

Curriculum Vitae-Ioannis Fotidis



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Main research fields

- Renewable energy sources
- Wastewater management
- Optimization of anaerobic digestion processes.
- Biorefinery concepts to produce value products and bioenergy.
- Batch and continuous (CSTR and UASB) anaerobic reactors operation.
- Bioaugmentation strategies of ammonia tolerant methanogenic consortia to alleviate the ammonia toxicity effect.
- Microbiology and biochemistry of the anaerobic digestion process (methanogenic pathways, microbial ecology etc.)

Positions

2024-Present **Assistance Professor**, School of Agriculture, Aristotle University of Thessaloniki, Greece.
2019-Present **Visiting Professor**, School of Civil Engineering, Southeast University Nanjing, China.
2021-2024 **Assistance Professor**, Department of Environment, Ionian University, Greece.
2021-2021 **Associate Professor**, in the Faculty of Engineering and Natural Sciences, Tampere University, Finland.
2018-2021 **Associate Professor**, Department of Environmental Engineering, Technical University of Denmark.
2016-2018 **Senior Researcher Scientist**, Department of Environmental Engineering, Technical University of Denmark.
2010-2016 **Researcher and Postdoc**, Department of Environmental Engineering, Technical University of Denmark.
2008-2009 **Research assistant**, Aristotle University of Thessaloniki, Greece.
2008-2009 Agriculturist, Greek Agricultural Insurance Organization (ΕΛΓΑ).
2007-2008 Military service.
2006-2007 Agriculturist, Greek Agricultural Insurance Organization (ΕΛΓΑ).

Education

2011 **PhD-Agricultural Engineering**, Faculty of Agriculture, Aristotle University of Thessaloniki, Greece.
2012 **MSc-Waste management**, Department of Science & Technology, Hellenic Open University, Greece.
2008 **MSc-Agricultural Engineering**, Faculty of Agriculture, Aristotle University of Thessaloniki, Greece.
2004 **MEng and BSc-Field Crops and Ecology**, Faculty of Agriculture, Aristotle University of Thessaloniki, Greece.
2019 **Diploma - Education in university teaching-UDTU**, LearningLab, Technical University of Denmark.
2018 **Diploma - The PhD Supervision Process: Methods and Tools**, LearningLab, Technical University of Denmark.
2013 **Certificate - Supervision of Students - from Bachelor to PhD level**, LearningLab, Technical University of Denmark.
2013 **Diploma - Teaching Assistant Training Programme at DTU**, LearningLab, Technical University of Denmark.

Scholarships

2024 Erasmus+ staff mobility for teaching and training, University in Córdoba, Spain.
2023 Erasmus+ staff mobility for teaching and training, Cyprus University of Technology.
2019 Otto Mønsted academic mobility, 16th Anaerobic Digestion congress in Delft, The Netherlands.
2017 Otto Mønsted academic mobility, 15th Anaerobic Digestion congress in Beijing, China.
2017 Erasmus+ staff mobility for teaching and training, Aristotle University of Thessaloniki, Greece.
2015 Otto Mønsted academic mobility, 14th Anaerobic Digestion congress in Vina del Mar, Chile.
2008 Full scholarship for PhD studies, the State Scholarship Foundation of Greece (IKY).
2009 Erasmus mobility for PhD students, Technical University of Denmark.
2004 Full scholarship for MSc studies, the State Scholarship Foundation of Greece (IKY).

