Assistant Professor
Center for the Management, Utilization
& Protection of Water Resources
Department of Civil & Environmental Engineering
Tennessee Tech University
Box 5033, Cookeville, TN 38505
Phone: (931) 372-3446
Email: tdatta@tntech.edu

Tania Datta, Ph.D.

EDUCATION

University of Utah, Salt Lake City, Utah, USA Dec 2006 – May 2010
Degree: Doctorate of Philosophy
Major: Civil and Environmental Engineering
Thesis Title: *Evaluation of feasibility, sustenance and microbial ecology of enhanced biological phosphorus removal in aerated-anoxic activated sludge systems.*

University of Utah, Salt Lake City, Utah, USA Aug 2004 – Dec 2006
Degree: Masters of Engineering
Major: Civil and Environmental Engineering

R.V College of Engineering, Bangalore, India Oct 1998 – Apr 2002
Degree: Bachelor of Engineering
Major: Chemical Engineering

RESEARCH AREAS AND INTERESTS

- Biological Wastewater Treatment Process and Design
- Urban Water Quality Management
- Environmental Microbiology
- Bioenergy Production through Anaerobic Processes
- Resource Recovery from Organic Waste Streams
- Sustainable Decision Making
- Role of Microorganisms in Natural Aquatic Ecosystems
- Developing Low-Cost Technologies for Water and Sanitation in Developing Countries

PROFESSIONAL APPOINTMENTS

Assistant Professor Jan 2013 – Present
Center for the Management, Utilization & Protection
of Water Resources; Department of Civil & Environmental Engineering
Tennessee Tech University, Cookeville, Tennessee
Project Engineer – Wastewater Processes Jul 2009 – Nov 2012
CH2M HILL, Salt Lake City, Utah

Graduate Research Assistant – Environmental Microbiology May 2006 – Jul 2009
University of Utah, Salt Lake City, Utah

Graduate Research Assistant – Soil/Sediment Remediation Jan 2005 – Apr 2006
University of Utah, Salt Lake City, Utah

Process Engineer – Oil and Gas Aug 2002 – Jul 2004
J Ray McDermott International, Jebel Ali, UAE

TEACHING EXPERIENCE

Tennessee Tech University, Department of Civil and Environmental Engineering, *Instructor*
CEE 3413: Introduction to Environmental Engineering
CEE 4430: Water and Wastewater Treatment Design
CEE 6720: Environmental Engineering Unit Operations-II
CEE 6780: Environmental Engineering Laboratory
CEE 6900 Special Topics: Stormwater Management: Design and Applications

Tennessee Tech University, 2013 Governor's School for Emerging Technologies, *Instructor*
LIST 1093: Introduction to Emerging Technologies BIO/NANO

University of Utah, *Graduate Teaching Assistant*
Engineering Statistics and Economics
Environmental Engineering I
Environmental Engineering II

UNIVERSITY AND DEPARTMENT SERVICES

- **University Safety Committee:** Tennessee Tech University
- **Research and Graduate Affairs Committee:** Department of Civil and Environmental Engineering, Tennessee Tech University.
- **Facilities Committee:** Department of Civil and Environmental Engineering, Tennessee Tech University.
- **Laboratory Safety and Facilities Coordinator:** Center for the Management, Utilization and Protection of Water Resources, and Department of Civil and Environmental Engineering, Tennessee Tech University.
- **Faculty Advisor**: Engineers Without Borders, Tennessee Tech University Chapter.
- **Faculty Co-Advisor** Water Professionals, a Water Environment Federation, American Water Works Association and American Water Resources Association Student Chapter, Tennessee Tech University.
- **CISE Grant Program Committee Member**, Tennessee Tech University.
- **Membership Committee Chair:** Tennessee Tech University Sigma Xi Chapter.
- **Committee Member:** Tennessee Tech University Rural Development Institute .

