ALMA MATER STUDIORUM
Università di Bologna

Team
“Catalytic Processes Development”

Dipartimento di Chimica Industriale “Toso Montanari”

Research Organization in the Department of Industrial Chemistry

RESEARCH AREAS

Analytical Chemistry

Industrial Chemistry

The research activities in industrial chemistry area includes studies on the environment, cultural heritage, energy production, polymeric materials and catalytic processes.

Inorganic Chemistry

The research activities in inorganic chemistry area includes studies on organometallic, metal cluster.

Organic Chemistry

The research activities in organic chemistry area includes studies of new methods for the synthesis of molecules with biological activity, reaction mechanisms, bioorganic chemistry of anticancer drugs, chemicals productions with low environmental impact.

Physical Chemistry

The research activities in phyisical chemistry area includes studies on atmosphere, liquid crystals, processes in liquids, high resolution molecolar spectroscopy.

Area of Industrial Chemistry

The research activities in industrial chemistry area includes studies on the environment, cultural heritage, energy production, polymeric materials and catalytic processes

Catalytic processes development
Environmental and Cultural Heritage chemistry
Polymers

Catalytic Processes Development

Team Composition (2013)

Permanent positions

Ferruccio Trifirò (Emeritus Professor)
Stefania Albonetti
Francesco Basile
Fabrizio Cavani
Giuseppe Fornasari
Carlo Lucarelli
Angelo Vaccari

PhDs: 18
Post docs: 5
Grants (post-graduate): 5
Undergraduate students (for the Master thesis): 10-12

Main Research Topics

Strong relationships with industrial companies

Companies funding our research activity during 2009-2013

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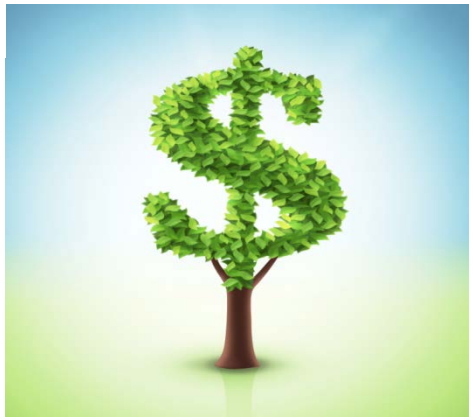

Main Research Topics

Involved in various EU FP7 Projects

eurobioref

European Multilevel Integrated Biorefinery Design for Sustainable Biomass Processing

CHRISGAS
fuels from biomass

GreenAir
Generation of hydrogen by kerosene **R**eforming via **E**fficient and low **E**mission **N**ew **A**lternative, **I**nnovative, **R**efined technologies for aircraft application

Topics of Research (2013)

Renewables to Chemicals

- Valorisation of renewables (*Lonza CH*)
- Glycerol into acrylic acid (*Ministery MIPAAF*)
- n-butanol valorisation (*EU FP7 Project EuroBioRef*)
- Furfural into hydrossimethylfurfural and HMF into 2,5-furandicarboxylic acid
- Hydrogenation and hydrogenolysis of HMF (*Ministery Education, PRIN*)
- Chemicals from biomasses (*Versalis*)

Fuels and hydrogen from biomasses

- Cycloalkanes dehydrogenation for on-board H_2 production in aircrafts (*EU FP7 Project GreenAir*)
- Lignocellulosic materials hydrolysis with solid acid catalysts (*ENI SpA*)
- Cyclic Steam-reforming of bioethanol (*Tuck Foundation*)
- Reforming (*Air Liquide*)
- Biomasses gasification/methane reforming (*EU FP7 Project NextGTL*)
- Biomasses gasification (*EU FP7 Project GreenSynGas)*

Topics of Research (2013)

New / Improved catalysts

- n-Butane to maleic anhydride (*Polynt*)
- Water-Gas-Shift (*Air Liquide*)
- Methane CPO (*Air Liquide*)

Greener Chemical Processes

- Perfluorovynil ethers synthesis (*Solvay Solexis*)
- New synthesis for Vitamin E (*DSM*)
- New synthesis for Adipic Acid (*Radici Chimica*)
- New synthesis for phenolics (*Camlin-Borregaard*)
- New synthesis of fragrances
- Synthesis of carbonates (Ministery Education, PRIN)