Participation in Financed Projects

- 2023 MicroPower (PI). Bioaugmentation of specialized microbial consortia to optimize the overall anaerobic digestion process, Basic Research Financing Action (Horizontal support of all Sciences), Sub-action 1. Funding New Researchers, Hellenic Foundation for Research and Innovation (no. 15547), €164.922
- 2022 CYANOTECH (Co-author). A sustainable and innovative management system for toxic cyanobacteria blooming of surface waters with combined energy production, sustainable agriculture, and food safety, Excellence Hubs (Bridge Programmes)/RESTART, EU & Cyprus, €200.000.
- 2018 LyoCH₄ (PI). Development of novel lyophilized bioaugmentation inocula to alleviate ammonia toxicity in anaerobic reactors. National Natural Science Foundation of China, €51.000.
- 2014 WASTE-TREAT. (Role: Design and supervision the of biomethanation of high salinity waste activities). Cost effective solutions for End-of-pipe treatment in salt water RAS. GUDP, 39190. €753.352.
- 2014 MicrobeStopNH₃ (Primer author). Innovative bioaugmentation strategies to tackle ammonia inhibition in an-aerobic digestion process. ForskEL, €744.000.
- 2014 MEMENTO (Role: Design and supervision the FO-AnMBRs pilot reactor activities). Membrane Energy Technology Operations. Innovation Fund Denmark, 4106-00021B. €1.603.000.
- 2014 ElectroAD (Role: High ammonia anaerobic digestion processes). Innovative bioelectrochemical-anaerobic-digestion coupled system for ammonia recovery and energy production from ammonia-rich residues. DFF, €854.000.
- 2012 GREEN-AgriChains (Role: External research participant, design, and supervision of specific biomethanation experiments). Innovation Capacity Building by Strengthening Expertise and Research in the Design, Planning and Operations of Green Agrifood Supply Chains. FP7, 316167.
- 2012 ECO-India (Participant). Energy-efficient, community-based water- and wastewater-treatment systems for deployment in India. FP7 EU, €2.257.195.
- 2012 Bioenergy Zealand (Role: External research participant, design, and supervision of specific biomethanation experiments). The European Fund for Regional Development, and Growth Forum Zealand. Approx., €215.000.000.
- 2010 Ammonia Project (Role: Responsible for all project activities). Innovative process for digesting high ammonia wastes. EnergiNet Denmark-ForskEL, 2010-10537. Approx. €340.000.
- 2008 Application of thermal heating and utilization of the greenhouse installation zone (ZETH) of Ptolemaida municipality (Role: Research assistance, data collection). Aristotle University of Thessaloniki, Funded by Municipality of Ptolemaida and Municipal Heating Company of Ptolemaida.
- 2006 Creation of a joint postgraduate educational program for graduates of geotechnical and polytechnic schools- Subproject 1 (Role: Research assistance, data collection). Aristotle University of Thessaloniki, INTERREG IIIA/CARDS.

H-index 30 in Scholar (3962 citations) and 29 in Scopus (3062 citations)

Publications

49 ISI publications (October 2024) in well-known scientific journals (e.g., Renewable & Sustainable Energy Reviews (IF: 16.3), Chemical Engineering Journal (IF: 13.3), Journal of Hazardous Materials (IF: 12.2), Water Research (IF: 11.4), Environmental Science & Technology (IF: 10.8), Bioresource Technology (IF: 9.7), Journal of Cleaner Production (IF: 9.7), etc.).

1. Yan, Y., **Fotidis, I. A.**, Fu, D., & Singh, R. P. (2024). Can ozone mass transfer in water treatment be enhanced through independent pressurized ozonation? Journal of Environmental Chemical Engineering, 12(5), 113714. <https://doi.org/10.1016/J.JECE.2024.113714>
2. Wang, F., Pan, T., Fu, D., **Fotidis, I. A.**, Moulogianni, C., Yan, Y., & Singh, R. P. (2024). Pilot-scale membrane-covered composting of food waste: Initial moisture, mature compost addition, aeration time and rate. Science of The Total Environment, 926, 171797. <https://doi.org/10.1016/J.SCITOTENV.2024.171797>
3. Yan, Y., Kallikazarou, N. I., Tzenos, C., Kotsopoulos, T. A., Koutsokeras, L., Kokkinidou, Despoina A., Michael, C., Constantinides, G., Anayiotos, A. S., Botsaris, G., Nisiforou, O., Antoniou, M. G., & **Fotidis, I. A.** (2023). Pilot-scale biogas

