



## Alessio Frassoldati

Associate Professor

Dipartimento di Chimica, Materiali ed Ingegneria Chimica "G. Natta"  
Politecnico di Milano

### Education, Career, & Awards

1999: M.Sci., Politecnico di Milano

2003: Visiting Scholar, UCSD – San Diego (USA).

2004: Ph.D., Politecnico di Milano

2006: Research activity at LEAP-Politecnico Milano

2007: Assistant Professor at Politecnico di Milano

2015: Associate Professor at Politecnico di Milano

2016: Coordinator of the PhD program in Industrial Chemistry and Chemical Engineering (CII)

### Research group web page

<http://www.chem.polimi.it/creckmodeling/>

### Current Research Interests

- Detailed kinetics of combustion and formation of pollutants (NO<sub>x</sub>, PAH, soot);
- Combustion of real fuels surrogates
- Combustion in internal combustion engines
- Numerical modeling of solid fuels pyrolysis and gasification.
- CFD modeling of turbulent combustion
- Tunnel fire safety

### PROFESSIONAL AFFILIATION

Dr. Alessio Frassoldati is currently a professor at the Department of Chemistry, Materials and Chemical Engineering of Politecnico di Milano. He got a degree in Chemical Engineering cum laude in 1999 and a PhD degree in Chemical Engineering in 2004 at Politecnico di Milano.

Member of the Italian Section of the Combustion Institute since 2001.

Member of the Board of the Italian Section of the Combustion Institute since 2011.

### POST-DOC ACTIVITY

2004-2006. Research activity at Politecnico di Milano (Dip. Chimica Materiali e Ing. Chimica and Centro per lo Sviluppo del Polo di Piacenza).

### PhD ACTIVITY

2004. PhD in Chemical Engineering at Politecnico di Milano. Title of the thesis: "NO<sub>x</sub> formation in turbulent diffusion flames: kinetics and fluid dynamics analysis".

2003. Research on NO<sub>x</sub> formation in flames at the Center for Energy Research (CER) - University of California, San Diego.

## TEACHING ACTIVITY

Teaching activities for students in energetic and chemical engineering (combustion, unit operations, probability and error analysis). Teaching activity in the PhD courses on Chemical kinetics and Fluidynamics of Combustion. Supervisor of more than 20 theses in energy and chemical engineering at Politecnico di Milano. Teacher at the "Training school on Modeling Combustion Kinetics" for PhD students of the EU-COST Action CM0901.

## RESEARCH ACTIVITY

The current research activity is focused on the following topics:

- Detailed kinetics of combustion and formation of pollutant species (NO<sub>x</sub>, PAH, soot);
- Formation of pollutant species (nitrogen oxides, poly-cyclic aromatic hydrocarbons and soot) in laboratory-scale burners, in industrial furnaces and combustors for gas turbines.
- CFD and kinetic modeling of flameless (MILD) combustion and Oxy-fuel combustion.
- CFD modeling of furnaces and industrial burners.
- Pollutant formation combustion in internal combustion engines (SI, Diesel and HCCI)
- Numerical modeling of solid fuels pyrolysis and gasification.
- Detailed kinetics of real fuels combustion (gasoline, diesel and jet fuels).
- Detailed kinetics of biofuels.
- Tunnel fire safety.

The research activity is supported by several cooperation agreements with national and international institutions (MURST, CNR, EU) and companies (SOL, Riello, ENEL, Ansaldo Energia, Danieli, More, Technip BV, CSM, AVIO, ENGITEC, AgustaWestland, Techint, RollsRoyce Canada).

Moreover, several researches are performed in cooperation with italian (Università di Napoli Federico II, Università di Pisa) and international research centers and Universities (University of California San Diego-UCSD, Lawrence Livermore National Laboratories-LLNL, Brussel University, Bielefeld University, North Carolina State University, Technical University of Denmark, Rensselaer Polytechnic Institute, CNR Orléans, University of Science and Technology of China at Hefei, University of Adelaide, Ghent University, Princeton University, Cornell University, Galway University, Zaragoza University)

The scientific production includes about 100 papers on international journals and more than 100 contributions in proceedings of international congresses.

**Scopus database:** 2553 total citations, H-index=28 (February 2017)

**Patents:** Flameless boiler for producing hot water. Patent n° EP 2592362A1.