

## Maya A. Trotz

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### **EDUCATION**

- 1996 – 2002      **Stanford University**      **Stanford, CA**  
*Ph.D. in Civil and Environmental Engineering*  
*Advisor: James O. Leckie*  
*Thesis Topic: Porous alumina packed bed reactors: A treatment technology for arsenic removal.*
- 1994 – 1996      **Stanford University**      **Stanford, CA**  
*M.S. in Civil and Environmental Engineering*
- 1990 – 1994      **Massachusetts Institute of Technology**      **Cambridge, MA**  
*B.S. in Chemical Engineering, minor in Theater*

### **EXPERIENCE**

- Aug. 2004 – Present      **University of South Florida**      **Tampa, FL**  
*Assistant Professor, Civil and Environmental Engineering Department. Consulting faculty, Department of Women Studies. Kiran C. Patel Center for Global Solutions Faculty Fellow. Research Affiliate, USF Office of Sustainability.*
- Sep. 2003 – Dec. 2003      **Nanyang Technological University**      **Singapore**  
*Lecturer, Civil and Environmental Engineering Department.*
- June 2002 – July 2004      **Stanford University**      **Stanford, CA**  
*Postdoctoral Researcher, Environmental Engineering Department*  
*Advisor: James O. Leckie*  
*Topics: Photocatalytic Oxidation and the development of the Singapore Stanford Partnership started established 2003.*

### **PEER REVIEWED JOURNAL PUBLICATIONS (# - graduate student)**

1. Thomas, K. D.<sup>#</sup>, Howard, J. A., Omisca, E., Trotz, M. A. (2009) Exploring the Link between Ecotourism Activities and Surface Water Quality: Using Water Quality as a Sustainability Indicator. *Journal of the Association of Professional Engineers of Trinidad and Tobago*, 38 (1).
2. Oti, D.<sup>#</sup> and M.A. Trotz. (2008) Characterization and adsorption of arsenate and selenite onto Kemiron. *Journal of Environmental Science and Health, Part A: Toxic/Hazardous Substance and Environmental Engineering*, 43 (10), pages 1184-1191.
3. Dalrymple, O. K.<sup>#</sup>; Yeh, D.; Trotz, M. A. (2007) Photocatalysis as a removal mechanism for pharmaceuticals and endocrine disrupting compounds in wastewater – A Review. *Journal of Chemical Technology and Biotechnology*, 82 (2), pages 121-134.
4. Villalobos, M.; Trotz, M. A.; Leckie, J. O. (2003) Variability in goethite surface site density: evidence from proton and carbonate sorption. *Journal of Colloid and Interface Science*, 268 (2), pages 273-287.
5. Villalobos, M.; Trotz, M., Leckie, J. O. (2001) Surface complexation modeling of carbonate effects on the adsorption of Cr(VI) and Pb(II) on goethite. *Environmental Science and Technology*, 35 (19), pages 3849-3856.

### **PEER REVIEWED JOURNAL PUBLICATIONS ACCEPTED WITH REVISION**

Mihelcic, J.R.; and Trotz, M.A. *Environmental Engineer: Applied Research and Practice*, in Environmental Engineer, the Magazine of the American Academy of Environmental Engineers. **The American Academy of Environmental Engineers is a specialty Certification Board, not a members organization. It's prestigious certification currently covers 2,430 academics and practicing engineers in the U.S.**

**PEER REVIEWED PROCEEDINGS (# - graduate student, <sup>u</sup> - undergraduate student)**

1. Trotz, M. A.; Muga, H. E.; Phillips, L.D.; Yeh, D.; Stuart, A.; Mihelcic, J. R. (2009) Non-traditional University research partners that facilitate service learning and graduate research for sustainable development. *Proceedings of the ASEE Annual Conference & Exposition, Austin, TX, June 14-17, 2009.*
2. Trotz, M. A.; Thomas, K. D.<sup>#</sup> (2009) Sustainability concepts through an applied environmental engineering laboratory: Studying stormwater ponds at the university and local communities. *Proceedings of the ASEE Annual Conference & Exposition, Austin, TX, June 14-17, 2009.*
3. Trotz, M.A.; Muga, H.E.; Phillips, L.D.; Yeh, D.; Stuart, A.; Mihelcic, J.R. (2009) Non-traditional university research partners that facilitate service learning and graduate research for sustainable development. *Proceedings of the 2009 World Environmental & Water Resources Congress," Kansas City, MO, May 17-21, 2009.*
4. Thomas, K. D.<sup>#</sup>; Howard, J. A.<sup>#</sup>; Omisca, E.<sup>#</sup>; Green, T.; Trotz, M. A. (2009) Stormwater pond beautification in East Tampa: The basis for University, K-12, and community partnerships that broaden participation in environmental engineering. *Proceedings of the Southeastern Section Meeting of ASEE, Memphis, TN, Marietta, GA, April 5-7, 2009.*
5. Trotz, M. A. (2008) Diaspora communities and sustainable urban development: Lessons from floods in Guyana. *Proceedings of the Third International Conference on Sustainability Engineering and Science, Auckland, New Zealand, December 9-12, 2008.*
6. Thomas, S., Trotz, M. A., Alcantar N.; and Perez, R. (2008) International partnering to sustain engineering innovation. *Proceedings of the 7th ASEE Global Colloquium on Engineering Education, Cape Town, South Africa, October 19-23, 2008.*
7. Trotz, M. A. (2008) Concepts of Sustainability introduced through first year Foundations of Engineering class projects. *Proceedings of the National ASEE Annual Conference & Exposition, Pittsburgh, PA, June 22-25, 2008.*
8. Thomas, K. D.<sup>#</sup>; Thomas, S. W.; Fernandez, E.; Howard, J. A.<sup>#</sup>; Omisca, E.<sup>#</sup>; Gerken, A.<sup>u</sup>; Tyler, L.; Carpenter-van Dijk, S.; Trotz, M. A. (2008) K-12 Exposure to water quality, treatment, resources and management at the Florida Aquarium as an outreach activity during a large professional conference. *Proceedings of the Southeastern Section Meeting of ASEE, Memphis, TN, April 6-8, 2008.*

