

## PERSONAL INFORMATION

### Marco Baratieri

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Faculty of Engineering  
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<https://bnb.groups.unibz.it/>

## WORK EXPERIENCE

2019 - now

### Full Professor

Free University of Bozen/Bolzano, Faculty of Science and Technology (SSD ING-IND/10)

- *Teaching BSc courses:* Engineering Thermodynamics and Heat Transfer (L9); Energetics (L9); Energy efficiency in wood production and final use (L9)
- *Teaching MSc courses:* Thermal Power Production and Distribution (LM30);
- *Research:* Thermochemical conversion processes applied to biomass and wastes. Design and optimization of novel systems for solid biomass CHP. Valorization of byproducts into innovative materials, catalysts and filtering mediums for industries and agriculture. Hydrothermal conversion (HTC, HTL) of biomass to solid and liquid fuels. Thermal and innovative biological routes for green hydrogen generation from biomass.
- *Institutional Activities:*
  - Vice-Rector for teaching
  - Director of the Master in Energy Engineering (LM-30), joint program with University of Trento), since 2017;
  - Coordinator of the Research Area in Energy Resources and Energy Efficiency (since 2014);
  - Responsible of the “Bioenergy and Biofuels Lab”;
  - Director of the Professional Bachelor in Wood Engineering (L-9), 2018-2023;
- *Institutional Activities (international):* ERC, European Research Council, Panel Member for the panel PE8–Products and Processes Engineering in the evaluation of Consolidator Grants
- Local coordinator of the Erasmus Mundus Joint Master ME3+ in Management and Engineering of Environment and Energy (since 2020).

2015 - 2019

### Associate Professor

Free University of Bozen/Bolzano, Faculty of Science and Technology (SSD ING-IND/10)

2009 - 2014

### Assistant Professor

Free University of Bozen/Bolzano, Faculty of Science and Technology (SSD ING-IND/11)

## EDUCATION AND TRAINING

2007 **PhD** in Environmental Engineering  
University of Trento (Italy)

2001 **MSc** in Environmental Engineering  
University of Trento (Italy)

## WORK ACTIVITIES

### Editorial activity

**Member of editorial boards:** Biomass & Bioenergy International Journal (Elsevier); Biomass Conversion and Biorefinery (Springer)

**Peer reviewer of:** Applied Energy; Biomass and Bioenergy; Renewable Energy; Renewable Energy Reviews; Bioresource Technology; Applied Thermal Engineering; International Journal of Hydrogen Energy; Waste and Biomass Valorization

### Invited presentations (selection)

**Invited or Key-note Speaker at:** 1) Corfu 2022, 9th Int. Conf. on Sustainable Solid Waste Management “Integration of hydrothermal processes for fuel and hydrogen production from digestates”; 2) WasteEng2021, “Semi-continuous analysis of liquid compounds during hydrothermal carbonization of digestate and hydrogen generation through supercritical water gasification”; 3) EU-Japan small-scale biomass gasification seminar, Higashihiroshima, Japan (16/01/2019) “Technology overview: main small-scale gasification technologies, point of strength and critical issues”; 4) EEC/WTERT 2018 Bi-annual Meeting, at The Earth Engineering Center at City College (EEC|CCNY), “A Case Study of Gasification CHP in Northern Italy in the European Context and Comparison to Traditional Combustion Systems”; 5)

Gas Analysis Workshop 2018, DTU - Copenhagen, "Extensive monitoring of small-scale biomass gasification systems in South-Tyrol (Italy): experiences and lessons learned in the last 5 years"

## PERSONAL SKILLS

First Language(s) ITALIAN  
Other language(s) ENGLISH (C1) - GERMAN (B2)

## ADDITIONAL INFORMATION

### Publications

▪ **Metrics (Scopus): 179 documents; 4135 citations; H-index 32** (source Scopus, October 2024)

