Thinesh Selvaratnam, Ph.D.

Assistant Professor
Department of Civil and Environmental Engineering
Lamar University
tselvaratman@lamar.edu

STEM Buildng, 237
Lamar University, P.O.Box 10024
Beaumont, Texas, 77710
(409) 880-8712

EDUCATION

- **Ph.D. Civil Engineering**, New Mexico State University, USA, 2014
- **M.S. Water and Environmental Engineering**, University of Surrey, UK, 2011
- **B.S. Civil Engineering**, University of Peradeniya, Sri Lanka, 2009

PROFESSIONAL EXPERIENCE

- **Assistant Professor** Sep 2017 - present
  Department of Civil and Environmental Engineering, Lamar University, Beaumont, TX
- **Instructor** Fall 2016
  Ira A. Fulton Schools of Engineering, Arizona State University, Tempe, AZ
- **Postdoctoral Research Associate** May 2015 – Aug 2017
  School of Sustainable Engineering and the Built Environment, Arizona State University, Tempe, AZ
- **Graduate Teaching and Research Instructor** Jan 2012 – Dec 2014
  Department of Civil Engineering, New Mexico State University, Las Cruces, NM

RESEARCH INTERESTS

- Algal-based bioremediation
- Water-Food-Energy Nexus
- Resource Recovery
- Emergency Water Treatment

TEACHING

- Lamar University, 2012 – Current
  - Undergraduate Courses
    - CVEN 1201 Introduction to Civil Engineering
    - CVEN 2370 Intro to AutoCAD and Surveying
    - CVEN 3370 Water and Wastewater Treatment
    - CVEN 4110 Professional Seminar
  - Graduate Courses
    - CVEN 5329 Water Supply and Treatments
    - CVEN 5331 Biological Wastewater Treatment
    - CVEN 6333 Chemical Principles in Environmental Engineering
  - Independent Study Courses
    - CVEN 5301 Algal Biotechnology
    - CVEN 5301 Algal Biology
    - CVEN 5301 Advanced Wastewater Treatment

RESEARCH

Refereed Journal Publications

1. M. Mazumder, R. Das, M.S.J. Sajib, A.J. Gomes, M. Islam, **T. Selvaratnam**, A. Rahman, Comparison of Different Hydrotalcite Solid Adsorbents on Adsorptive Desulfurization of Liquid Fuel Oil, Technologies, 8 (2020) 22.
2. T. Nawaz, A. Rahman, S. Pan, K. Dixon, B. Petri, **T. Selvaratnam**, A Review of Landfill Leachate Treatment by Microalgae: Current Status and Future Directions, Processes, 8 (2020) 384.
3. Nirmalakhandan, N., **Selvaratnam, T**., Henkanatte-Gedera, S.M., Tchinda, D., Abeysiriwardana-Arachchige, I.S.A., Delanka-Pedige, H.M.K., Munasinghe-Arachchige, S.P., Zhang, Y., Holguin, F.O., Lammers, P.J. 2019. Algal wastewater treatment: Photoautotrophic vs. mixotrophic processes. Algal Research, 41, 101569.
4. N. Rashid, W.-K. Park, **T. Selvaratnam**, Binary culture of microalgae as an integrated approach for enhanced biomass and metabolites productivity, wastewater treatment, and bioflocculation, Chemosphere 194 (2018) 67-75.
5. T. Muppaneni, H.K. Reddy, **T. Selvaratnam**, K.P. Dandamudi, B. Dungan, N. Nirmalakhandan, T. Schaub, F. Omar Holguin, W. Voorhies, P. Lammers, S. Deng, Hydrothermal liquefaction of Cyanidioschyzon merolae and the influence of catalysts on products, Bioresour Technol 223 (2017) 91-97.
6. P.J. Lammers, M. Huesemann, W. Boeing, D.B. Anderson, R.G. Arnold, X. Bai, M. Bhole, Y. Brhanavan, L. Brown, J. Brown, J.K. Brown, S. Chisholm, C. Meghan Downes, S. Fulbright, Y. Ge, J.E. Holladay, B. Ketheesan, A. Khopkar, A. Koushik, P. Laur, B.L. Marrone, J.B. Mott, N. Nirmalakhandan, K.L. Ogden, R.L. Parsons, J. Polle, R.D. Ryan, T. Samocha, R.T. Sayre, M. Seger, **T. Selvaratnam**, R. Sui, A. Thomasson, A. Unc, W. Van Voorhies, P. Waller, Y. Yao, J.A. Olivares, Review of the cultivation program within the National Alliance for Advanced Biofuels and Bioproducts, Algal Research 22 (2017) 166-186.
7. S.M. Henkanatte-Gedera, **T. Selvaratnam**, M. Karbakhshravari, M. Myint, N. Nirmalakhandan, W. Van Voorhies, P.J. Lammers, Removal of dissolved organic carbon and nutrients from urban wastewaters by Galdieria sulphuraria: Laboratory to field scale demonstration, Algal Research 24, Part B (2017) 450-456.
8. **T. Selvaratnam**, S.M. Henkanatte-Gedera, T. Muppaneni, N. Nirmalakhandan, S. Deng, P.J. Lammers, Maximizing recovery of energy and nutrients from urban wastewaters, Energy 104 (2016) 16-23.
9. H.K. Reddy, T. Muppaneni, S. Ponnusamy, N. Sudasinghe, A. Pegallapati, **T. Selvaratnam**, M. Seger, B. Dungan, N. Nirmalakhandan, T. Schaub, F.O. Holguin, P. Lammers, W. Voorhies, S. Deng, Temperature effect on hydrothermal liquefaction of Nannochloropsis gaditana and Chlorella sp, Applied Energy 165 (2016) 943-951.
10. **T. Selvaratnam**, H. Reddy, T. Muppaneni, F.O. Holguin, N. Nirmalakhandan, P.J. Lammers, S. Deng, Optimizing energy yields from nutrient recycling using sequential hydrothermal liquefaction with Galdieria sulphuraria, Algal Research 12 (2015) 74-79.
11. **T. Selvaratnam**, A.K. Pegallapati, H. Reddy, N. Kanapathipillai, N. Nirmalakhandan, S. Deng, P.J. Lammers, Algal biofuels from urban wastewaters: Maximizing biomass yield using nutrients recycled from hydrothermal processing of biomass, Bioresource Technology 182(0) (2015) 232-238.
12. **T. Selvaratnam**, A. Pegallapati, F. Montelya, G. Rodriguez, N. Nirmalakhandan, P.J. Lammers, W. van Voorhies, Feasibility of algal systems for sustainable wastewater treatment, Renew Energ 82(0) (2015) 71-76.
13. S.M. Henkanatte-Gedera, **T. Selvaratnam**, N. Caskan, N. Nirmalakhandan, W. Van Voorhies, P.J. Lammers, Algal-based, single-step treatment of urban wastewaters, Bioresource Technology 189 (2015) 273-278.
14. **T. Selvaratnam**, A.K. Pegallapati, F. Montelya, G. Rodriguez, N. Nirmalakhandan, W. Van Voorhies, P.J. Lammers, Evaluation of a thermo-tolerant acidophilic alga, Galdieria sulphuraria, for nutrient removal from urban wastewaters, Bioresource Technology 156(0) (2014) 395-399.