- and in-situ struvite production from pig slurry: A novel integrated approach. *Journal of Cleaner Production*, 431, 139656. <https://doi.org/10.1016/J.JCLEPRO.2023.139656>
4. Wang, H., Yan, Q., Zhong, X., Angelidaki, I., & **Fotidis, I. A.** (2023). Metabolic responses and microbial community changes to long chain fatty acids: Ammonia synergetic co-inhibition effect during biomethanation. *Bioresource Technology*, 386, 129538. <https://doi.org/10.1016/J.BIORTECH.2023.129538>
 5. Yan, Y., Yan, M., Angelidaki, I., Fu, D.; Fotidis, I. A*. (2022). Osmoprotectants boost adaptation and protect methanogenic microbiome during ammonia toxicity events in continuous processes. *Bioresource Technology*, 364, 128106. <https://doi.org/10.1016/J.BIORTECH.2022.128106>
 6. Yan, Y., Yan, M., Ravenni, G., Angelidaki, I., Fu, D., Fotidis, I. A*. (2022). Biochar enhanced bioaugmentation provides long-term tolerance under increasing ammonia toxicity in continuous biogas reactors. *Renewable Energy*, 195, 590–597. <https://doi.org/10.1016/J.RENENE.2022.06.071>
 7. Yan, Y., Yan M., Ravenni G., Angelidaki I., Fu, D, **Fotidis, I. A.*** (2022). Novel bioaugmentation strategy boosted with biochar to alleviate ammonia toxicity in continuous biomethanation. *Bioresource Technology*, 343, 126146. <https://doi.org/10.1016/J.BIORTECH.2021.126146>
 8. Wang, H., **Fotidis, I. A.***, Yan, Q., Angelidaki, I. (2021). Feeding strategies of continuous biomethanation processes during increasing organic loading with lipids or glucose for avoiding potential inhibition. *Bioresource Technology*, 327, 124812. <https://doi.org/10.1016/J.BIORTECH.2021.124812>
 9. Yan, M., Zhu, X., Treu, L., Ravenni, G., Campanaro, S., Goonesekera, E. M., Ferrigno, R., Jacobsen, C. S., Zervas, A., Angelidaki, I., **Fotidis, I. A.*** (2021). Comprehensive evaluation of different strategies to recover methanogenic performance in ammonia-stressed reactors. *Bioresource Technology*, 336, 125329. <https://doi.org/10.1016/J.BIORTECH.2021.125329>
 10. Mancini, E., Tian, H., Angelidaki, I., **Fotidis, I. A.*** (2021). The implications of using energy-rich industrial wastewaters as biomethanation feedstocks. *Renewable & Sustainable Energy Reviews*, 144, 110987. <https://doi.org/10.1016/j.rser.2021.110987>
