R.; Mohanty, S.K.; Misra, M. "Point-of-Care Detection of Volatile Organic Compound Biomarkers from Mycobacterium tuberculosis by Breath Analysis Using Self-Organizing Titania Nanotube Arrays" Presented at the International Union of Materials Research Societies Meeting, J.N. Tata National Science Complex, Bangalore, India, 16-Dec-2013. Conference Paper, Refereed, Presented, 12/18/2013.
 33. Y. Smith B. Sarma, A. Jurovitzki, S. K. Mohanty, M. Misra, "Titania Nanotube Array/Bismuth Oxide Interfacial Capacitance Electrode", 224th ECS Meeting in San Francisco, California (October 27-November 1, 2013. Conference Paper, Refereed, Presented, 10/31/2013.
 34. Y. Smith, K. Chappanda, S. K. Mohanty, M. Misra, "TiO₂-WO₃ Nanotubular Composite Synthesized by Anodization of Simultaneous Multi-Target Sputtered Thin Films Characterized by Laser Ablation ICP-MS", 224th ECS Meeting in San Francisco, California (October 27-November 1, 2013). Conference Paper, Refereed, Presented, 10/31/2013.
 35. H. Li, H. Jayamohan, C. Lambert, S. Mohanty, and B.K. Gale, "AUTOMATED WHOLE BLOOD PROCESSING WITH A PORTABLE MICROFLUIDIC DEVICE FOR POINT-OF-CARE DIAGNOSIS", The 17th International Conference on Miniaturized Systems for Chemistry and Life Sciences. Conference Paper, Refereed, Presented, 10/31/2013.
 36. Harikrishnan Jayamohan, York R. Smith, Bruce K. Gale, Manoranjan Misra, Swomitra K. Mohanty, "Platinum functionalized titania nanotube array sensor for detection of trichloroethylene in water", NanoUtah 2013. Other, Presented, 10/18/2013.
 37. Younghwan Kim, Seung Hei Cho, Jules Magda, Swomitra K. Mohanty "Diagnosis of oxidative stress using a titanium dioxide nanotube sensor for glutathione measurement" NanoUtah 2013. Other, Presented, 10/18/2013.
 38. Younghwan, Kim, Manoranjan Misra, Swomitra K. Mohanty, "Titanium Dioxide Nanotube Based Sensing Platform for Rapid Detection of Tuberculosis Derived Volatile

- Organic Compounds", The 7th International Conference on Microtechnology in Medicine and Biology, April 10-12, 2013. Conference Paper, Refereed, Presented, 04/11/2013.
39. Kim, Y.; Smith, Y.R.; Mohanty, S.K.; Misra, M. "Point-of-Care Detection of Volatile Organic Compound Biomarkers from Mycobacterium tuberculosis by Breath Analysis Using Self-Organizing Titania Nanotube Arrays" Presented at the International Union of Materials Research Societies Meeting, J.N. Tata National Science Complex, Bangalore, India, 16-Dec-2013.
 40. Y. Smith B. Sarma, A. Jurovitzki, S. K. Mohanty, M. Misra, "Titania Nanotube Array/Bismuth Oxide Interfacial Capacitance Electrode", 224th ECS Meeting in San Francisco, California (October 27-November 1, 2013)
 41. H. Li, H. Jayamohan, C. Lambert, S. Mohanty, and B.K. Gale, "AUTOMATED WHOLE BLOOD PROCESSING WITH A PORTABLE MICROFLUIDIC DEVICE FOR POINT-OF-CARE DIAGNOSIS", The 17th International Conference on Miniaturized Systems for Chemistry and Life Sciences
 42. Y. Smith, K. Chappanda, S. K. Mohanty, M. Misra, "TiO₂-WO₃ Nanotubular Composite Synthesized by Anodization of Simultaneous Multi-Target Sputtered Thin Films Characterized by Laser Ablation ICPMS ", 224th ECS Meeting in San Francisco, California (October 27-November 1, 2013)
 43. Younghwan, Kim, Manoranjan Misra, Swomitra K. Mohanty, "Titanium Dioxide Nanotube Based Sensing Platform for Rapid Detection of Tuberculosis Derived Volatile Organic Compounds", The 7th International Conference on Microtechnology in Medicine and Biology, April 10-12, 2013
 44. Younghwan Kim, Seung Hei Cho, Jules Magda, Swomitra K. Mohanty "Diagnosis of oxidative stress using a titanium dioxide nanotube sensor for glutathione measurement" NanoUtah 2013
 45. Y. Kim, M. Misra, S. K. Mohanty, "TiO₂ Nanotube Based Volatile Biomarker Sensor for Non-Invasive Diagnosis of Tuberculosis," 2012 International Breath Analysis Meeting, October 28-November 1, 2012
 46. H. Jayamohan, H. Sant, Y. Smith, S. K. Mohanty, M. Misra, B. K. Gale, "Ordered carbonized titania nanotube based electrochemical detection of hemoglobin," NanoUtah 2012, October 11-12
 47. K. N. Chappanda, Y. R. Smith, S. K. Mohanty, L W. Rieth, P. Tathireddy, M. Misra," Growth and characterization of TiO₂ nanotubes from sputtered Ti film on Si substrates," Porous Semiconductors Science and Technology, March 25-30, 2012 Malaga, Spain
 48. B. Sarma; K.S. Raja; S.K. Mohanty; M. Misra Electrochemical and Diffusion Study of Multi-Component Lanthanides in LiCl-KCl Eutectic International Symposium on Molten Salts and Ionic Liquids 2011. (Oral Presentation), 12/01/2011
 49. S.K. Mohanty, M.J. Conboy, I. Conboy, L.L. Sohn, "Stem-Cell Surface Marker Interrogation via Resistive-Pulse Sensing: Screening for Sca-1 Expression in Mouse

