

Environmental Catalysis Laboratory

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- **Staff:**

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- **Research Activities**

- Hydrogenation of carbon dioxide (CO₂) for methane (CH₄) production.
- Removal of carbon monoxide from hydrogen-rich reformat streams via selective methanation of CO.
- Development of novel photocatalytic materials with improved absorption characteristics in the solar spectral region.
- Photocatalytic treatment of wastewater streams containing emerging micro-contaminants.
- Production of hydrogen for fuel cells, by reformation of biomass-derived ethanol, LPG etc.
- Development of water-gas shift (WGS) catalysts for fuel processors used in proton exchange membrane (PEM) fuel cell systems.

- **Lab infrastructure**

- Equipment for preparation of catalytic materials, including magnetic stirrers, filtration and vacuum systems, high temperature electric furnaces and flow systems for heat treatment of materials under various conditions (oxidizing, reducing, inert atmosphere).
- Complete system for catalysts evaluation and kinetic studies of catalytic reactions, equipped with mass flow controllers, electric furnaces, thermocouples, fixed bed reactor and gas chromatograph (GC) for the identification and quantification of reactants and products.

- **Research Projects**

- EPAnEK 2014-2020 Operational Programme, Competitiveness-Entrepreneurship-Innovation "Development and demonstration of complete process for the production of electrical energy from fuel cells through intermediate production of H₂ via LPG steam reforming (LPGSR)". Cod.: T1EDK-02442, Budget: €150.000/ €674.854,93. Funded by the European Union and Greek national funds.