

University Academic Curriculum Vitae

Personal information Luca Fiori

Education since leaving school

- 1998 Master in Chemical Engineering; University of Genoa, Italy
- 2003, PhD in Chemical and Process Engineering; University of Genoa, Italy
- 2018, Chemical Engineering (ING-IND/24) Full Professor habilitation, Italy

Present appointment

- Associate Professor
- From: 2016
- University of Trento (UniTN), Italy
- Teaching and Research: coordinator of the Green Processes Engineering Group and responsible for the Biomass Lab

Professional experience

From / to	Job title	Name of academic Institution / company	Academic level	responsibilities
2004-2016	Assistant Professor (Ricercatore)	University of Trento	Academia	Teaching and research
2017-present	Founder and scientific advisor	Carborem srl, Trento, Italy	n.a.	Scientific advisor
2001-2004	Process Engineer	Fisia Italmimpianti S.p.A., Genoa, Italy	n.a.	Design of desalination processes and plants
1998-2000	Technical office-worker	Roquette Italia S.p.A., Cassano Spinola (AL) Italy	n.a.	Design and upgrade of food production plants

n.a. not applicable

Awards (selection)

2023-2021-2020 Placed in the first 2% of most influential scholars in the international scientific community: "World Ranking of Scientist" by Stanford University

<https://elsevier.digitalcommonsdata.com/datasets/btchxktzyw/6>

2018. Award for research on circular economy

The research activity of my research group was selected among the 100 worthies of being reported in the book "100 Italian Circular Economy Stories" by Symbola and ENEL Group

2017. Winner of the "IO PENSO CIRCOLARE" award

I won the award as the leader of the research group who submitted the best project presented by an Italian Research Institution. I received the award directly from the Italian Government's Environment Minister during the ceremony held in Turin on May 4, 2017.

Participation in exhibitions (invited lectures)

2023. Invited keynote lecture, "Fundamentals of HTC of biomass: process, chemistry, reactors, and applications" 3rd International Symposium on Hydrothermal Carbonization, Seoul, Korea, May 10-13,

2023

2022. Workshop chair, "High-temperature vs low-temperature conversion processes" and Focus session panellist, "The contribution of biomass in the energy system – competition with food and material use?" 9th International Symposium on Energy from Biomass and Waste, Venice, Italy, November 21-23, 2022

2022. Invited keynote lecture, "How can hydrothermal carbonization trigger the upgrading of actual plants to biorefineries?" 9th International Conference on Engineering for Waste and Biomass Valorisation, Copenhagen, Denmark, June 27-30, 2022.

2021. Invited keynote lecture, "Hydrothermal carbonization of organic waste and biomass: a review on process, reactor, and plant modeling" 8th International Conference on Engineering for Waste and Biomass Valorisation, online event, May 31-June 4, 2021

2016. Invited lecture, "Supercritical water gasification and hydrothermal carbonization of biomass", Escuela de Ingeniería de Pontificia Universidad Católica de Chile, Santiago, Chile, August 03, 2016

In the case of practice-related projects carried out in co-operation with studios, agencies or other people, please specify your own contribution to and role in the project.)

Experience in academic teaching

- Course owner at UniTN of:
 - Bioenergy (60 h - Energy Engineering, Environmental Engineering)
 - Food engineering and oenological plants (60 h - Viticulture and Oenology)
 - Valorization of wine industry by-products and waste management (60 h - Viticulture and Oenology)
 - Energy, hydrogen e decarbonization (12 h - Engineering, seminar)
- Supervisor of 10 PhD students (Energy Engineering, Environmental Engineering, Industrial Engineering), UniTN, Italy

Other academic responsibilities

- 2023 – Member of the DICAM PhD School
- 2019 – Delegate for internationalization for the Energy Engineering degree course
- 2019 – Member of the C3A PhD School
- 2013 – 2019 Executive Committee Member of the DICAM PhD School
- 2004 – 2019 Member of the DICAM PhD School

Memberships

- 2019 – Scientific Advisory Board member of Waste and Biomass Valorization, Springer
- 2019 – Editorial board member of Applied Science, MDPI
- 2015 – 2017 Editorial board member of BioMed Research International, Hindawi

Research grants and contracts (2019-

- 2023-25 Research project (PRIN): From tomato industry waste development of a platform for the production of bioactive

2024)

ingredients. RAPID (from Waste Platform bioactive ingredient)
Role: Scientific coordinator of the UniTN unit
Brief description: Developing a platform to obtain bioactive fractions (lycopene, polyphenols, polysaccharides and proteins) from tomato pomace by means of supercritical CO₂ and subcritical water extraction.