 11. Schneider, C., Oñoro, A.E., Hélix-Nielsen, C., **Fotidis, I. A.*** (2021). Start-up of forward-osmosis anaerobic-membrane bioreactors for brewery wastewater remediation. *Separation and Purification Technology*, 257, 15, 117786. <https://doi.org/10.1016/j.seppur.2020.117786>
 12. Hatami, B., Ebrahimi, A., Ehrampoush, M.H., Salmani, M.H., Dalvand, A., Pirmoradi, N., Angelidaki, I., **Fotidis, I. A.**, Mokhtari, M., (2021). Recovery of Intermittent Cycle Extended Aeration System Sludge by Conversion into Biodiesel by in-situ transesterification. *Renewable Energy*, 163, 56-65. <https://doi.org/10.1016/j.renene.2020.08.116>
 13. Yan, M., Treu, L., Zhu, X., **Fotidis, I. A.**, Tian, H., Campanaro, S., Angelidaki, I., (2020). Insights into ammonia adaptation and methanogenic precursor oxidation by genome-guided analysis. *Environmental Science and Technology*, <https://doi.org/10.1021/acs.est.0c01945>
 14. Letelier-Gordo, C.O., Mancini, E., Pedersen, P.B., Angelidaki, I., **Fotidis, I. A.*** (2020). Saline fish wastewater in biogas plants- Biomethanation toxicity and safe use. *Journal of Environmental Management*, 275, 111233. <https://doi.org/10.1016/j.jenvman.2020.111233>
 15. Yan, M., Treu, L., Campanaro, S., Tian, H., Zhu, X., Khoshnevisan, B., Tsapekos, P., Angelidaki, I., **Fotidis, I. A.*** (2020). Effect of ammonia on anaerobic digestion of municipal solid waste: inhibitory performance, bioaugmentation and microbiome functional reconstruction. *Chemical Engineering Journal*, 401, 126159. <https://doi.org/10.1016/j.cej.2020.126159>
 16. Garcia-Aguirre, J., Alvarado-Morales, M., **Fotidis, I. A.**, Angelidaki, I., (2020). Up-concentration of succinic acid, lactic acid, and ethanol fermentations broths by forward osmosis. *Biochemical Engineering Journal*, 155, 107482. <https://doi.org/10.1016/j.bej.2019.107482>
 17. Yan, M., **Fotidis, I. A.***, Jégliot, A., Treu, L., Tian, H., Palomo, A., Zhu, X., Angelidaki, I., (2020). Long-term preserved and rapidly revived methanogenic cultures: Microbial dynamics and preservation mechanisms. *Journal of Cleaner Production*, 121577. <https://doi.org/10.1016/j.jclepro.2020.121577>
 18. Tian, H., Treu, L., Konstantopoulos, K., **Fotidis, I. A.***, Angelidaki, I., (2019). 16s rRNA gene sequencing and radioisotopic analysis reveal the composition of ammonia acclimatized methanogenic consortia. *Bioresource Technology*, 272, 54-62. <https://doi.org/10.1016/j.biortech.2018.09.128>