Book Chapters

1. T. Nawas, **T. Selvaratnam**, Chapter 7 - Resource Recovery from Reverse Osmosis Concentrate as a Solution to Water Crisis: A Technological Assessment, in: V.G. Gude, V. Gadhamshetty, R. Kandiah (Eds.) Sustainable Water: Resources, Management and Challenges, Nova Science Publishers, Inc., NY, USA, 2020, pp. 267.
2. N. Rashid, **T. Selvaratnam**, W.-K. Park, Chapter 21 - Resource Recovery From Waste Streams Using Microalgae: Opportunities and Threats, in: A. Yousuf (Ed.) Microalgae Cultivation for Biofuels Production, Academic Press,2020, pp. 337-351.
3. **Selvaratnam, T**., Pegallapati, A., Montelya, F., Rodriguez, G., Khandan, N., Lammers, P., Van Voorhies, W. 2014. Feasibility of Algal Systems for Sustainable Wastewater Treatment. in: ICREGA'14 - Renewable Energy: Generation and Applications, (Eds.) M.O. Hamdan, H.A.N. Hejase, H.M. Noura, A.A. Fardoun, Springer International Publishing, pp. 37-48.

Conference Proceedings

1. Haselbach L., Almeida N., **Selvaratnam T**., Han D. "Underground Aggregate Stormwater Infiltration Bed Case Study". International Low Impact Development (LID), Maryland, July 19-22, 2020.
2. Haselbach L., Almeida N., **Selvaratnam T**., Han D. "Modeling Underground Aggregate Stormwater Infiltration Beds". Transportation Research Board (TRB) 99th Annual Meeting, January 2020.
3. **T. Selvaratnam**, S. Pan., D.B. Agusdinata., M. Seger, P.J. Lammers. "New options for anaerobic digester centrate nutrient management coupled with energy management" The 9th International Conference on Algal Biomass, Biofuels and Bioproducts, Boulder, CO, USA, June 2019.
4. **T. Selvaratnam**, S. Pan., P.J. Lammers. "Anaerobic digester centrate management" AEESP Research and Education Conference, Arizona State University, Tempe, AZ, USA, May 2019.
5. New Options for Anaerobic Digester Centrate Nutrient Management Coupled to Energy Management
6. Rasid, N., **Selvaratnam, T**. (2018). "*Algal based bioremediation*." 5th International Conference on Energy Environment and Sustainable Development, Jamshoro, Pakistan, Nov 14-18.
7. Lammers, P.J., **Selvaratnam, T**. (2018). *"Wastewater Treatment Plants as Bio-refineries: New Options for Anaerobic Digester Centrate."* Water Environment Federation's Annual Technical Exhibition and Conference (WEFTEC), New Orleans, Louisiana, Sept. 29-Oct 3.
8. **Selvaratnam*, T**. (2018), 10th Annual Conference, Texas Hurricane Center, University of Houston, Aug 3.
9. **Selvaratnam*, T**., Segar, M., & Lammers, P.J. (2017). *"Anaerobic Digester Centrate – A case for algae-based energy production in municipal wastewater treatment systems."* In Algal Biomass Summit, Salt Lake City, Utah, Oct 29-Nov 1.
10. **T. Selvaratnam***, M. Seger, P.J. Lammers**,** Ammonium uptake kinetics of Galdieria sulphuraria. Algae Biomass Summit, Phoenix, Arizona, USA, October 2016
11. M. Seger, **T. Selvaratnam**, N. Csakan, M. Green, and P.J. Lammers. *Annual biomass productivity utilizing a crop rotation strategy in photobioreactor systems at the Arizona Center for Algae Technology and Innovation*. Algae Biomass Summit, Phoenix, Arizona, USA, October 2016
12. **T. Selvaratnam***, M. Seger, P.J. Lammers. Nutrient uptake kinetics of Galdieria sulphuraria. The 6th International Conference on Algal Biomass, Biofuels & Bioproducts, San Diego, USA, June 2016
13. M. Seger, M.F. Green, **T. Selvaratnam**, N. Csakan, P.J. Lammers*. Molecular Diagnostic Tools (PCR and CAPS-analysis) of Red and Green Algae, an important step in Quality Control of Strain Stocks*. The 6th International Conference on Algal Biomass, Biofuels & Bioproducts, San Diego, USA, June 2016