**PEER REVIEWED PROCEEDING ABSTRACTS (# - graduate student, <sup>u</sup> - undergraduate student)**

1. Halfhide, T.C.<sup>#</sup>; Akiwumi, F.; Trotz, M. A.; Stuart, A.; Howard, J.<sup>#</sup> Mercury perception, community awareness and sustainability implications for the Tampa Bay region, Florida. *Proceedings of the Association of American Geographers Annual Meeting, Las Vegas Nevada, 3/27/09.*
2. Trotz, M. A.; Howard, J. H.<sup>#</sup>; Stuart, A.; Akiwumi, F. Mercury sorption to river sediments from the Hillsborough river: Potential impacts from climate change. *American Chemical Society (ACS) 237<sup>th</sup> National Conference & Exposition, Salt Lake City, UT, 03/24/09.*
3. Mihelcic, J.R.; Trotz, M. A.; Omisca, E.<sup>#</sup> The Best Option? Drinking Water Treatment or Advances in Supply and Storage. *ACS 237th National Conference & Exposition, Salt Lake City, UT, 03/25/09.*
4. Stuart, A.\*; Trotz, M.; Akiwumi, F. (2008) An integrated student-centered study of mercury in the economy, society, and environment of the Tampa Bay area. *136th American Public Health Association (APHA) Annual meeting, San Diego, CA, 10/28/08.*
5. Howard, J.A.<sup>#</sup>; Trotz, M. A. An Investigation of total mercury levels in the Hillsborough River, Tampa, FL. *SETAC North American 29th Annual Meeting, 11/17/08.*
6. Coutinho, C.<sup>#</sup>; Walker, D.<sup>u</sup>; Trotz, M.; Gupta, V. A. Composite materials of thermo-responsive polymer networks and inorganic nanoparticles. *Proceedings of the annual meeting of the AIChE, 11/06.*
7. Trotz, M.; Ferguson, A. The sustainability of Guyana's mining industries: Strategies for improvement. *Epidemiology, 16(5): 143. Abstracts from the Seventeenth Conference of the International Society for Environmental Epidemiology (ISEE), 09/05.*

**PEER REVIEWED PUBLICATIONS IN REVIEW**

1. Thomas, K. D.<sup>#</sup>; Trotz, M. A. The sustainability of ecotourism activities: Development of an accessible, applicable, and efficient tool for assessment in the Caribbean region. *Journal of Environmental Management.*
2. Howard, J. H.<sup>#</sup>; Trotz, M. A.; Halfhide, T.<sup>#</sup>; Thomas, K.D.<sup>#</sup>; Omisca, E.<sup>#</sup>; Chiu, H.T.<sup>u</sup>; Michael, R.<sup>#</sup>; Stuart, A.; Akiwumi, F. Total mercury loadings in sediment from gold mining and conservation areas

in Guyana and implications of a Low Carbon Development Strategy. *Science of the Total Environment*.

3. Cunningham, J. A.; Okwen, R. T.; Thomas, M. W.; Trotz, M. A.; Stewart, M. Expected CO<sub>2</sub>-water-rock interactions and changes in formation porosity in a deep saline aquifer in Florida, United States. Submitted to the American Geophysical Union, 2009 Fall Meeting, San Francisco, California, USA, 12/14/09.
4. Trotz, M. A.; Thomas, K.D.; Gamache, R.; Cunningham, J.; Falherty, T. Improving Writing in Civil and Environmental Engineering Courses Using CLAQWA, An Online Tool for Writing Improvement. Submitted for consideration at the 2010 ASEE National Conference.
5. Thomas, K. D.<sup>#</sup>; Howard, J. A.<sup>#</sup>; Omisca, E.<sup>#</sup>; Green, T.; Trotz, M. A. Using Stormwater Ponds in East Tampa to Promote Sustainable, Healthy Communities: A Community Partnership Approach. Abstract submitted to the 2010 National Water Quality Monitoring Council Conference (Monitoring from the Summit to the Sea).

**PEER REVIEWED PUBLICATIONS IN PROGRESS (# - graduate student, <sup>u</sup> - undergraduate student)**

1. Howard, J. H.<sup>#</sup>; Halfide, T.<sup>#</sup>; Thomas, K.D.<sup>#</sup>; Omisca, E.<sup>#</sup>; Michael, R.<sup>#</sup>; Stuart, A.; Akiwumi, F.; Trotz, M. A. Mercury in the Hillsborough River in Tampa, FL: Fish consumption advisories and water, sediment and fish loadings. *Environmental Research*.
2. Thomas, K. D.<sup>#</sup>; Trotz, M. A. Sustainability assessment tools and the quantification of management strength in Caribbean Ecotourism. *Journal of Ecotourism*.
3. Oti, D.<sup>#</sup>; Trotz, M. A. Adsorption of arsenite onto Kemiron: Effect of particle size, pH, ionic strength and presence of competing ions. *Journal of Environmental Engineering*.
4. Oti, D.<sup>#</sup>; Trotz, M. A. Arsenic removal from synthetic landfill leachate using Kemiron, a commercially available iron oxide. *Journal of Environmental Engineering*.
5. Dalrymple, O. K.<sup>#</sup>; Stefanakos, E.; Trotz, M. A.; Goswami, D. Y. Review on the mechanisms and modeling of photocatalytic disinfection.
6. Akiwumi, F. A.; Trotz, M. A.; Stuart, A. L. A remote sensing study of environmental change from gold mining, Mahdia, Guyana.

**BOOK CHAPTERS**

1. Trotz, M. A. Water quality at selected sites in the Konashen COCA, southern Guyana. In: by Leeanne E. Alonso, Jennifer McCullough, Piotr Naskrecki, Eustace Alexander, and Heather Wright, editors. A Rapid Biological Assessment of the Konashen Community Owned Conservation Area, Southern Guyana. RAP Bulletin of Biological Assessment #51, *Conservation International, Arlington, VA*, 90 pages, 2009.