19. Omar, B., El-Gammal, M., Abou-Shanab, R., **Fotidis, I. A.**, Angelidaki, I., Zhang, Y., (2019). Biogas upgrading and biochemical production from gas fermentation: impact of microbial community and gas composition. *Bioresource Technology*, 286, 121413. <https://doi.org/10.1016/j.biortech.2019.121413>
20. Yan, M., **Fotidis, I. A.***, Tian, H., Khoshnevisan, B., Treu, L., Tsapekos, P., Angelidaki, I., (2019). Acclimatization contributes to stable anaerobic digestion of organic fraction of municipal solid waste under extreme ammonia levels: Focusing on microbial community dynamics. *Bioresource Technology*, 286, 121376. <https://doi.org/10.1016/j.biortech.2019.121376>
21. Tian, H., Mancini, E., Treu, L., Angelidaki, I., **Fotidis, I. A.***, (2019). Bioaugmentation strategy for overcoming ammonia inhibition during biomethanation of a protein-rich substrate. *Chemosphere*, 231, 415-422. <https://doi.org/10.1016/j.chemosphere.2019.05.140>
22. Tian, H., Yan, M., Treu, L., Angelidaki, I., **Fotidis, I. A.***, (2019). Hydrogenotrophic methanogens are the key for a successful bioaugmentation to alleviate ammonia inhibition in thermophilic anaerobic digesters. *Bioresource Technology*, 293, 122070. <https://doi.org/10.1016/j.biortech.2019.122070>
23. Tian, H., **Fotidis, I. A.***, Kissas, K., Angelidaki, I., (2018). Effect of different ammonia sources on aceticlastic and hydrogenotrophic methanogens. *Bioresource Technology*, 250, 390-397. <https://doi.org/10.1016/j.biortech.2017.11.081>
24. Tian, H., **Fotidis, I. A.***, Mancini, E., Treu, L., Mahdy, A., Ballesteros, M., González-Fernández, C., Angelidaki, I., (2018). Acclimation to extremely high ammonia levels in continuous biomethanation process and the associated microbial community dynamics. *Bioresource Technology*, 247, 616-623. <https://doi.org/10.1016/j.biortech.2017.09.148>
25. Podevin, M., **Fotidis, I. A.**, Angelidaki, I. (2018). Microalgal process-monitoring based on high-selectivity spectroscopy tools: status and future perspectives. *Critical Reviews in Biotechnology*, 38, 704-718. <https://doi.org/10.1080/07388551.2017.1398132>
26. Omar, B., Abou-Shanab, R., El-Gammal, M., **Fotidis, I. A.**, Kougias, P.G., Zhang, Y., Angelidaki, I., (2018). Simultaneous biogas upgrading and biochemicals production using anaerobic bacterial mixed cultures. *Water Research*, 142, 86-95. <https://doi.org/10.1016/j.watres.2018.05.049>
27. Tian, H., Karachalios, P., Angelidaki, I., **Fotidis, I. A.***, (2018). A proposed mechanism for the ammonia-LCFA synergetic co-inhibition effect on anaerobic digestion process. *Chemical Engineering Journal*, 349, 574-580. <https://doi.org/10.1016/j.cej.2018.05.083>
28. Mahdy, A., **Fotidis, I. A.***, Mancini, E., Ballesteros, M., González-Fernández, C., Angelidaki, I. (2017). Ammonia tolerant inocula provide a good base for anaerobic digestion of microalgae in 3rd generation biogas process. *Bioresource Technology*, 225: 272-278. <https://doi.org/10.1016/j.biortech.2016.11.086>
29. Podevin, M., **Fotidis, I. A.**, De Francisci, D., Møller, P., Angelidaki, I. (2017). Detailing the start-up and microalgal growth performance of a full-scale photobioreactor operated with bioindustrial wastewater. *Algal Research*, 25, 101-108. <https://doi.org/10.1016/j.algal.2017.04.030>
30. **Fotidis, I. A.***, Treu, L., Angelidaki, I. (2017). Enriched ammonia-tolerant methanogenic cultures as bioaugmentation inocula in continuous biomethanation processes. *Journal of Cleaner Production*, 166, 1305-1313. <https://doi.org/10.1016/j.jclepro.2017.08.151>
31. Murray A.M., **Fotidis, I. A.***, Isenschmid A., Haxthausen K.R.A., Angelidaki I. (2017). Wirelessly powered submerged-light illuminated photobioreactors for efficient microalgae cultivation. *Algal Research*, 25, 244-251. <https://doi.org/10.1016/j.algal.2017.05.015>
32. Tian, H., **Fotidis, I. A.***, Mancini, E., Angelidaki, I., (2017). Different cultivation methods to acclimatise ammonia-tolerant methanogenic consortia. *Bioresource Technology*, 232, 1-9. <https://doi.org/10.1016/j.biortech.2017.02.034>
33. Kovalovszki, A., Alvarado-Morales, M., **Fotidis, I. A.**, Angelidaki, I., (2017). A systematic methodology to extend the applicability of a bioconversion model for the simulation of various co-digestion scenarios. *Bioresource Technology*, 235, 157-166. <https://doi.org/10.1016/j.biortech.2017.03.101>
34. Wang, H., **Fotidis, I. A.***, and Angelidaki, I. (2016). Ammonia-LCFA synergetic co-inhibition effect in manure-based continuous biomethanation process. *Bioresource Technology*, 209: 282-289. <https://doi.org/10.1016/j.biortech.2016.03.003>