- 2023-25 Research project: Produrre Idrogeno in Trentino - H2@TN (Producing Hydrogen in Trentino)
Role: Coordinator of activity A3: Producing hydrogen from organic substrates
Brief description: Hydrogen production from biogas and biomethane obtained via anaerobic digestion from residual biomasses - Production via thermal/plasma cracking.
- 2022-25 Research Project: iNest Spoke nr. 3 - Green and digital transition for advanced manufacturing technology; Research Topic RT1.1 – Waste conversion for a circular economy
Role: participant
Brief description: residual biomass conversion to value-added carbon materials for electrochemical applications.
- 2022-23 Industrial Research Project: Enhancement of apple production waste
Role: Scientific coordinator
Brief description: Circular bioeconomy applied to apple waste to produce soil amendments through hydrothermal carbonization (HTC) and composting.
- 2022-23 Industrial Research Project: Research activity on livestock manure
Role: Scientific coordinator
Brief description: Circular bioeconomy applied to pig-manure to produce biogas and improve waste management - through HTC and anaerobic digestion (AD).
- 2022 Industrial Research Project: Technical and scientific support activities for the production and conditioning of protein meals deriving from Trentino trout processing waste
Role: Scientific coordinator
- 2022-2024 Bioplastics: from residual biomass to platform chemicals to produce them, and how to recycle them to new life
Role: Scientific coordinator
Brief description: The research project concerns green issues (Action IV.6) in the context of Green Technologies and processes (in particular, hydrothermal) that allow: a) to exploit residual biomass to produce precursors (platform chemicals) for production of bioplastics; b) to exploit waste bioplastics and plastics to obtain, depending on the nature of the waste, platform chemicals, biofuels, adsorbent species, soil improvers/fertilizers.
- 2021-2024 Watch out for organic! Study of a certification method for bio-based optical products
Role: Scientific coordinator
Brief description: certification and valorization (through HTC and AD) of waste bio-based plastics from the eyewear sector
- 2020 C2Land Project: Innovation in soiltech: a soil improver obtained by HTC as a tool to reduce GHG emissions – EIT Climate -KIC
Role: Scientific coordinator
Brief description: The project, co-founded by the European Institute of Technology and Innovation, aims to upgrade organic waste to

produce soil improvers and for energy recovery. The heart of the virtuous circle between waste and new product is the HTC process coupled with AD and composting

- 2019-2022 Industrial Research Project: Hydrothermal carbonization of sewage sludge: energy recovery, nitrogen and phosphorus extraction and hydrochar valorisation
Role: Scientific coordinator
- 2019-2020 AWARE: Raising public awareness on electronic waste as a source of valuable materials – EIT RawMaterials <https://aware-eit.eu/>
Role: Leader of the unit “Università degli Studi di Trento”. Project coordinator: dr. Elina Pohjalainen, VTT, Finland.
Brief description: The project, co-founded by the European Institute of Technology and Innovation, aims at raising awareness on the recycling of electric and electronic waste to recover valuable materials (metals, rare earth metals, plastics...)

Publications

The list of publications can be found in:

Google Scholar:

<https://scholar.google.it/citations?user=lzq6WnUAAAAJ&hl=it&oi=ao>

UniTN personal web page:

<https://webapps.unitn.it/du/it/Persona/PER0003794/Pubblicazioni>

Scopus:

<https://www.scopus.com/authid/detail.uri?authorId=21733651900>

Entrepreneurship

Start up founder: Carborem S.r.l, Trento (TN) Italy
Scientific advisor, founder (November 2017 – Present)

Patent: Andreottola, G., Fiori, L., Gubert M., Lucian, M., Merzari, F., Volpe, M., “Method and plant for the recovery of ammoniacal nitrogen from gas streams produced by hydrothermal treatments,” Italian Patent, No. 102020000028508 (year of grant: 2022).

Language competence

Italian: First Language

English: Reading: Advanced; Writing: Advanced; Speaking: Advanced

French: Reading: Intermediate; Writing: Beginner; Speaking: Beginner

Date

03/03/2024