#### Selected publications:

Prando D., Renzi M., Gasparella A., Baratieri M., 2015. Monitoring of the energy performance of a district heating CHP plant based on biomass boiler and ORC generator. *Appl Therm Eng* 79, 98-107.  
Carlton E., Schwarz M., Golicza L., Haslinger W., Schmidl C., 2015. Efficiency and operational behaviour of small-scale pellet boilers installed in residential buildings. *Appl Energy* 155, 854-865.  
Patuzzi F., Prando D., Vakalis S., Rizzo A.M., Chiaramonti D., Tirlir W., Mimmo T., Gasparella A., Baratieri M., 2016. Small-scale biomass gasification CHP systems: Comparative performance assessment and monitoring experiences in South Tyrol (Italy). *Energy* 112, 285-293.  
Basso D., Patuzzi F., Castello D., Baratieri M., Rada E.C., Weiss-Hortala E., Fiori L., 2016. Agro-industrial waste to solid biofuel through hydrothermal carbonization. *Waste Management* 47, 114-121.  
Benedetti V., Patuzzi F., Baratieri M., 2017. Characterization of char from biomass gasification and its similarities with activated carbon in adsorption applications. *Applied Energy* 206, 697-707.  
Pecchi M., Baratieri M., 2019. Coupling anaerobic digestion with gasification, pyrolysis or hydrothermal carbonization: A review. *Renewable and Sustainable Energy Reviews* 105, 462-475.  
Benedetti V., Cordioli E., Patuzzi F., Baratieri M., 2019. CO<sub>2</sub> Adsorption study on pure and chemically activated chars derived from commercial biomass gasifiers, *Journal of CO<sub>2</sub> Utilization* 33, 46-54.  
Menin, L., Vakalis, S., Benedetti, V., Patuzzi, F., Baratieri, M., 2021. Techno-economic assessment of an integrated biomass gasification, electrolysis, and syngas biomethanation process, *Biomass Conversion and Biorefinery*, 11(2), 445-459  
Paini J., Benedetti V., Ail S.S., Castaldi M.J., Baratieri M., Patuzzi F., 2022. Valorization of Wastes from the Food Production Industry: A Review Towards an Integrated Agri-Food Processing Biorefinery, *Waste and Biomass Valorization*, 13(1)  
Postacchini P., Menin L., Piazzini S., Grimatl-Aleman A., Patuzzi F. Baratieri M., 2023. Syngas biomethanation by co-digestion with brewery spent yeast in a lab-scale reactor, *Biochemical Eng.*, 193  
Benedetti, V., Cascioli, A., Pecchi, M., Baratieri, M., 2024. Fast screening of catalyst performances in hydrothermal processes for biofuel production using differential scanning calorimetry, *Bioresource Technology*, 2024, 405, 130934

### Selected projects

- (1) H2020: "FRONTSHIP - Building a low-carbon, climate resilient future: Research and innovation in support of the European Green Deal"; WP Leader
- (2) "ALPS4GREENC: Implementation pathways for sustainable Green Carbon production in the Alpine Region", European Union, Interreg - Alpine Space; WP leader
- (2) PRIN: "CARNOT – Decarbonized and Circular hydrogeN prOducTion through biomass and waste gasification", Bando 2022, finanziato dal Ministero dell'Istruzione dell'Università e della Ricerca; PI research unit
- (3) PRIN: "BIO-CHEAPER - BIOMasses Circular Holistic Economy APproach to EneRgy equipments" PRIN - Bando 2017, finanziato dal Ministero dell'Istruzione dell'Università e della Ricerca; PI research unit
- (4) FESR: "CompostDiVino – Compost da residui vitivinicoli" (ERDF) 2021-2027, responsible of research unit
- (5) FESR: "COOL-CAR: Thermal management of the accumulator batteries in electric and hybrid cars: optimization strategies for performance enhancing and for a sustainable mobility" (ERDF) 2014-2020, PI
- (6) FESR: "HB-PONICS: Hydrothermal carbonization of Biogas digestate for hydroPonics: an innovative concept of bio-refinery" (ERDF) 2014-2020, responsible of research unit
- (7) FFG: "FlexiFuelGasControl, Increased fuel flexibility and modulation capability of fixed-bed biomass gasifiers by means of model based control" finanziato da Österreichischen Forschungsförderungsgesellschaft mbH (FFG); PI research unit
- (8) LP14: "NEXT GENERATION – Novel EXTension of biomass poly-GENERATION to small scale gasification systems in South-Tyrol", funded by: Provincia A. di Bolzano (L.P., 13.12.2006, N. 14); PI

### Other Relevant Information

Representative to the COMET K1 Competence Centre (Austria); Leading partners: TU-Wien, Bioenergy2020 (Wieselburg, Austria);  
Member of scientific committees: EUBCE, WasteEng, CEBC conferences;  
Founder member of the IBPSA, Italy; Member of the FTI, Associazione Nazionale della Fisica Tecnica Italiana

Bozen-Bolzano, 3 October 2024