**BOOK CHAPTERS (Dr. Trotz is contributor)**

1. Chapter 14: Water Storage Tanks, in *Field Guide to Environmental Engineering for Development Workers: Water, Sanitation, and Indoor Air*, (Mihelcic, J.R., E.A. Myre, L.M. Fry, L.D. Phillips, B.D. Barkdoll), American Society of Civil Engineers (ASCE) Press, Reston, VA, 550 pages, 2009.
2. Chapter 18: Water Treatment, in *Field Guide to Environmental Engineering for Development Workers: Water, Sanitation, and Indoor Air*, (Mihelcic, J.R., E.A. Myre, L.M. Fry, L.D. Phillips, B.D. Barkdoll), American Society of Civil Engineers (ASCE) Press, Reston, VA, 550 pages, 2009.

**SELECTED PRESENTATIONS (\* - presenter, # - graduate student)**

1. Trotz, M. A.\*; Stuart, A.; Akiwumi, F. Diaspora Linkages for Building International, Interdisciplinary University Partnerships on Sustainability in US graduate Education and Research. *Association of Environmental Engineering and Science Professors (AEESP) 2009 Education and Research Conference*, Iowa City, IO, 7/25/09.
2. Howard, J.H.<sup>#</sup>; Thomas, K.D.<sup>#</sup>; Omisca, E.<sup>#</sup>; Stuart, A.; Akiwumi, F.; Trotz, M. A.\*. Mercury Exposed: An Interdisciplinary Field Based Class in Guyana on Sustainability. Talk given at the ACS 237<sup>th</sup> National Conference & Exposition, Salt Lake City, UT, 03/24/09.
3. Trotz, M. A.\*. (invited talk) Sustainable Infrastructure in Latin America and the Caribbean. *NSF International Workshop on Delivering Sustainable Infrastructure that Supports the Urban Built Environment: Frontier Research Directions and International Collaborations in Sustainability Science and Engineering*. New Zealand, 12/16/08.
4. Thomas, K.D.<sup>#</sup>; Howard, J. A.<sup>#</sup>; Omisca, E.<sup>#</sup> and Trotz, M.A. Environmental Engineering Outreach to K-12 in Hillsborough County, Florida: Water Quality, Treatment, Resources and Management. *Institute of Florida Studies 35th Annual Conference on Ecosystem Restoration and Creation*:

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- Assessment of Wetland Mitigation and Mitigation Banks. Hillsborough Community College. Plant City, FL, 11/6/08.*
- Howard, J.A.\*#; Trotz, M. A. Assessment and Impact of Total Mercury Global Solutions 35th Annual Conference on Levels in the Hillsborough River, Tampa, FL. *Institute of Florida Studies & Patel Center for Ecosystems Restoration and Creation: Assessment of Wetland Mitigation and Mitigation Banks*, 11/07/08.
  - Trotz, M.A.\* (*invited talk*) An Interdisciplinary Approach to Research and Graduate Education addressing Sustainable Healthy Communities: Mercury and Risk Perception. *National Science Foundation Bridges to Engineering Research – 2020 National conference* in Greensboro, NC, 3/08/08.
  - Stuart, A.\*; Trotz, M.\*; Akiwumi, F\*. (*joint invited talk*) Sustainable Healthy Communities: An integrated comparative study of mercury contamination and exposures in the Tampa Bay and in Guyana. *Environmental Research Interdisciplinary Colloquium at USF*, Tampa, FL, 10/10/2007.
  - Oti, D.\*#; Roe, A.; Trotz, M. A. Arsenic removal using Kemoxide, a commercially available iron oxide sorbent. *Florida Air & Waste Management Association (A&WMA) conference*, 11/22/2006.
  - Trotz, M. A.\* (*invited talk*) Arsenic removal from drinking water and landfill leachate via sorption to commercially available mineral oxides. *Florida Section of the American Chemical Society, FAME Environmental Chemistry symposium*, Orlando, FL, 5/11/2006.
  - Trotz, M. A.\* (*invited talk*) Water Quality and Women: The Interface between science, engineering and Non Governmental Organizations in Guyana. *University of South Florida Women's Studies Colloquia Series*, 2/16/2006.
  - Trotz, M. A.\* (*invited talk*) Mineral Oxide Surfaces and Applications to Environmental Remediation of Inorganic Ions. *Environmental Research Interdisciplinary Colloquium at USF*, Tampa, FL, 11/5/2005.
  - Trotz, M. A.\* (*invited talk*) Arsenic Removal in high capacity porous alumina *packed bed reactors*. *Department of Environmental Engineering at the University of Iowa*, 3/28/2005.
  - Trotz, M. A.\* (*Invited talk*) The AEESP 2005 conference and lessons on the integration of sustainability into our curriculum. *Florida Universities Summit on Environmental Research*, Tampa FL, 9/11/2005.
  - Trotz, M. A.\* HIV/AIDS in the Caribbean: International funding & missed opportunities for meaningful public engagement. Caribbean Studies Association Conference, Nevis, St. Kitts, 6/3/2004.
  - Trotz, M. A.\* (*Invited talk*) That final push into academia. The post doc years. *NSF Division of Human Resources Development Joint Annual Meeting Louis Stokes Alliances for Minority Participation Session*, Houston, TX, 3/30/2004.
  - Trotz, M.\*; Prasad A.; Lee, K.; Garcia, M.; Leckie, J. O. Experimental investigation of arsenic removal using activated alumina packed bed reactors and implications *for regeneration*. *West Coast Water Chemistry Workshop Conference*, Berkeley, CA., 3/2000.
  - Trotz, M.; Prasad A.; Lee, K.; Garcia, M.; Leckie, J. O. Arsenic Removal in high capacity porous alumina packed bed reactors. *Western Region Hazardous Waste Center Poster Presentation*, Monterey, CA, 7/2005.
  - Trotz, M.; Leckie, J. O. (1999) Using organic ligands to remediate lead contaminated soils. *Western Region Hazardous Waste Center Poster Presentation*, Corvallis, OR, 7/1999.
  - Villalobos, M.; Trotz, M.\*, Leckie, J. O. Modeling the effect of carbonate on the adsorption of Cr(VI), U(VI) and Pb(II) on goethite. *American Chemical Society National Meeting*, New Orleans, LA., 1999.
  - Redden, G.; Li, J; Benchieck-Latmani, R.; Trotz, M; Person, P.; Ostergren, J.; Leckie, J. (1998) Overview of factors affecting uranyl sorption to goethite in the presence of citric acid. *Department of Energy Poster Presentation*, Chicago, IL.