Muscle Stem Cells” *International Conference on Micro Total Analysis Systems*, Jeju Island, South Korea, Japan, November 1-5 2009 (11% acceptance rate for oral presentations)

50. Y. Kim, S. K. Mohanty, M. Misra, “TiO₂ Nanotube Based Volatile Biomarker Sensor for Non-Invasive Diagnosis of Tuberculosis,” 2012 International Breath Analysis Meeting, October 28-November 1, 2012. Conference Paper, Refereed, Presented, 10/29/2012.
51. H. Jayamohan, H. Sant, Y. Smith, S. K. Mohanty, M. Misra, B. K. Gale, “Ordered carbonized titania nanotube based electrochemical detection of hemoglobin,” NanoUtah 2012, October 11-12. Conference Paper, Refereed, Presented, 10/11/2012.
52. K. N. Chappanda, Y. R. Smith, L. W. Rieth, P. Tathireddy, S. K. Mohanty, M. Misra “Site-specific and patterned growth of TiO₂ nanotube arrays from e-beam evaporated thin titanium film on Si wafer,” NanoUtah 2012, October 11-12. Conference Paper, Refereed, Presented, 10/11/2012.
53. Y. Kim, S. K. Mohanty, M. Misra TiO₂ “Nanotube-based volatile biomarker sensor for non-invasive diagnosis of tuberculosis,” NanoUtah 2012, October 11-12. Conference Paper, Refereed, Presented, 10/11/2012.
54. K. N. Chappanda, Y. R. Smith, S. K. Mohanty, L. W. Rieth, P. Tathireddy, M. Misra,” Growth and Characterization of Thin Film Titania Nanotubes on Silicon Substrates,” Materials Research Society Meeting, April 9-12, 2012. Conference Paper, Refereed, Presented, 04/11/2012.
55. K. N. Chappanda, Y. R. Smith, S. K. Mohanty, L. W. Rieth, P. Tathireddy, M. Misra,” Growth and characterization of TiO₂ nanotubes from sputtered Ti film on Si substrates,” Porous Semiconductors Science and Technology, March 25-30, 2012 Malaga, Spain. Conference Paper, Refereed, Presented, 03/25/2012.
56. Electrochemical and Diffusion Study of Multi-Component Lanthanides in LiCl-KCl Eutectic B. Sarma; K.S. Raja; S.K. Mohanty; M. Misra International Symposium on Molten Salts and Ionic Liquids 2011. Conference Paper, Refereed, Presented, 12/01/2011.
57. S.K. Mohanty, M.J. Conboy, I. Conboy, L.L. Sohn "Isolation and Analysis of Satellite Cells from the Muscle Niche Using Microfluidics", The Ottawa Conference on New Directions in Biology and Disease of Skeletal Muscle, May 6-9, 2010, Ottawa, Canada. Invited Talk/Keynote, Presented, 06/2010.
58. S.K. Mohanty, M.J. Conboy, I. Conboy, L.L. Sohn, “Stem-Cell Surface Marker Interrogation” *BMES Annual Meeting October 7-10, 2009*, David L. Lawrence Convention Center Pittsburgh, PA (Oral Presentation)
59. S.K. Mohanty, L.L. Sohn, D.J. Beebe, “Hybrid polymer/thin film impedance system for label free monitoring of cells”, *Engineering in Medicine and Biology Society, 2004. EMBC 2004. Conference Proceedings. 26th Annual International Conference*, Volume 1, 2004 Page(s):2561 - 2564 Vol.4 (Oral Presentation)
60. S.K. Mohanty, S.K. Ravula, K. Engisch, and A.B. Frazier, “A Micro Analysis System Using Dielectrophoresis and Micro Electrical Impedance Spectroscopy for Cell Manipulation and Analysis,” *The 12th International Conference on Solid-State-Sensors*,

Actuators and Microsystems, Boston, Massachusetts USA, June 8-12, 2003 (Oral Presentation).

