

Laboratory of Organic Chemical Technology
School of Chemical Engineering
National Technical University of Athens

Description of the Research Group and
the research fields of interest

NTUA – School of Chemical Engineering



- NTUA is among the oldest higher education institutions of Greece and the most prestigious among engineering schools.
- Nine academic schools, eight being for engineering disciplines and one for applied sciences

School of Chemical Engineering <https://www.chemeng.ntua.gr/>

- 45 teaching and educational staff
- Four Divisions: Synthesis and Development of Industrial Processes (six Laboratories)
- Laboratory of Organic Chemical Technology



Laboratory of Organic Chemical Technology

The Research Team

- **Academics**

- Gerasimos Lyberatos, Full Professor
- Nikos Chronis, Full Professor
- Anestis Vlysidis, Assistant Professor



- **Laboratory and Teaching Staff**

- L.Karaoglanoglou, D. Koullas, K. Papadopoulou



- **3 post-docs**

- **8 PhD students**

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Research Interests

- Utilization of **renewable resources** (municipal and agro-industrial waste and by-product) to produce various useful products (biofuels, biopolymers, biochemicals, antioxidants, etc.) and energy under **circular economy** while ensuring the protection of the environment.
- Development of both **innovative technologies** and **holistic systems** to treat and utilize various organic waste (municipal, industrial, agricultural).
 - Anaerobic Digestion (biogas upgrade), Dark fermentation, Industrial Biotechnology, Bioelectrochemical systems, Bioprocess modelling and optimization
- Close collaboration with Industries & Municipalities to efficiently manage, treat & valorize waste.
- Use of various software tools to design, model and assess the develop technologies (Aspen Plus, Aquasim, Simapro, Minitab, Comsol)
- Participation in several EU and National research projects
- Private (research) projects

Latest Research Projects (1)



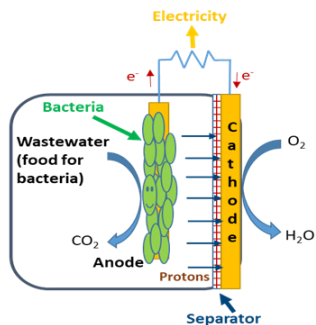
WASTE4THINK, EU HORIZON, 2016-2020: Development of a Food Waste Management system with collaboration of the Municipality of Chalandri. Construction of a pilot facility to treat and valorize food waste.



Denominate, National research project (HFRI), 2019-2022: Development of an innovative holistic approach in the treatment and utilization of two Municipal Waste streams namely an easily biodegradable MSW and Municipal wastewater.



PHOTOREC, ΕΠΑνεΚ, 2019-2022: Waste management of photovoltaic panels for material recovery by applying mild and environmentally friendly material recovery processes to recycle back to the same application or to be used for other products e.g. catalyst production.



WHYMFC, National research project (HFRI): Integrated wastewater treatment and electricity production by using High Yield Microbial Fuel Cell

Latest Research Projects (2)



SYMSITES, EU HORIZON, 2022-2026: Deploying industrial-urban symbiosis solutions for the utilization of energy, water, industrial waste and by-products at regional scale. Combination of olive industry wastewater, food waste and municipal wastewater.



E-HORECA WANET, 2017-2020, Efficient Hotel Restaurant & Catering Waste Network, HORECA targets to tackle the waste management problem in the Municipality of Corfu with novel waste management practices and optimize existing waste collection services.



ENI CBCMED, 2019-2022, To develop new ways of managing biowaste collected at source, treatment, composting and use in agriculture. SIRCLES creates job opportunities and promotes social inclusion through the participation in a circular economy model.



EU HORIZON, GA: 101000617: Reduce food loss by prevention and reuse (retail stores, food services, organizations, residents), Divert food waste from landfilling by collection at the source and valorization to produce biofuels, energy and compost.

Lab and Pilot scale bioprocesses



Trickle bed reactor



SBR



Composting unit



Lab scale AnMBR



Food waste hydrolysis



Pilot scale AnDigester



Composting unit @ Andros island

Analytical equipment