+ 17 graduate and undergraduate research posters.

### **PATENTS**

- Provisional Patent Application Filed (2008): Functional composites formed from colloidal polymer particles with photocatalytic metal oxide nanoparticles. Vinay Gupta, Cecil Couthino, Maya Trotz.

### **REPORTS**

- Trotz, M. A.; Stewart, M.; Cunningham, J. (2009) Geochemical modeling of waste stream injection into deep aquifers. Technical report submitted to Mr. Brad Pekas, Environmental Consulting and Technology, May, 2009.

2. Trotz, M. A. (2008) The feasibility of removing inorganic arsenic from landfill leachate via sorption to mineral oxide surfaces. Technical report submitted to the Florida Center for Solid and Hazardous Waste, July, 2008.

**FUNDED GRANTS/PROJECTS AS PI (\$1, 382, 144)**

- U.S. Department of Education Graduate Assistance in Areas of National Need (GAANN) (\$783,936; Co-PI: Delcie Durham; August 2009 – July 2012; approximately 67.5 semester equivalents of graduate support) Multi-disciplinary doctoral graduate fellowship program at the water-energy-materials-human-nexus.
- National Science Foundation Research Experiences for Undergraduates (REU) (\$299,909; Co-PI: Sylvia Thomas; June 2009 – May 2012; 11 undergraduate researchers supported each year) Tampa Interdisciplinary Environmental Research (TIER).
- Environmental Protection Agency P3 Phase II (\$75,000; August 2009 – April 2011) Water Awareness Research and Education (WARE) in East Tampa. Environmental Protection Agency P3 Phase I (\$10,000; August 2008 – April 2009) Water Awareness Research and Education (WARE) in East Tampa.
- Environmental Consulting and Technology, Inc. (\$32,305; Co-PIs: Jeffrey Cunningham and Mark Stewart; October 2008 – May, 2009; 2 semester equivalents of graduate support) Geochemical modeling of waste stream injection into deep aquifers.
- Dr. Kiran C. Patel Faculty Fellowship (\$15,000; PI; January 2008 – December 2009).
- Dr. Kiran C. Patel Graduate Assistant Proposal (\$20,000; August 2007 – August 2008; 3 semester equivalents of graduate support) Surface water quality during sustainable ecotourism in the Caribbean territories of Belize, Jamaica, Guyana and Trinidad.
- USF Center for 21st Teaching Excellence iTOPP teaching grant (\$1400; April 2006 – June 2007) Multimedia enhancements for a new undergraduate environmental engineering laboratory.
- National Science Foundation's Nanoscale Exploratory Research Award (\$100,000; Co-PI: Vinay Gupta; September 2005 – August 2007; 6 semester equivalents of graduate support) Engineering smart nanoparticle-polymer composites for environmental remediation.
- Florida Center for Solid and Hazardous Waste (\$34,594; September 2005 - December 2006; 3 semester equivalents of graduate support). The feasibility of removing inorganic arsenic from landfill leachate via sorption to mineral oxide surfaces.
- USF New Researcher Award (\$10,000; February 2005 – June 2007; 1 semester equivalent of graduate support) A preliminary study of the heavy metal distribution in water and sediment close to Guyana's OMAI gold mine.

**FUNDED GRANTS/PROJECTS AS CO-PI (3,177,485)**

- National Science Foundation IRES site (\$149,932; Co-PI with Daniel Yeh (PI), Norma Alcantar, Jeffrey Cunningham, Ricardo Izurieta, Foday Jaward; June 2009-May 2012; 6 undergraduates and graduate students supported each year). IRES: Sustainable clean water technologies for the UN's Millennium Development Goals - a partnership between UNESCO-IHE (Delft, Netherlands) and Univ. South Florida.
- Florida Energy Systems Consortium (\$479,640; Co-PI with Mark Stewart (PI) and Jeffrey Cunningham; November 2008 – October 2011; 27 semester equivalents of graduate support + 1 post doctoral researcher supported) Creation of carbon sequestration data, technologies and professional cohorts for Florida.
- Florida Energy consortium (\$326,984; Co-PI with Lee Stefanakos (PI), Yogi Goswami, Matthias Batzil, Sessa Srinivasan; November 2008 – October 2011; 18 semester equivalents of graduate support Ph.D. students) Clean drinking water using advanced solar energy technologies.
- National Science Foundation (\$598,298; Co-PI with Ashok Kumar (PI), Sylvia Thomas, Kingsley Reeves; 9/2008 - 8/2011; 19 undergraduate supported each year plus 54 semester equivalents of graduate support) Engineering and computer science Scholars Targeted for Academic, Retention and Success (STARS) at the University of South Florida.
- USF Sustainable Communities (\$392,631; Co-PI with Amy Stuart and Fenda Akiwumi; May 2007 – May 2009; 18 semester equivalents of graduate support) Understanding and promoting sustainability related to mercury exposures through integrated research, graduate education, and community involvement.
- City of Tampa (\$50,000; Co-PI with Shawn Landry; May 2005 – September 2005) GIS Stormwater Asset Inventory for the City of Tampa.

- Sloan Foundation (Co-PI with Shekhar Bhansali (PI), Carlos Smith, Louis Martin-Vega; August 2004 – present; 40 Ph.D. student supported so far, equivalent to 120 hrs of semester equivalents of graduate support) Full proposal on: Becoming Sloan Minority Ph.D. program participants. This grant provides support for new Ph.D. students based on 2004 baseline values of the respective departments. The baseline was 0 for Civil and Environmental Engineering and to date 7 students have received support. The amount received thus far through this program totals over \$1,200 000.