PROFESSIONAL SOCIETY MEMBERSHIPS, LEADERSHIP AND SERVICES

- Member: Water Environment Federation (WEF)
- Member: International Water Association (IWA)
- Member: Association of Environmental Engineering and Science Professors (AEESP)
- Member: American Academy of Environmental Engineers and Scientists (AAEES)
- Member: Engineers Without Borders (EWB)
- Member: American Society of Engineering Education (ASEE)
- Member: Sigma Xi Research Honor Society
- Member: American Society of Microbiology (ASM)

Leadership Positions

- Task Force Chair: WEF Water Reuse Task Force, Municipal Water Resource Recovery Design Committee, 2016 - 2018
- Ad-Hoc Vice Chair: WEF Residuals and Biosolids Committee, 2012 - 2016
- Task Force Vice Chair: WEF Volunteer of the Future Focus Group, 2013 - 2015
- Committee Co-Chair: WEF Students and Young Professional Outreach Committee, 2011-2013
- Member: Water Environment Association of Utah Conference Committee, 2010-2012
- Member: Water Environment Association of Utah Young Professionals Committee, 2007-2012
- Executive Committee Member: Utah State Section of AWRA, 2010 - 2011
- Committee Member: Water for People, Intermountain Section, 2009-2012
- Founding President: WEF/AWRA Student Chapter at the University of Utah, 2007-2008
- President: Graduate Student Advisory Committee, University of Utah, 2007-2009

PROFESSIONAL REGISTRATIONS

Fundamentals of Engineering (FE/EIT) Examination, 2007, State of Utah.

SCHOLARLY SERVICES

- **Grant Reviewer**:

- EPA Review Panel Member: U.S. Environmental Protection Agency (EPA) Science to Achieve Results (STAR) Fellowship Program
- National Science Foundation Environmental Engineering Program

- **Journal Reviewer**:
  - ASCE Journal of Environmental Engineering
  - Bioresource Technology
  - Environmental Engineering and Science Journal
  - International Journal of Molecular Sciences
  - International Journal of Environmental Protection
  - Water Research
  - Water Science and Technology

PEER-REVIWED JOURNAL PUBLICATIONS

- Abegaz, B. W., **Datta, T.,** Mahajan, S. M. (2017). Sensor technology for the energy-water nexus – A Review. *Applied Energy*. Available online at http://www.sciencedirect.com/science/article/pii/S0306261917300429
- Sato, M., Omori, K., **Datta, T**., Amano, Y., and Machida, M. (2016). Influence of Extracellular Polysaccharides and Calcium Ion on Colony Formation of Unicellular *Microcystis aeruginosa*. *Environmental Engineering Science*.
- Kim, E. S., **Datta, T**., Kim, J. B., Lee, G., and Choi, J. (2016). Biological Fixed Film. *Water Environment Research*, 88(10), 1021-1050.
- Daigger, G. T., **Datta, T.**, Stensel, H. D., Whitlock, D. D., & Mackey, J. K. (2014). Evaluating the Role of Point Source Discharges Informs Statewide Nutrient Control Policy in Utah. *Water Environment Research*, 86(6), 559-572.
- S. M. Kotay, **T. Datta**, J. Choi and R. Goel (2011). "Biocontrol of biomass bulking caused by Haliscomenobacter hydrossis using newly isolated lytic bacteriophages." *Water Research*, 45 (2): 694-704.
- **T. Datta**, L. Racz, S. M. Kotay and R. Goel (2011). "Seasonal variations of nitrifying community in trickling filter-solids contact (TF/SC) activated sludge systems." *Bioresource Technology*, 102 (3): 2272 -2279.
- L. Racz, **T. Datta** and R. Goel (2010). "Organic carbon effect on nitrifying bacteria in a mixed culture." *Water Science and Technology*, 61 (11): 2951-2956.
- L. Racz, **T. Datta** and R. Goel (2010). "Effect of organic carbon on ammonia oxidizing bacteria in a mixed culture." *Bioresource Technology*, 101 (16): 6454-6460.
- **T. Datta** and R. Goel (2010). "Evidence and Long Term Feasibility of Enhanced Biological Phosphorus Removal in Oxidation Ditch type of Aerated-anoxic Activated Sludge Systems." *ASCE Journal of Environmental Engineering*, 136 (11): 1237 - 1247.
- **T. Datta**, Y. Liu and R. Goel (2009). "Evaluation of simultaneous nutrient removal and sludge reduction in using laboratory scale sequencing batch reactors." *Chemosphere*, 76, 697-705.