14. **T. Selvaratnam***, N. Nagamany, F.O. Holguin, P.J. Lammers. *Maximizing nutrient and energy recovery from urban wastewaters using algal-based systems*. The 5th International Conference on Algal Biomass, Biofuels & Bioproducts, San Diego, USA, June 2015

15. P.J. Lammers, **T. Selvaratnam**, S.M. Henkanatte-Gedera, M. Seger, S. Deng, T. Muppaneni, N. Nirmalakhandan. *Municipal wastewater treatment with a Red Algal extremophile, Galdieria sulphuraria.* The 5th International Conference on Algal Biomass, Biofuels & Bioproducts, San Diego, USA, June 2015
16. S.M. Henkanatte-Gedera, **T. Selvaratnam**, N. Nirmalakhandan, W.V. Voorhies, P.J. Lammers. *Algal system for BOD and nutrient removal from urban wastewater.* The 5th International Conference on Algal Biomass, Biofuels & Bioproducts, San Diego, USA, June 2015 (Poster)
17. **T. Selvaratnam***, N. Nirmalakhandan, Peter J. Lammers. *Energy efficient urban wastewater treatment using Galdieria sulphuraria*. 249th ACS Denver National Meeting. Denver, Colorado, USA, 22-26, 2015
18. Tapaswy Muppaneni, Kodanda Phani Raj Dandamudi, **Thinesh Selvaratnam**, Nirmala Khandan, Tanner Schaub, Barry Dungan, Francisco Holguin, Peter Lammers, Wayne Voorhies, and Shuguang Deng. *Sequential Hydrothermal Liquefaction of Galdieria Sulphuraria Algal Biomass to Enhance Biocrude Oil Yield.* AIChE Annual Meeting, Salt Lake City, UT, 2015.
19. Peter J Lammers, **T. Selvaratnam**, N. Nirmalakhandan, Harvind Reddy, and Shuguang Deng. A Route to Algal Biofuels via EcoSystem Services: *The Case for an Extremophile, Galdieria sulphuraria. 2nd International Symposium on Energy Challenges & Mechanics*, Aberdeen, Scotland, UK, August 19-21, 2014
20. **T. Selvaratnam***, A. Pegallapati, N. Khandan, P. Lammers*. Algal system for net energy generation and nutrient recovery from urban wastewaters*. 4th International Conference on Algal Biomass, Biofuels and Bioproducts, Santa Fe, NM, USA, June 15-18, 2014
21. M. Seger, W. Van Voorhies, **T. Selvaratnam**, F. Montoya, N. Khandan, A. Unc, P.J. Lammers. *Genetic diversity in Galdieria sulphuraria strains and survivability of wastewater coliform bacteria under different pH, temperature, and CO_2 conditions*. 4th International Conference on Algal Biomass, Biofuels and Bioproducts, Santa Fe, NM, USA, June 15-18, 2014 (Poster)
22. **T. Selvaratnam*,** Pegallapati, A.K., Montelya, F., Rodriguez, G., Nirmalakhandan, N., Van Voorhies, W., Lammers, P.J. *Feasibility of Algal Systems for Sustainable Wastewater Treatment*. 3rd International Conference of Renewable Energy: Generation and Applications, Al Ain, UAE, March 2-5, 2014
23. Harvind Kumar Reddy, Tapaswy Muppaneni, Sundaravadivelnathan Ponnusamy, **Thinesh Selvaratnam**, Barry Dungan, Nagamany Nirmalakhandan, Tanner Schaub, Francisco Holguin, Peter Lammers, Wayne Voorhies, and Shuguang Deng. *Kinetic Modeling of Hydrothermal Liquefaction of Algal Biomass*. AIChE Annual Meeting, Atlanta, GA, 2014
24. A. Pegallapati, **T. Selvaratnam**, N. Khandan, P. J. Lammers*. Sustainable Urban Development: Options for Maximizing Energy Extraction from Domestic Wastewater*. 8th Conference on Sustainable Development of Energy, Water and Environment Systems, Dubrovnik, Croatia, Sept. 22-27, 2013
25. Harvind Kumar Reddy, **Thinesh Selvaratnam**, Tapaswy Muppaneni, Nagamany Nirmalakhandan, Tanner Schaub, Barry Dungen, Nilusha Sudasinghe Appuhamilage, Peter Lammers, Wayne Voorhies, and Shuguang Deng. *Algal Biorefinery: Production of Biocrude Oil & Byproducts*. AIChE Annual Meeting, San Francisco, CA, 2013