35. Luo, G., **Fotidis, I. A.**, and Angelidaki, I. (2016). Comparative analysis of taxonomic, functional, and metabolic patterns of microbiomes from 14 full-scale biogas reactors by metagenomic sequencing and radioisotopic analysis. *Biotechnology for Biofuels*, 9: 1-12. <https://doi.org/10.1186/s13068-016-0465-6>
36. **Fotidis, I. A.***, Laranjeiro, T.F.V.C., and Angelidaki, I. (2016). Alternative co-digestion scenarios for efficient fixed-dome reactor biomethanation processes. *Journal of Cleaner Production*, 127: 610-617. <https://doi.org/10.1016/j.jclepro.2016.04.008>
37. Holliger, C., Alves, M., Andrade, D., Angelidaki, I., Astals, S., Baier, U., Bougrier, C., Buffière, P., Carballa, M., de Wilde, V., Ebertseder, F., Fernández, B., Ficara, E., Fotidis, I. et al. (2016). Towards a standardization of biomethane potential tests. *Water Science and Technology*, 74, 2512-2522. <https://doi.org/10.2166/wst.2016.336>
38. Alvarado-Morales, M., Gunnarsson, I. B., **Fotidis, I. A.**, Vasilakou, E., Lyberatos, G., & Angelidaki, I. (2015). *Laminaria digitata* as a potential carbon source for succinic acid and bioenergy production in a biorefinery perspective. *Algal Research*, 9, 126-132. <https://doi.org/10.1016/j.algal.2015.03.008>
39. Flores, G.A.E., **Fotidis, I. A.**, Karakashev, D.B., Kjellberg, K., Angelidaki, I. (2015). Effects of Benzalkonium Chloride, Proxel LV, P3 Hypochloran, Triton X-100 and DOWFAX 63N10 on anaerobic digestion processes. *Bioresource technology*, 193, 393-400. <https://doi.org/10.1016/j.biortech.2015.06.125>
40. Søndergaard, M.M., **Fotidis, I. A.***, Kovalovszki, A., Angelidaki, I. (2015). Anaerobic co-digestion of agricultural byproducts with manure for enhanced biogas production. *Energy & Fuels*, 29, 8088-8094. <https://doi.org/10.1021/acs.energyfuels.5b02373>
41. Symсарis, E.C., **Fotidis, I. A.**, Stasinakis, A.S., Angelidaki, I. (2015). Effects of triclosan, diclofenac, and nonylphenol on mesophilic and thermophilic methanogenic activity and on the methanogenic communities. *Journal of Hazardous Materials*, 291, 45-51. <https://doi.org/10.1016/j.jhazmat.2015.03.002>
42. Wang, H., **Fotidis, I. A.**, Angelidaki, I. (2015). Ammonia effect on hydrogenotrophic methanogens and syntrophic acetate oxidizing bacteria. *FEMS Microbiology Ecology*, 91. <https://doi.org/10.1093/femsec/fiv130>
43. **Fotidis, I. A.**, Karakashev, D., Angelidaki, I. (2014). The dominant acetate degradation pathway/methanogenic composition in full-scale anaerobic digesters operating under different ammonia levels. *International Journal of Environmental Science and Technology*, 11, 2087-2094. <https://doi.org/10.1007/s13762-013-0407-9>
44. **Fotidis, I. A.**, Wang, H., Fiedel, N.R., Luo, G., Karakashev, D.B., Angelidaki, I. (2014) Bioaugmentation as a solution to increase methane production from an ammonia-rich substrate. *Environmental Science and Technology*, 48, 7669-76. <https://doi.org/10.1021/es5017075>
45. **Fotidis, I. A.**, Karakashev, D., Kotsopoulos, T.A., Martzopoulos, G.G., Angelidaki, I. (2013). Effect of ammonium and acetate on methanogenic pathway and methanogenic community composition. *FEMS Microbiology Ecology*, 83, 38-48. <https://doi.org/10.1111/j.1574-6941.2012.01456.x>
46. **Fotidis, I. A.**, Kougias, P.G., Zaganas, I.D., Kotsopoulos, T.A., Martzopoulos, G.G. (2014). Inoculum and zeolite synergistic effect on anaerobic digestion of poultry manure. *Environmental Technology*, 35, 1219-1225. <https://doi.org/10.1080/09593330.2013.865083>
47. Kougias, P., **Fotidis, I. A.**, Zaganas, I., Kotsopoulos, T., Martzopoulos, G. (2013). Zeolite and swine inoculum effect on poultry manure biomethanation. *International Agrophysics*, 27, 169-173. <https://doi.org/10.2478/v10247-012-0082-y>
48. **Fotidis, I. A.**, Karakashev, D., Angelidaki, I. (2013). Bioaugmentation with an acetate-oxidising consortium as a tool to tackle ammonia inhibition of anaerobic digestion. *Bioresource Technology*, 146, 57-62. <https://doi.org/10.1016/j.biortech.2013.07.041>
49. Kotsopoulos, T.A., **Fotidis, I. A.**, Tsolakis, N., Martzopoulos, G.G. (2009). Biohydrogen production from pig slurry in a CSTR reactor system with mixed cultures under hyper-thermophilic temperature (70°C). *Biomass and Bioenergy*, 33, 1168-1174. <https://doi.org/10.1016/j.biombioe.2009.05.001>