

# University Academic Curriculum Vitae

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## Personal information

Name: Vittoria Benedetti  
Nationality: Italian  
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## Education since leaving school

- 2012, Bachelor Degree in Energy Engineering (Università degli Studi di Padova, Italy).
- Spring 2014, semester abroad at Boston University, Boston, MA, USA.
- 2015, Master Degree in Energy Engineering (Università degli Studi di Padova, Italy).
- 2019, PhD in Sustainable Energy and Technologies (Free University of Bolzano, Italy).
- 2020, Esame di Stato in Ingegneria Industriale (Università degli Studi di Trento, Italy).

## Present appointment

- Research associate since November 2018 at Faculty of Science and Technology, Free University of Bolzano

## Professional experience

From / to	Job title	Name of academic Institution	Academic level	Responsibilities
March-May 2015	Internship	PNNL, Pacific Northwest National Laboratory, Richland, WA, USA.	Intern	
October 2017 – March 2018	Visiting PhD student	KIT, Karlsruhe Institute of Technology, Karlsruhe, Germany.	PhD student	
November 2018 - today	Research associate	Free University of Bolzano	Research associate	

## Publications

### Conference proceedings

- V. Benedetti, F. Patuzzi, M. Baratieri, Gasification Char as a Potential Substitute of Activated Carbon in Adsorption Applications, in: Energy Procedia, 2017. doi:10.1016/j.egypro.2017.03.380.
- V. Benedetti, F. Patuzzi, M. Baratieri, Biomass gasification char as a low-cost adsorbent for CO<sub>2</sub> capture, Eur. Biomass Conf. Exhib. Proc. 2017.
- V. Benedetti, S.S. Ail, F. Patuzzi, R. Rauch, M. Baratieri, Valorization of char from biomass gasification as catalyst support: preliminary results of Fischer-Tropsch tests, in: Eur. Biomass Conf. Exhib. Proc., 2018.
- M. Pecchi, F. Patuzzi, V. Benedetti, D. Basso, M. Baratieri, Evaluation of the overall reaction enthalpy change of hydrothermal carbonization process by means of differential scanning calorimetry at high pressure, in: Eur. Biomass Conf. Exhib. Proc., 2019.
- G. Cavazzini, S. Bari, V. Benedetti, P. McGrail, G. Pavesi, G. Ardizzon, Influence of the Use of an Innovative Nanofluid on Net Power Production in ORCs for low grade waste heat recovery applications, 5th Int. Semin. ORC Power Syst., 2019.
- S. Piazza, S.S. Ail, V. Benedetti, F. Patuzzi, M. Baratieri, Studies on conversion of biomass-derived syngas to liquid fuels via fischer-tropsch synthesis, in: Eur. Biomass Conf. Exhib. Proc., 2019.

- J. Paini, V. *Benedetti*, M. Baratieri, F. Patuzzi, Apple pomace hydrothermal carbonization for downstream valorization of residues after subcritical water extraction, in: Eur. Biomass Conf. Exhib. Proc., 2020.

#### Journal articles in refereed academic journals

- V. *Benedetti*, F. Patuzzi, M. Baratieri, Characterization of char from biomass gasification and its similarities with activated carbon in adsorption applications, *Appl. Energy*. 227 (2018) 92–99. doi:10.1016/j.apenergy.2017.08.076.
- S.S. Ail, V. *Benedetti*, M. Baratieri, S. Dasappa, Fuel-Rich Combustion Synthesized Co/Al<sub>2</sub>O<sub>3</sub> Catalysts for Wax and Liquid Fuel Production via Fischer-Tropsch Reaction, *Ind. Eng. Chem. Res.* 57 (2018) 3833–3843. doi:10.1021/acs.iecr.7b04174
- G. Cavazzini, S. Bari, P. McGrail, V. *Benedetti*, G. Pavesi, G. Ardizzon, Contribution of Metal-Organic-Heat Carrier nanoparticles in a R245fa low-grade heat recovery Organic Rankine Cycle, *Energy Convers. Manag.* 199 (2019) 111960. doi:10.1016/j.enconman.2019.111960.
- V. *Benedetti*, E. Cordioli, F. Patuzzi, M. Baratieri, CO<sub>2</sub> Adsorption study on pure and chemically activated chars derived from commercial biomass gasifiers, *J. CO<sub>2</sub> Util.* 33 (2019) 46–54. doi:10.1016/j.jcou.2019.05.008.
- V. *Benedetti*, S.S. Ail, F. Patuzzi, M. Baratieri, Valorization of char from biomass gasification as catalyst support in dry reforming of methane, *Front. Chem.* 7 (2019) 1–12. doi:10.3389/fchem.2019.00119.
- S. Vakalis, K. Moustakas, V. *Benedetti*, E. Cordioli, F. Patuzzi, M. Loizidou, M. Baratieri, The “COFFEE BIN” concept: centralized collection and torrefaction of spent coffee grounds, *Environ. Sci. Pollut. Res.* 26 (2019) 35473–35481. doi:10.1007/s11356-019-04919-3.
- V. *Benedetti*, S.S. Ail, F. Patuzzi, D. Cristofori, R. Rauch, M. Baratieri, Investigating the feasibility of valorizing residual char from biomass gasification as catalyst support in Fischer-Tropsch synthesis, *Renew. Energy*. 147 (2020). doi:10.1016/j.renene.2019.09.050.
- S. Piazza, S.S. Ail, V. *Benedetti*, F. Patuzzi, M. Baratieri, Fuel-lean combustion synthesized cobalt catalysts for Fischer-Tropsch reaction, *Catal. Today*. (2020) 0–1. doi:10.1016/j.cattod.2020.06.088.
- M. Pecchi, F. Patuzzi, V. *Benedetti*, R. Di Maggio, M. Baratieri, Thermodynamics of hydrothermal carbonization: Assessment of the heat release profile and process enthalpy change, *Fuel Process. Technol.* 197 (2020). doi:10.1016/j.fuproc.2019.106206.
- V. *Benedetti*, M. Scatto, M. Baratieri, P. Riello, Valorization of Biomass Gasification Char as Filler in Polymers and Comparison with Carbon Black, *Waste and Biomass Valorization*. (2020). doi:10.1007/s12649-020-01243-7.
- J. Paini, V. *Benedetti*, G. Ferrentino, M. Baratieri, F. Patuzzi, Thermochemical conversion of apple seeds before and after supercritical CO<sub>2</sub> extraction: an assessment through evolved gas analysis, *Biomass Convers. Biorefinery*. (2020). doi:10.1007/s13399-020-00858-z.
- M. Pecchi, F. Patuzzi, V. *Benedetti*, R. Di Maggio, M. Baratieri, Kinetic analysis of hydrothermal carbonization using high-pressure differential scanning calorimetry applied to biomass, *Appl. Energy*. 265 (2020) 114810. doi:10.1016/j.apenergy.2020.114810.

