

ANDREA FACCHIN

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[Andrea Facchin](#) 

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OBJECTIVE

Work in the field of research, find innovative solutions for the management and recovery of energy and material from biomass and urban/industrial wastes, in order to mitigate human impacts on the environment and produce sustainable chemicals and materials.



EDUCATION

PhD Future Earth, Climate change, and Societal Challenges | University of Bologna, Chemistry Department “G. Ciamician”

1 November 2021 - Current

Subject: Carbon negative strategies for CO₂ removal and chemical productions

Tutor: [Cristian Torri](#)

Main activity: The target of PhD is to provide a significant advancement in the development of new flexible hybrid thermochemical-biological approaches to convert waste biomass and carbon dioxide into carbon neutral and carbon negative chemicals. To this purpose, development/optimization of improved process for carbon dioxide capture and biological utilization will be integrated into new processes in which hydrothermal and dry pyrolysis will be coupled with “pyrotrophic” fermentation.

Green Chemistry Summer School | Green Science for Sustainable Development Foundation

4-10 July 2021, Online / Venice, Italy

Post-graduated summer school on green chemistry, in collaboration with **PhosAgro**, **IUPAC**, and **Ca'Foscari University of Venice**.

One week of conference, with international and prestigious guests, based on the Green Chemistry innovation and approach for the development of new solutions for a sustainable production and the preservation of the environment.

Master's degree in Environmental Analysis and Management | University of Bologna

2018 –2021

Chemical and biological approach to the environment, management of the ecological aspects, waste management, and the use of biomass as a source of energy and material. For my thesis I had built a laboratory-scale thermochemical-biological process for the conversion of pyrolysis products derived from lignocellulosic biomasses, into VFA in combination with hydrogen (from water hydrolysis). All the system had digital controls, such as gas volumes, liquid recirculation, and temperature control, and all the inputs and outputs were chemically characterized to obtain a full controlled system for the mass and energy balance.

Average marks: 29.69 / 30

Degree score: 110 / 110 con Lode

Bachelor's Degree in Environmental Science | University of Udine

2014 –2018

Study of the general biotic and abiotic aspects of the environment and general aspects of the management and economic studies of it.

My thesis was focused on the study of potentially toxic metals in the lagoon's plants in Grado and Marano (supervisors: [Marco Contin](#), [Maria De Nobili](#), [Elisa Pellegrini](#)).

Average marks: 26.13 / 30

Degree score: 102 / 110

Diploma of Chemical Expert | ITS Kennedy (PN, Friuli Venezia-Giulia)

2009 –2014

Study of organic and inorganic chemistry and laboratory practice. I have done chemical, physical, mathematical, and problem-solving competitions. I had received a prize for the high marks. Final report on the metal concentration in a vegetal sample from a local industry zone.

Final score: 82/100



EXPERIENCE

Research project | GREENHYDCM

2023 - Current

Project director: Prof. [Daniele Fabbri](#)

Activities: Development and study of an green hydrogen production system from pyrolysis of waste biomasses utilizing biochar-derived electrodes.

Partners: University of Perugia (Italy), Zhejiang University (P.R. China), Huazhong University of Science and Technology (P.R. China)

Site: <https://chimica.unibo.it/it/ricerca/progetti-di-ricerca/altri-progetti/greenhydcn>

Abroad period | National school of Chemical Industries (ENSIC), Nancy (FR)

15 April - 15 October 2023

Tutor: Prof. [Anthony Dufour](#)

Activities: Development of a middle scale (10-100 g/h) fluidized bed pyrolyser. HTC of lignocellulosic biomass. Chemical characterization of obtained products with different chemical techniques (solid and liquid NMR, HRMS, GC-MS, HPLC-MS, TGA, TOC, CHNSO).

Poster presentation | 31st European Union Biomass Conference and Exposition (EUBCE), Bologna (IT)

5-8 June 2023

Title: From biomass to sugars, , HTC-pyrolysis approach

Authors: Andrea Facchin, Cristian Torri, Yusuf Kucukaga, Daniele Fabbri

Presenting Author: Andrea Facchin

Laboratory Tutor | Laboratory of Environmental Science "Renzo Sartori" (Via Sant'Alberto 163, Ravenna, Università di Bologna)

October 2022 – January 2023

Activities: support to the lectures in the master course of Chemical analysis of the environmental quality. Activities included: air quality control trough particulate sampling and analysis, in particular PHA determination and markers assessment (i.e., levoglucosan); water control trough salts and contaminants analysis.

