



## Antonio Comite

Associate professor

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### *Education and training*

1998

#### **Laurea degree in Industrial Chemistry**

Removal of volatile organic compounds by a catalytic membrane reactor -  
110/110 cum Laude

UNIVERSITA' DEGLI STUDI DI GENOVA - Genoa - IT

2006

#### **PhD in Science Technology and Chemical Processes**

Inorganic membrane reactors

UNIVERSITA' DEGLI STUDI DI GENOVA - Genoa - IT

### *Academic experience*

2008 - 2018

#### **Assistant professor**

UNIVERSITA' DEGLI STUDI DI GENOVA - Genoa - IT

2018 - ONGOING

#### **Associate professor**

UNIVERSITA' DEGLI STUDI DI GENOVA - Genoa - IT

### *Language skills*

#### **English**

Independent

### *Teaching activity*

Prof. Antonio Comite has carried out an intense teaching activity that can be classified in the following main branches:

- i) Issues on the development of industrial chemical processes
- ii) Environmental issues (pollution and management of pollution), water treatment, safety and chemical risk.
- iii) Themes close to research topics (systems catalytic and membrane development and application). Topics addressed concern the preparation and characterisation of supported catalysts, the preparation and characterisation of ceramic and catalytic membranes, study of transport phenomena associated with chemical reaction

## *Postgraduate research and teaching activity*

### **Supervision of PhD students, residents and post-doctoral fellows**

Supervisor of 3 doctoral theses in progress (M. Pagliero, R. Babu, I. Rizzardi) of which one financed from a private company and one on funds POR FES Regione Liguria.

Supervisor of several research grants of which recently one financed from funds POR ERDF Liguria Region.

Local supervisor of several PhD students from abroad for consolidating their research experiences at the research group 'membranes & membranes'

### **PhD committees membership**

Participation in the Council for the doctoral courses in SCIENCES E CHEMICAL AND MATERIAL TECHNOLOGIES (XXIX-XXXIV) from 2013 to 2018

## *Research interests*

Antonio Comite is an associate professor at the Department of Chemistry and Industrial Chemistry (DCCI) of the University of Genoa. He coordinates the research group 'Membranes and Membrane Processes' and is responsible for the Laboratory of Electron Microscopy of the DCCI. In 1998 he obtained a degree in Industrial Chemistry. In 2004 he worked as a Marie Curie Fellow at the GKSS research center (Geesthacht, Germany) on the development of PEM fuel cells. In 2006 he defended his doctoral thesis on 'Inorganic Membrane Reactors'. Antonio Comite's research interests are devoted to inorganic, organic-inorganic and catalytic composite membranes, to their application as separators and high temperature reactors, to fuel cells, membrane processes for water treatment. He is co-author of numerous articles in international journals indexed ISI and Scopus, several chapters in international books, a book on membrane processes in water treatment, a textbook on membranes, Italian and international patents.

Antonio Comite has carried out an intense scientific activity in the field of Industrial Chemistry, Catalysis, Science and Technology Membranes and their application to industrial processes. This research activity is widely documented by both the number papers in international journals, communications at congresses, patents as well as participation in various projects of both institutional and industrial research. Antonio Comite collaborates scientifically with other researchers of the same University that of Italian and foreign universities.

Research activities generally fall under the following lines of research:

- Development of catalysts and membrane catalytic reactors for i) processes for the production of hydrogen and syngas (water-gas-shift, steam reforming, dry reforming); ii) partial or full oxidation reactions of hydrocarbons (e.g. oxidative propane dehydrogenation, partial oxidation of

toluene), iii) for selective hydrogenation reactions in gas-liquid-solid systems (e.g. adiponitrile hydrogenation).

- Synthesis and characterization of dense and porous inorganic membranes with sol-gel and dip-coating techniques, electroless plating, hydrothermal synthesis.
- Preparation and characterisation of innovative fuel cell components.
- Preparation and characterisation of new porous polymeric membranes by the phase inversion technique, either functionalized or composite with inorganic materials.
- Application of more consolidated membrane processes (microfiltration, ultrafiltration, nanofiltration, reverse osmosis) and membrane bioreactors (MBR and Mbfr).
- Emerging membrane processes such as membrane distillation and membrane contactors.
- Pretreatment and valorisation of biomass (lignocellulosic or waste sludge).
- Thermal treatment of biomass and waste plastics.

## ***Grants***

### **1998 - ONGOING**

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#### **Participant**

He has participated as a researcher in national research programs on membrane reactors, integrated systems for the production of hydrogen, innovative components for fuel cells. He has been involved and also principal investigator in several EU projects (Force - H2020, Xeric - H2020, DEMOYS - FP7, MEDOLICO - ENPI, NETWATER - TEMPUS, BIOETHANOL - COST Action). Actively collaborates with various research institutions and industries. He has promoted and collaborated on several scientific events (CAMURE11-ISMR10-2021; JIFC - 2004, XVII National Congress of Industrial Chemistry of SCI - 2008, NYM8 - 2006; XXIV EMS Summer School on Membranes for Reactive Processes - 2007).

## ***Editorial activity***

Member of the editorial board of 'Membranes' (mdpi; IF: 3.094). Reviewer several scientific international journals in the Catalysis and membrane science and technology fields