BOOK CHAPTERS AND MANUALS

- **Co-author** (2013). The Energy Roadmap: A Water and Wastewater Utility Guide to More Sustainable Energy Management. A Roadmap to Energy Neutrality at Wastewater Utilities. Water Environment Federation (WEF), Alexandria, VA
- M. Burbano, **T. Datta**, K. Bell, H. Liu and C. Lancaster. (2013). "Chapter 15: Laboratory Analyses of Wastewater Characterization." In: *Water Environment Federation Manual of Practice No. 29 - Biological Nutrient Removal (BNR) Operation in Wastewater Treatment Plants*. WEF, Alexandria, VA
- R. Reardon, T. Datta, C. Stacklin. (2014). "The Next Generation of Resource Recovery Technologies." In: Water Environment Federation Special Publication – Moving Towards Resource Recovery Facilities.

MAJOR REPORTS

- D. Whitlock, J. Sandino, **T. Datta**, B. Johnson and L. Lei (2010). Evaluation of Processes to Reduce Activated Sludge Solids Generation and Disposal. Water Environment Research Foundation (WERF) Project 05CTS3.
- C. Bittner, **T. Datta**, J. DenBleyker, J. Gardberg, L. Guenzel, J. Ostermiller and A. Williams (2012). "A Great Salt Lake Water Quality Strategy." Utah Department of Environmental Quality/Division of Water Quality. GSL Water Quality
- Utah Statewide Nutrient Removal Cost Impact Study. Utah Department of Environmental Quality/Division of Water Quality. Utah Cost Removal Study

CONFERENCE PROCEEDINGS AND PRESENTATIONS

- Kalyanapu, A., **Datta, T.,** Dodson, D., Bynum, K. and Harrington, B. (2015). "A Collaborative Effort towards Real-time Water Quality Equipment Demonstration at Falling Water River, Tennessee". Tennessee American Water Resources Association, Montgomery Bell State Park, TN, April 2015.
- McClellan, G.E., and **Datta, T**. (2015). "An Approach towards Linking Diversity of Polyphosphate Accumulation Organisms to Improved Functional Stability of the Enhanced Biological Phosphorus Removal Process." Tennessee American Water Resources Association, Montgomery Bell State Park, TN, April 2015.
- McClellan, G.E., **Datta, T**., and Stewart, R. (2015). "Can a More Diverse Polyphosphate Accumulating Organisms Community Improve Functional Stability of the Enhanced Biological Phosphorus Removal Process?" Association of Environmental Engineering and Science Professors (AEESP) Conference, Yale University, New Haven, CT, June 13th – 16th, 2015.
- Ohemeng-Ntiamoah J., Moffet M. and **Datta T**. (2015). "Linking Complex Organic Feedstock Characteristics To Microbial Metabolic Activities In Anaerobic Co-digesters."

Association of Environmental Engineering and Science Professors (AEESP) Conference, Yale University, CT, June 13th – 16th, 2015.