#### **GRANTS/PROJECTS CURRENTLY UNDER REVIEW**

- AECOM (\$25,578; PI; October – December 2009) Stormwater water quality and the impact on a pilot 3 stage RO system at the Pinellas County Waste to Energy facility.
- Department of Energy (DOE) Site Characterization of Promising Geologic Formations for CO<sub>2</sub> Storage (\$999,577; Co-PI with Mark Stewart (PI) and Jeffrey Cunningham; March 2010 – March 2013) Evaluation of the high-potential Cedar Keys/Lawson formations for geologic sequestration of carbon dioxide.
- NIEHS Challenge Grant (\$925,046; Co-PI with Robert Brinkmann (PI), Sarina Ergas, Allan Feldman, Amy Stuart; October 2009 – October 2011) East Tampa-USF community partnership for environmental health research and education.
- EPA Gulf of Mexico Alliance Regional Partnership Projects: (\$702,997; Co-PI with Sarina Ergas, Shawn Landry, Mi-Hyun Park; October 2009 – October 2012) Evaluation of Low Impact Development technologies for nitrogen removal from urban stormwater.
- National Science Foundation Nanoscience Undergraduate Education (NUE) (\$199,921; Co-PI with Delcie Durham (PI), Ashok Kumar, Shekhar Bhansali, Vinay Gupta; October 2009 – September 2012) Nanotechnology in integrative product realization (NIPR).
- Department of Defense Appropriations Bill under the Office of Naval Research (\$2, 500, 000; Co-PI with Andrew Hoff (PI), Stephen Sadow, Ashok Kumar, Mark Jaroszeski) **Carbon-Enabled Detection Systems.**

#### **STUDENTS AT THE UNIVERSITY OF SOUTH FLORIDA**

##### **Ph.D. in Environmental Engineering (name: thesis title, expected completion date):**

1. Douglas Oti: *Arsenic removal from landfill leachate using KEMIRON, a commercially available iron oxide adsorbent.* Thesis defense completed and final materials expected to be turned in by 10/09.
2. Erlande Omisca (NSF Bridges to Doctorate, McKnight & SLOAN fellow): *Environmental health in the Caribbean: Correlation between use of water storage containers, water quality, and community perception.* Classes, proposal defense and field work completed and final materials expected to be turned in by 3/09.
3. Joniqua Howard (NSF Bridges to Doctorate, SLOAN & USF Graduate Multidisciplinary Scholar): *Mercury in the environment: Field sites from Tampa, Bolivia and Guyana.* Classes, proposal defense and field work completed and final materials expected to be turned in by 12/09.
4. Ken Thomas (Kiran C. Patel graduate fellow): *Ecotourism and water quality: Linking management, activities and indicators in the Caribbean.* Classes completed, proposal defense completed and graduation expected in 5/2010.
5. Omatayo Dalrymple (co-advisor with Yogi Goswami): *Photocatalytic disinfection using titania doped catalysts.* Classes completed, proposal examination completed and graduation expected 5/2010.

##### **M.S. in Civil and Environmental Engineering (name, completion date, thesis title):**

1. Melody Nocon, MS 2006 (Thesis co-advisor) - *Inorganic Sorption in Polymer Modified Bentonite Clays.*
2. Joniqua Howard, MS 2006 (Thesis advisor) - *Gold mining in a tropical rainforest: Mercury sorption to soils.*

##### **Undergraduate Research Advisees (name, time, project title):**

1. Camilla Scharon (8/2009 – current): *Measuring water quality of runoff from a waste to energy facility.*
2. Chiu Hong
  - a. (5 – 7/2009) NSF REU-IHE program, USF Mentor. *The effect of arsenic adsorption with the use of iron oxide coated sand in water*
  - b. (8/2009 – current): *Quantifying the effect of East Tampa's stormwater ponds in reducing heavy metal loads to the Hillsborough river and McKay Bay.*

3. Daniela Soledade (1/2008 – current): *K5-12 and community awareness of environmental issues using stormwater pond field sites.*
4. Brittany Carl (University of Florida student in the REU-TIER program, 6-8/2009): *Preliminary Investigation of pollutant loads in East Tampa stormwater ponds.*
5. Simone Wright (University of Georgia student in the REU-TIER program, 6-8/2009): *Adsorption of phosphate in water samples onto Adsorbsia Granular Titanium Oxide.*
6. Avinash Maharaj (1- 5/2008): *Removing phosphorous from aquaculture waste using commercially available iron oxides.*
7. Ryan Locicero (1/2005 – 5/2006) *Removing arsenic from Class I Florida landfill leachate.*
8. Michael Roe (1/2005 – 5/2006) *Removing arsenic from Class I Florida landfill leachate.*
9. John Franklin (1 - 5/2005) *Environmental impact of Hg from gold mining activities in Guyana.*

**Post Doctoral Scholars**

Shadab Anwar (start date 9/2009). Ph.D. received from the Department of Earth Science, Florida International University in 2008: *Fluid flow and solute transport modeling using Lattice Boltzmann Methods.* Co-advisor with Jeff Cunningham and Mark Stewart.

