Physical Chemistry and Chemical Processes Laboratory

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○ Research activities

- Synthesis of novel enhanced catalytic/electrocatalytic properties nano-structured and composite materials.
- Structure, morphology, physicochemical characterization and catalytic performance evaluation of novel materials under selected reactions relevance to important technological applications.
- Behaviour of surfaces and interfaces.
- Promotion and its origin in heterogeneous catalysis and electrocatalysis.
- Fuel Cells science and technology.
- Hydrogen energy, biofuels, natural gas.
- Environmental catalysis and pollution control.
- Chemical and processes engineering.

○ Lab Infrastructure

- ChemBET Pulsar TRT/TPD, Quantachrome instruments
- Surface area and Pore Analyser, NOVA 2200e, Quantachrome instruments
- FTIR, FTS3000MX, Excalibur series
- Gas Chromatograph, GC-14B, Shimadzu
- Gas Chromatograph, GC 2014, Shimadzu
- NO-NO₂-NOₓ analyzer, 42C, Thermo Environmental Instruments
- CO₂ Pur, Air Purifier
- Oven Falc
- Oven 30-3000°C, Controller P320, Nabertherm
- Oven 30-3000°C, Program Controller C42, Nabertherm
- Metal coating instrument, Quorum Q 150TS

○ Research projects

- 2011-2014, “Advanced technology fuel cells for direct energy production from biogas and biomass derived fuels”, Funded by GSRT and EU, Program HERAKLEITOS II, (45,000 €).
- 2011-2015, “Development of novel doubly promoted (surface and structural) catalytic systems for the simultaneous emissions’ abatement of NOₓ and N₂O”, Funded by GSRT and EU, Program THALIS, (600,000 €).

• 2007-2008, "Hydrogen production from catalytic treatment of hydrocarbons and biofuels", Funded by Technical University of Crete, (5,000 €).

• 2005-2008, "Development of novel very effective and selective automotive catalytic converters", Funded by GSRT and EU, Program PENED, (114,000 €).