61. S.K. Mohanty, S.K. Ravula, K. Engisch, and A.B. Frazier, "Single Cell Analysis of Bovine Chromaffin Cells Using Micro Electrical Impedance Spectroscopy," *International Conference on Micro Total Analysis Systems*, Nara, Japan, November 3-7, 2002 pp. 838-840.
62. S.K. Mohanty, M. Graff, K. Ravula, A. Han, and A.B. Frazier, "A Micro Stenciling Process for Wafer Scale Metallization of Plastic Substrates," *International Conference on Micro Total Analysis Systems*, Monterey, CA, October 2001, pp. 387-88
63. T.L. Edwards, S.K. Mohanty, R.K. Edwards, C. Thomas, and A.B. Frazier, "Rapid Tooling Using SU-8 for Injection Molding Microfluidic Components," *SPIE Micro Fluidic Devices and Systems Conference*, Santa Clara, CA, September 2000, pp. 82-89.
64. I. Papautsky, S.K. Mohanty, R. Weiss, and A. B. Frazier, "Micromachined Pipette Arrays for High Lane Density Slab Gel Electrophoresis," *International Conference on Solid-State Sensors and Actuators*, Sendai, Japan, June 1999, pp. 52-55. (25.7% acceptance rate for oral presentations)
65. J. Brazzle, S.K. Mohanty, and A.B. Frazier, "Hollow Metallic Micromachined Needles with Multiple Output Ports," *SPIE Micro Fluidic Devices and Systems Conference*, Santa Clara, CA, September 1999, pp. 257-266.
66. I. Papautsky, S.K. Mohanty, T. Ameal, and A.B. Frazier, "Effects of Rectangular Microchannel Aspect Ratio on Laminar Friction Constant," *SPIE Micro Fluidic Devices and Systems Conference*, Santa Clara, CA, September 1999, pp. 147-159.

Invited Talks

S. K. Mohanty, "Detection of Food Derived Volatile Organic Compounds Using Metal Functionalized Titanium Dioxide Nanotube Arrays," International Conference on Hygiene and Cleaning Devices, Satara, Maharashtra, India, March 5-7, 2018

S. K. Mohanty, "Point-of-Care Diagnostics Sensing Platform Using Engineered Titanium Dioxide Nanotubes Semiconductors," International Conference on Advanced Semiconductor Materials and Devices (ICASMD-2018), IICT Auditorium, CSIR-Indian Institute of Chemical Technology, Hyderabad - 500 007, Telangana State, India, March 8-10, 2018

S. K. Mohanty, "Breath-based point-of-care test for diagnosis of pulmonary TB", Symposium on Breakthroughs and New Challenges in the Diagnosis and Management of Tuberculosis March 18th, 2016, MGM Institute of Health Sciences, Mumbai, Maharashtra, India

S.K. Mohanty, "Black TiO₂ Nanotubular Structures for Electrocatalytically Driven Degradation of Biological Pathogens in Water", International Conference on Functional Eco-Friendly Smart Emerging Materials (FESEM) March 10-12, 2016, Pune, Maharashtra, India

S. K. Mohanty, "Breath-based point-of-care test for pulmonary TB", Utah Department Health World TB Conference March 24th, 2016, Salt Lake City, Utah, USA

Swomitra Mohanty, Mano Misra, " Titanium Dioxide Nanotube Based Sensing Platform for Detection of Mycobacterium tuberculosis Volatile Biomarkers", 2nd International Symposium on Physics Technology of Sensors, March 8-10, 2016, Pune India

Swomitra Mohanty, "Engineered Titanium Dioxide Nanotube Based Sensing Platform for Low Cost Biomedical Diagnostics in Resource Limited Settings", Madison Wisconsin Invited Seminar, February 27, 2017

Patents

Periodic symmetry defined bioreactor US9790459B2, Inventors: Leonard Franklin Pease, III, Swomitra K. Mohanty, John McLennan, Tony Butterfield, Tyler Lee, Samuel Doane, Rete Browning, Yen-Hsun Tseng

Functionalized nanotube sensors and related methods US10241078B2, Inventors: Swomitra Kumar Mohanty, Manoranjan Misra, Younghwan Kim, Jules Magda