**Teachers and K5-12 students (sponsor, level, year)**

1. Sharon Cutter (P3, Chiles Elementary School, Hillsborough County, 2009-current)
2. Jennifer Joseph (P3, Kings Kids, 2009-current)
3. Jane Kemp (P3, Lockhart Elementary and Chiles Elementary School, Hillsborough County, 2008-current)
4. Ann McAllister (P3, Young Middle Magnet for Math and Science, Hillsborough County, 2008-current)
5. Kevin Maloney (REST, Wharton High School, Hillsborough County, 2008)
6. Robin Farlow (RET, Tampa Bay Tech High School, Hillsborough County, 2006)
7. Ann McNicol (RET, Palm Harbor University High School, Pinellas County, 2005)
8. Joshua Haegele (REST, Wharton High school student, Hillsborough County, 2008)
9. Diana Trivino (Independent, Tampa Bay Tech High school student, Hillsborough County, 2007)

**THESIS COMMITTEES**

1. Arland Nguema Ndong, Anthropology, USF, Ph.D. (Dissertation committee member).
2. Dawn Fox, Chemical Engineering, USF, Ph.D. (Dissertation committee member).
3. Roland Okwen, Civil and Env. Engineering, USF, Ph.D. (Dissertation committee member).
4. Ahn Do, Civil and Env. Engineering, USF, Ph.D. (Dissertation committee member).
5. Ryan Michael, College of Public Health, USF, Ph.D. (Dissertation committee member).
6. Cynthia Schaefer, Civil and Env. Engineering, USF, MS. (Dissertation committee member)
7. Trina Halfhide, Geography, USF, MS. (Dissertation committee member).
8. Cecil Couthino, Chemical Engineering, USF, Ph.D. 2009 (Dissertation committee member).
9. Monica Gray, Civil and Env. Engineering, USF, Ph.D. 2008 (Dissertation committee member).
10. Roy Price, Geology, USF, Ph.D. 2008 (Dissertation committee outside chair).
11. Kevin Young, Chemical Engineering, USF, MS 2006 (Dissertation committee member).
12. Camille Daniels, Marine Science, USF, MS 2005 (Dissertation committee member).

**COURSES DEVELOPED AND TAUGHT**

<b>Course #/Title</b>	<b># Credits</b>	<b>Semester/Year</b>	<b># Students</b>
Environmental Engineering Laboratory at Nanyang Technological University, Singapore	3	Fall 2003	20
ENV4001 Introduction to Environmental Engineering	3	Fall 2004	55
ENV6666 Aquatic Chemistry	3	Spring 2005	16
ENV4001 Introduction to Environmental Engineering	3	Fall 2005	56
ENV4004L Environmental Engineering Laboratory	1	Fall 2006	48
ENG3000 Foundations of Engineering	1	Fall 2006	48
ENG3000 Foundations of Engineering	1	Spring 2007	26
ENV4004L Environmental Engineering Laboratory	1	Spring 2007	58
ENV6666 Aquatic Chemistry	3	Spring 2007	25
ENV4004L Environmental Engineering Laboratory	1	Fall 2007	27

ENV4004L Environmental Engineering Laboratory	1	Spring 2008	63
CGN 6933 Sustainability Concepts: Mercury in Tampa Bay Co-taught with Dr. Amy Stuart and Dr. Fenda Akiwumi.	3	Spring 2008	5
ENV6666 Aquatic Chemistry	3	Spring 2008	22
ENV4001 Introduction to Environmental Engineering. Co-taught with Dr. Jeffrey Cunningham.	3	Fall 2008	60
ENV4004L Environmental Engineering Laboratory	1	Fall 2008	59
ENV4004L Environmental Engineering Laboratory	1	Spring 2009	58
CGN 6933 Sustainability Concepts: Mercury in Guyana including a 1 week international field experience. Co-taught with Dr. Amy Stuart and Dr. Fenda Akiwumi.	3	Spring 2009	10
ENV6666 Aquatic Chemistry	3	Spring 2009	17

### **PROFESSIONAL DEVELOPMENT**

- Participant, AEESP Workshop on Expanding Your Educative Capacity to Integrate Sustainable Development Design Principles, Iowa, City, Iowa, (7/2009).
- Invited Participant, NSF International Workshop on Delivering Sustainable Infrastructure that Supports the Urban Built Environment: Frontier Research Directions and International Collaborations in Sustainability Science and Engineering, Auckland, New Zealand, (12/2008).
- Participant, COMPACT for Diversity 15th Annual Institute on Teaching and Mentoring, Tampa, FL (10/2008).
- Participant, CARISCIENCE 10<sup>th</sup> Anniversary Conference; Launch of the Caribbean Science Foundation and the Caribbean Diaspora Network for Science, Technology and Innovation, Port of Spain, Trinidad and Tobago, (9/2008).
- Invited participant, C<sup>2</sup>TE Institute (Increments and Transformations: Using Technology to Enhance Teaching and Learning), Tampa, FL, (7/2008 – 5/2009).
- Invited participant, NSF sponsored workshop, “Advance Cross Disciplinary Initiative for Minority Women Faculty: Succeeding and Thriving in Academic Engineering”, Atlanta, GA, (4/2008).
- Invited participant, NSF sponsored conference, “Bridges to Engineering Research-2020, Foundation for National Partnerships”, Greensboro, North Carolina, (3/2008).
- Invited participant, American Society of Civil Engineers (ASCE) teaching workshop for civil engineering educators, “Excellence in Civil Engineering Education (ExCEED)”, Flagstaff, NV, (7/2007).
- Invited participant, NSF Workshop on Complex Interacting Systems for a Sustainable Future, Clearwater, FL (6/2007).
- Invited participant, UNESCO-IHE's symposium, “Water for a Changing World - Enhancing Local Knowledge and Capacity”, Delft, The Netherlands (6/2007).
- Invited participant, Sustainability Engineering Education Workshop, Center for Sustainable Engineering (CSE), Carnegie Mellon University, University of Texas at Austin, Arizona State University, Pittsburgh, PA, (7/2006).
- Attendee, NSF Nanotechnology Initiative, Arlington, VA (6/2006).
- Participant, USF workshop, “Writing Successful Grants for NSF Educational Funding Opportunities facilitated by Dr. Jeff Ryan, Tampa, FL (3/2006).
- Invited participant, NSF Workshop for the Advancement and Retention of Underrepresented and Minority Engineering Educators (WEE '06) workshop, Arlington, Virginia (3/2006).
- Participant, COMPACT for Diversity 12th Annual Institute on Teaching and Mentoring, Arlington, VA (10/2005).
- Attendee, Guyana Geology and Mining Commission conference, Georgetown, Guyana, (8/2005).
- Invited Participant, MIT Image and Meaning 2 (IM2) NSF Workshop, Los Angeles, CA (6/2005).
- Invited Participant, UNEP: The Technical Session of the Elaboration of the Biodiversity Partnership Initiatives on the Sustainable Utilization of Non-Timber products and the Sustainable Utilization of Island Biodiversity, Bridgetown, Barbados, (5/2005).
- Invited participant, NSF Quality Education for Minorities Network (QEM) CAREER Proposal for Minority Faculty, Las Vegas, NV, (3/2005).
- Participant, USF workshop, “Strengthening the department-DRG partnership given by the Division of Research Grants at USF” (11/2004).