- Garcia, T.P., **Datta, T**., and Pili, A.S. (2015). An Evaluation of Current Waste Disposal Practices and Possible Pathways to Pollution Prevention in the Philippines Printing Industry. The 2015 Asian Symposium on Printing Technology in Tokyo, Japan.
- R. Reardon, **T. Datta**, C. Stacklin (2014). "Advancing Resource Recovery from Wastewater - The Next Generation Of Technologies", IWA Conference on Global Challenges: Sustainable Wastewater Treatment and Resource Recovery, October 26th – 30th, 2014, Kathmandu, Nepal.
- **T. Datta** (2013). "Sidestream Treatment Alternatives for Nutrient Removal and Recovery at Wastewater Treatment Facilities", 23rd Tennessee Water Resources Symposium, TN AWRA, November 4th – 6th, 2013, Montgomery Bell Park.
- **T. Datta**, T. Williams and R. Alexander (2012). "Biosolids Composting – What's it Worth?" WEF Residuals and Biosolids Conference, 2012, Raleigh, NC
- **T. Datta**, K. Neubauer and J. Sauer (2011). "The future of global water and sanitation challenges from a socio-economic perspective." International Water Association 2nd Development Congress and Exhibition, November 2011, Kuala Lumpur, Malaysia.
- D. Whitlock, **T. Datta**, Z. Erdal and G. T. Daigger (2011). "Sustainable Wastewater Management: Energy and Nutrient Resource Recovery", WEF Energy and Water Conference, 2011, Chicago, IL
- G. T. Daigger, H. D. Stensel, J.K. Mackey and **T. Datta** (2010). "Striking a Balance: Evaluating the Role of Point Sources Informs Statewide Nutrient Control Policy, WEFTEC, 2010, New Orleans, LA
- J.K. Mackey, **T. Datta**, D. Whitlock and P. Krauth (2010). "Protocol Development for Utah's State-wide Nutrient Cost Impact Study", WEFTEC, 2010, New Orleans, LA
- S. M. Kotay, **T. Datta** and R. Goel (2009). "Microbial Ecology of Viruses in an EBPR Activated Sludge Process Performing Phosphorus Release Under Aerated-Anaerobic Condition", 109th General Meeting of American Society of Microbiology, Philadelphia, PA.
- S. Tahir, **T. Datta**, J. Harris, and R. Goel (2009). "Setting up TMDL for Jordan River - Role of Sediment Oxygen Demand and Nutrient Flux", WEF TMDL, 2009, Minneapolis, MN.
- **T. Datta**, S. Tahir and R. Goel (2008). "Polyphosphate accumulating organisms and nitrifying population ecology in an activated sludge process aimed to achieve nutrient removal and sludge reduction simultaneously", WEFTEC, 2008, Chicago, IL.
- **T. Datta** and R. Goel (2007). "Evidence of Non - *Candidatus* A. phosphatis population participating in Enhanced Biological Phosphorus Removal in Carrousel Activated Sludge Process", WEFTEC 2007, San Diego, CA.
- **T. Datta** and R. Goel (2007). "PAOs other than Candidatus Accumulibacter *Phosphatis* participating in Enhanced Biological Phosphorus Removal", AEESP Conference 2007, Virginia Tech.

- Y. Liu, **T. Datta** and R. Goel. (2007). "Sludge minimization coupled with biological nitrogen and phosphorus removal- a step towards sustainable wastewater treatment." AEESP Conference 2007, Virginia Tech.
- **T. Datta**, H. Xu, A. Hong, and D. Hayes (2006). "Chemical Treatment of DDT in Organic and Aqueous Phases and Biological Incubation." The 16th Annual AEHS Meeting & West Coast Conference on Soils, Sediments, and Water, March 2006, San Diego, CA.

HONORS AND AWARDS

- **2014 Outstanding Reviewer:** ASCE Journal of Environmental Engineering
- **Outstanding Young Professional, 2009:** Awarded by the Water Environmental Association of Utah
- **1st Place in WEFTEC Poster Session, 2008:** Awarded by the Water Environmental Federation
- **Robert Okey Scholarship, 2007**: Awarded by the Water Environmental Association of Utah
- **College of Engineering Scholarship Recipient, 2007 & 2008:** Awarded by the Department of Civil and Environmental Engineering, University of Utah