*Presented

AWARDS, SCHOLARSHIPS, FELLOWSHIPS, CERTIFICATES

- Awards
  - Richard E. Speece lead author award, NMSU, Fall 2015
  - Richard E. Speece research award, NMSU, Fall 2013
  - Overseas Research Scholarship, University of Surrey, UK, 2011
- Certificates
  - Writing and Designing National Science Foundation Grant
    Awarded by Grant Training Center, NSF, Houston, 2019.

SERVICE

Professional Service

- National Committee memberships or Associations
    - Member, Communication Committee, Algal Biomass Organization, 2017-current
    - Member, Municipal Resource Recovery Design Committee, Water Environment Federation, 2019-current
    - Member, Water Pollution Engineering Committee, EWRI-ASCE, 2019-current

- National Professional Society Membership
    - Member, American Society of Civil Engineers (ASCE)
    - Member, Association of Environmental Engineering & Science Professors (AEESP)

- Journal Editorial Board
    - Associate Editor, Global Journal of Engineering Sciences
    - Reviewer Board Member, Sustainability Journal (MDPI)

- Journal/Conference Paper Reviewer
    - Reviewer, Algal Research
    - Reviewer, Renewable Energy
    - Reviewer, Process Biochemistry
    - Reviewer, Energy Conversion and Management
    - Reviewer, Applied Energy
    - Reviewer, Frontiers in Microbiology – Extreme Microbiology
    - Reviewer, MDPI Journals (Biology, Water, Sustainability, International Journal of Environmental Research and Public Health, Resources, and Applied Sciences)

- Service as a Commentator, Panelist, Discussant at Professional Meetings
    - Panel Reviewer, NSF-CBET Proposals, 2017-2018
    - Course Validation and Certification for Texas International Education Consortium: Smart City Professional (TIEC), 2018
    - Panelist, 10th Annual Conference, Texas Hurricane Center, University of Houston, Aug-2018

University Service

- Lamar University
    - Lamar University SURF Proposal Reviewer, 2018
    - Judge, Fifth Annual Undergraduate Research and Creative Activities Expo, 2018
    - Faculty Advisor, Cardinal Cricket Club, 2018

- Civil and Environmental Engineering Department
    - Member, Graduate Committee, 2017-present
    - Faculty Advisor, Water Environment Association of Texas (WEAT) Student Design Competition, 2018-present
    - Faculty Advisor, Inside view activities (Prospective student visits)
    - Development of marketing materials for new accelerated Environmental Master's program (4+1 plan)(2018)
    - ABET data collection for CVEN1101, CVEN2270, CVEN3370, and CVEN4110

- College of Engineering
    - Member, Freshman and Sophomore student retention committee, 2018-present
    - K-12 Outreach: LITE-Project Engineer, Summer Camp: “Introduction to Algal biofuels and Demonstration of Algal based wastewater treatment systems, 2018
    - K-12 Outreach: Hosted 15 students (Grade 3-5) from Takoa Academy of Accelerated Studies STEM School for a workshop at Lamar University, 2018