- Invited participant, NSF conference for New Minority Faculty in Engineering, Arlington, VA, (10/2004).

### **PROFESSIONAL SERVICE**

- Steering Committee Member, Caribbean Diaspora for Science, Technology and Innovation (CADSTI) (9/2008 – present).
- Steering Committee Member, Going Green Tampa Bay initiative and GREEN EXPO in Tampa ([www.goinggreentampabay.com](http://www.goinggreentampabay.com)) (9/2007 - present).
- Member:
  - American Geophysical Union (AGU)
  - Association of Environmental Engineering and Science Professors (AEESP) – Government Committee Member
  - American Society of Civil Engineers (ASCE) – 2007 EWRI Congress Session Chair & co-chair, Outreach Committee
  - American Society of Engineering Education (ASEE)
  - Caribbean Diaspora for Science, Technology and Innovation (CADSTI)
- Proposal reviewer:
  - AWWARF
  - National Science Foundation (BES , SBIR/STTR, I/UCRC, Graduate Fellowships, ADVANCE)
  - The Alfred P. SLOAN Foundation
- Journal reviewer (in alphabetical order):
  - American Society of Engineering Education
  - Environmental Science and Technology
  - Environmental Engineering Science
  - International Journal of Environmental and Waste Management
  - Journal of Chemical Technology and Biotechnology
  - Journal of Environmental Science and Health, Part A: Toxic/Hazardous Substance and Environmental Engineering
  - Journal of the Environment
  - Journal of the Association of Professional Engineers of Trinidad and Tobago Water, Air and Soil Pollution
  - Multidisciplinary Engineering Division of the ASEE
  - Water Research
- WMNF 88.5 FM audio program for International Women’s Day (3/8/2009 – archived on [http://sound.wmnf.org/sound/wmnf\\_090308\\_110001\\_sundayforum2\\_215.MP3](http://sound.wmnf.org/sound/wmnf_090308_110001_sundayforum2_215.MP3)).
- WMNF 88.5 FM film panelist for the Tampa showing of the documentary FLOW (5/2009).
- Exhibitor, East Tampa Community Survival Day (8/2008 & 2009) visited by ~700 residents.
- Presenter with students at the Environmental Protection Agency’s National Sustainable Design Expo on the Washington DC Mall, Washington, DC (4/2009).
- Invited Observer, United Nations Secretary General’s Advisory Board on Water and Sanitation (Bogota, Colombia, 2007 and Tokyo, Japan, 2008).
- Track co-ordinator, Energy and Environmental Systems track of the IEEE Systems and Information Engineering Design Symposium (SIEDS’08), University of Virginia, in Charlottesville, Virginia (2008) <http://www.sys.virginia.edu/sieds08/>.
- Co-Chair, ASCE Outreach Activity for 2007 EWRI Congress (9/2006 - 5/16/2007) which brought 125 K5-12 Tampa Bay students to the Florida Aquarium. Developed experimental modules using the aquarium setting to teach students about stormwater and water treatment.
- Session leader, EWRI Congress, Tampa, FL (5/2007).
- Invited Participant, Purdue University’s NSF sponsored Forum, “Implementing a new academic unit --the Division of Environmental and Ecological Engineering”, West Lafayette, IN (11/2006).
- USF World Water Forum Panelist (11/21/2006) sponsored by the Dr. Kiran C. Patel Center for Global Solutions, “An expert panel discussion on Integrated Water Resources Management.”
- USF World Water Forum Panelist (3/24/2006) sponsored by the Dr. Kiran C. Patel Center for Global Solutions, “A synergy-building event in celebration of the 2006 United Nation’s World Water Day.”
- Invited participant, Conservation International’s 2006 Rapid Assessment Program (RAP) of Konashen district, Guyana.
- Advisor:

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- a. Conservation International-Guyana, Establishment of water quality monitoring programs with indigenous populations in remote Community Owned Conservation Areas (2006 – current).
  - b. WWF-Guianas and the University of Guyana Environmental Studies Unit, Study of mercury contamination in gold mining regions of Guyana and mercury exposure amongst gold jewelers.
  - c. Guyana Citizen's Initiative, (2005 – current), Community based water supply systems to improve public health. Web developer and co-organizer for Florida Universities Summit on Environmental Research, 2005.
- Florida Georgia Louis Stokes Alliance for Minority Participation Expo Conference in Orlando to recruit for USF (1/2005).
  - Guyana Flood Relief Efforts (2005-present), developed an informational website and provided advice to Non Governmental Organizations on recovery efforts.
  - 4<sup>th</sup> Annual Houston-Louis Stokes Alliance for Minority Participation Conference to present, judge and recruit for USF, Houston, TX (10/2004).
  - Attended COP10: Conference of Parties Climate Change Conference, Buenos Aires, Argentina (12/2004) after an invitation from the Women's Environment and Development Organization (WEDO).