Oral presentation | 18th International Conference on Renewable Resources and Biorefineries, Brugge (BE)

1-3 June 2022

Title: Microbial Funneling of Pyrolysis Product for the Production of Green Chemicals: Preliminary Investigations with Microbial Mixed Cultures

Authors: Andrea Facchin, Yusuf Kucukaga, Cristian Torri, Serdar Kara

Presenting Author: Andrea Facchin

Oral presentation | International conference on Pyrolysis “Pyro2022”, Ghent (BE)

15-20 May 2022

Title: Fermentable sugars obtainment through pyrolysis and hydrolysis of water-soluble pyrolysis products over solid acid catalyst

Authors: Andrea Facchin, Adriano Parodi, Yusuf Kucukaga, Cristian Torri, Daniele Fabbri

Presenting Author: Andrea Facchin

Oral presentation | 5th European Conference on Green and Sustainable Chemistry (European Chemistry Society)

27-29 September 2021

Title: Thermochemical-Biological Systems: Pyrolysis Products as a source of green chemicals

Authors: Andrea Facchin, Yusuf Kucukaga, Cristian Torri, Serdar Kara, Daniele Fabbri

Presenting Author: Andrea Facchin

Poster presentation | 3rd International Conference for Bioresource Technology for Bioenergy, Bioproducts & Environmental Sustainability (by ELSEVIER)

17-19 May 2021

Title: Revalorization of Biomass Through a Hybrid Thermochemical-Biological Biorefinery Concept: Pyrolysis Liquid and Syngas as Feedstock for Building Block Chemicals
Fermentation

Authors: Yusuf Kucukaga, Andrea Facchin, Serdar Kara, Daniele Fabbri, Cristian Torri

Presenting Author: Andrea Facchin

Postgraduate position | Environmental science laboratory “Renzo Sartori” (Via Sant’Alberto 163, Ravenna, University of Bologna)

1 May 2021 – 31 October 2021

Subject: Development of thermochemical-biological systems for the conversion of gaseous substrates and pyrolysis products, in order to obtain chemicals of interest

Tutor: [Cristian Torri](#)

Main activity: Evaluation of the chemical characteristics and biological suitability of pyrolysis products from different biomasses. Pre-treatment of different biomasses in order to assess their effect on the pyrolysis product and fermentation.

Intern | Environmental science laboratory “Renzo Sartori” (Via Sant’Alberto 163, Ravenna, University of Bologna)

February 2020 – March 2021

Main activity: Development of a hybrid thermochemical-biological system, combining pyrolysis and anaerobic digestion to produce Volatile Fatty Acids. Chemical characterization of the pyrolysis products, using different chemical approaches. Development of an anaerobic bioreactor, on a laboratory scale, with the automatic control of temperature, gas volume, and liquid recirculation.

Advanced course | Faunalia QGIS course

10/11/2019 Ravenna

Main activity: Advanced course on QGIS software with Matteo Ghetta, member of the team developer of the software

Family collaborator | Alimentari da Cate di Crovatto Catherine s.a.s.

2017 – Actual

Address: Piazza Vittorio Emanuele II, n°13, Cavasso Nuovo (Pordenone, Italy)

Evaluation of the incomes of the store, general management of the shop's bureaucracy, and shop assistant

Intern | Laboratory of soil and pollutants (Via delle Scienze 206, DI4A, University of Udine)

September 2017 – April 2018

Tutor: [Maria De Nobili](#)

Main activity: Soil carbonates titrations, analysis of the soil components and isotopes with CHN, metal analysis with ICP-OES and ICP-MS.

Steward | Udinese Calcio s.p.a.

Season 2016-2017

Main activity: Security officer in Dacia Arena stadium

Private tutor

2015 - Current

Sporadic mathematical, physics and chemical private lectures for high school students

Intern | Chemical laboratory-Buzzi Unicem s.p.a.

1-31 JULY 2013

Analysis of the carbonates, sulfates, and cations, and physical property in the concrete



SKILLS

- Microsoft Office
- QGIS
- Arduino (Soft)
- Chemical analysis and characterization
- 3D printer (Soft)
- AutoCAD 3D (Soft)
- Inventor (Soft)
- Work organization
- Problem-solving
- Team working
- English level B2/C1



OTHER ACTIVITIES

- One of the founders of SPIAGGIALONGA events in the Unibo campus
- Blood donor and member of Friulan Blood Donor Association (AFDS) and the Association of Volunteers Blood Donor of Italy (AVIS)
- Member of the Organ Donor of Friuli Venezia-Giulia (ADO-FVG)
- Manager of the University of Bologna's websites "[Analytical Pyrolysis](#)" and "[Saltafossi](#)"

In compliance with the GDPR and the Italian Legislative Decree no. 196 dated 30/06/2003, I hereby authorize you to use and process my personal details contained in this document.

Date and place

Nancy (FR), 12/09/2023

Andrea Facchin