### **UNIVERSITY SERVICE**

- Faculty mentor and program director, USF Research Experiences for Undergraduates "Tampa Interdisciplinary Environmental Research" program (2009 – present).
- Co-PI and departmental coordinator, SLOAN minority fellowship program for USF (2004-present)
- USF Sustainable Initiative Committee: Student task force leader (8/2008 – present).
- USF Engineering EXPO exhibitor (2005-2009).
- Initiator and university liaison for mentornet.net, an e-mentorship for women and underrepresented minorities in science and engineering funded through the Dean's office in the college of engineering (11/2005 – 11/2008).
- Faculty mentor:
  - a. NSF Bridges to the Doctorate Program at USF (2004-present).
  - b. USF Research Experience for Students and Teachers (REST) program (Summer 2008) providing research experiences for a science teacher and 11<sup>th</sup> grader.
  - c. Research Experience for Teachers (RET) program (Summer 2005 and 2006). Provide high school research experience for Tampa Bay Tech students (Spring 2007), present USF to high and middle school students (Fall 2006, 2008).
- Faculty advisor:
  - USF Engineers for a Sustainable World Chapter (2006-present).
  - USF Caribbean Cultural Exchange (2004-2006 and 2008-present).
- Great America Teach-In (Fall 2004 and 2008).
- Faculty recruiter for students from the Caribbean (initiated a 2005 visit with the Dean and Chairs of engineering departments to Trinidad's Engineering College at the University of the West Indies). Recruited 4 Ph.D. students from the Caribbean since 2006, in the areas of Civil and Environmental Engineering and Chemical Engineering.
- Co-Chair: USF Colleges of Business Administration and Engineering Sustainability Symposium, (10/2006 - 4/13/2007).
- Session Leader, Curriculum Development, USF Colleges of Business Administration and Engineering Sustainability Symposium, 4/2007.
- Invited and facilitated presentation by Mr. Garie Fordyce, Program Officer, National Science Foundation, "Obtaining funding from the NSF Office of International Science and Engineering", (5/2006).
- Faculty reviewer, USF Internal Awards Program, (2006). Committee Member:
  - a. USF Department of Civil and Environmental Engineering Student Liaison and ABET Laboratory Committees (2005-current) and Faculty Assessment Criteria Committee (9/2004 – 5/2005)
  - b. Environmental Engineering and Water Resources departmental committee (1/2005 – current)
  - c. USF Department of Civil and Environmental Engineering (2005, 2008) and Department of Geology (2007, 2009) Faculty search committees.
  - d. Executive Task Force on Endowed Chairs, College of Engineering (2006 – 2007)

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- e. Executive Task Force on Centers, College of Engineering (2006 - 2007)
- 2008 GREEN EXPO (open to public with over 3,000 attendees) and SUSTAIN-a-BULL week:
  - a. Workshop co-ordinator for the EXPO
  - b. Freshman composition liaison for EXPO
  - c. College of Engineering SUSTAIN-a-BULL liaison
  - d. Web contributor for goinggreentampabay.com & on air interviewee for EXPO advertising
- Kiran C. Patel Center for Global Solutions:
  - a. Signed a Memorandum of Understanding on behalf of USF with UNESCO-IHE at the 50<sup>th</sup> Anniversary celebration for UNESCO-IHE, Delft, The Netherlands (6/2005).
  - b. Reconnaissance visit to the Dominican Republic with 3 other faculty to further develop collaborative efforts with Columbia University and identify potential projects for the USF student chapter of Engineers Without Borders (9/2007).
  - c. Contributor to water and environmental issues direction (9/2005 – current).

### **HONORS/AWARDS**

- USF ASCE student chapter Outstanding Faculty Award (2009): The is awarded to a faculty member who, while in the regular course of teaching, takes the time to share his or her knowledge outside of regular class time with student members of ASCE so that they achieve a higher educational experience and succeed outside of the classroom on chapter projects.
- ExCEED Teaching Fellow (2007)
- Kiran C. Patel Center Faculty Fellow (2007-2008)
- National Science Foundation Minority Graduate Fellowship (1996-1999)
- Stanford Graduate Minority Engineering Fellowship (1994-1996; 1999)
- Dr. Ronald E. McNair Scholar, MIT (1994)
- MIT Multi-cultural Community Award (1991, 1992, 1993)

### **AWARDS GIVEN TO STUDENTS UNDER MY SUPERVISION**

- EPA People, Prosperity, Planet (P3) Phase II Award (2009). This P3 Award was judged by an American Association for the Advancement of Science (AAAS) panel with final decisions by the EPA. The award included funding of \$75,000. Our team received one of the six awards selected from over 40 teams from around the country.
- Best undergraduate poster in the Engineering/Physical Science/Math category, Annual USF undergraduate research poster session (2009): Hong Chiu, Angela Krause, Michael Gerdjikian, and Kyle Yeasting. Poster title was, "*The use of metallic oxides as an economical method for arsenic removal.*"
- The USF 2008-2009 Graduate Student Challenge Grants: Building Research Partnerships Across Disciplines. This was a university wide competition designed to build leaders through excellence in collaborative graduate education and research. Teams received \$5000 and consisted of four students, where at least two of the students were from different colleges. Students were Trina Halfhide, Joniqua Howard, Ryan Michael and Daniella Soledade.
- 3<sup>rd</sup> place, ASCE Southeast Student Conference Environmental Competition (2009): This regional ASCE/Student Chapter competition is the largest in the country. Students involved were Hong Chiu, Angela Krause, Michael Gerdjikian, Celeste Lewis and Kyle Yeasting.
- Nominee for the University of South Florida Provost's Teaching Assistant Award (2008 and 2009): Ken Thomas. This is a university wide competition for which each department is allowed to nominate one student each year.
- Graduate Multidisciplinary Scholar (2007-2009): Joniqua Howard.
- Best undergraduate poster presentation, Tampa Bay GREEN EXPO (2008): Mesther Eliassant, Moheb Heinen, Yuliya Lukyanets, Heba Nasrella, David Rodriguez, Kimberley Tillman. Poster title, "*Bottled vs tap: Think about it.*"
- Best graduate poster presentation, Tampa Bay GREEN EXPO (2008): Trina Halfhide, Joniqua Howard, Ryan Michael. Poster title, "*Mercury Risk Perception and Fishing in Hillsborough River, Florida.*"
- NSF graduate fellowship (2007): Melody Nocon, currently pursuing a Ph.D. in environmental engineering at UC Berkeley with Prof. Garrison Sposito.
- University of South Florida Graduate School International Award of Academic Excellence (2006): Ken Thomas.