- L. Menin, S. Vakalis, V. *Benedetti*, F. Patuzzi, M. Baratieri, Techno-economic assessment of an integrated biomass gasification, electrolysis, and syngas biomethanation process, *Biomass Convers. Biorefinery*. (2020). doi:10.1007/s13399-020-00654-9.
- L. Menin, V. *Benedetti*, F. Patuzzi, M. Baratieri, Techno-economic modeling of an integrated biomethane-biomethanol production process via biomass gasification, electrolysis, biomethanation, and catalytic methanol synthesis, *Biomass Convers. Biorefinery*. (2020). doi:10.1007/s13399-020-01178-y.
- S. Celletti, A. Bergamo, V. *Benedetti*, M. Pecchi, F. Patuzzi, D. Basso, M. Baratieri, S. Cesco, T. Mimmo, Phytotoxicity of hydrochars obtained by hydrothermal carbonization of manure-based digestate, *J. Environ. Manage.* 280 (2021) 111635. doi:10.1016/j.jenvman.2020.111635.
- F. Patuzzi, D. Basso, S. Vakalis, D. Antolini, S. Piazzini, V. *Benedetti*, E. Cordioli, M. Baratieri, State-of-the-art of small-scale biomass gasification systems: an extensive and unique monitoring review, *Energy*. 223 (2021) 120039. doi:10.1016/j.energy.2021.120039.

#### Other publications

- V. *Benedetti*, C. Vinante, D. Basso, Towards a bio-based economy: The biorefinery concept. May 2020 <https://www.hbigroup.it/2020/05/14/towards-a-bio-based-economy-the-biorefinery-concept/>
- V. *Benedetti*, C. Vinante, D. Basso, Towards a bio-based economy: the bio-based materials market. May 2020 <https://www.hbigroup.it/2020/05/28/towards-a-bio-based-economy-the-bio-based-materials-market/>

#### Publications about the applicant

Salto.bz, Legno, la scuola di sostenibilità  
<https://www.salto.bz/de/article/19062020/unibz-tecnologie-legno-rubner>

#### Further data

**Presentations at scientific conferences** over past 3 years (invited or selected, keynote, nature and status of conference).

- V. *Benedetti*, S.S. Ail, F. Patuzzi, R. Rauch, M. Baratieri, Valorization of char from biomass gasification as catalyst support: preliminary results of Fischer-Tropsch tests, EUBCE 2018, Copenhagen, Denmark. (Oral)
- V. *Benedetti*, S.S. Ail, F. Patuzzi, M. Baratieri, Char supported catalysts for DRM - preliminary investigations for valorization of biomass derived char, EUBCE 2018, Copenhagen, Denmark. (Poster)
- V. *Benedetti*, S.S. Ail, F. Patuzzi, M. Baratieri, Valorization of char from biomass gasification as catalyst support in dry reforming of methane: preliminary investigations, WASTEENG 2018, Prague, Czech Republic. (Oral)
- V. *Benedetti*, S.S. Ail, F. Patuzzi, M. Baratieri, Valorization of biomass char residues in catalytic applications, Char and biochar workshop 2019, Copenhagen, Denmark - invited speaker.
- V. *Benedetti*, S.S. Ail, E. Cordioli, F. Patuzzi, M. Baratieri, Use of char from biomass gasification as CO<sub>2</sub> adsorbent and catalyst support: Experimental analysis and results, EUBCE 2019, Lisbon, Portugal. (Poster)
- V. *Benedetti*, E. Cordioli, F. Marchelli, F. Patuzzi, M. Baratieri, Valorization of biomass char residues in adsorption applications, SSWM 2019, Heraklion, Greece. (Oral)

- *V. Benedetti*, E. Cordioli, F. Marchelli, F. Patuzzi, M. Baratieri, Investigation of the adsorption potential of char residues derived from small-scale biomass gasifiers, CEBC 2020, Graz, Austria. (Oral)
- *V. Benedetti*, M. Scatto, P. Riello, M. Baratieri, Biomass gasification char: from a waste to an effective filler for polymers, Venice Symposium 2020, Venice, Italy. (Oral)
- *V. Benedetti*, M. Pecchi, S. Celletti, D. Basso, F. Patuzzi, T. Mimmo, S. Cesco, M. Baratieri, Digestate valorization by hydrothermal carbonization, Venice Symposium 2020, Venice, Italy. (Oral)

**Language  
competence**

ENGLISH (2021)

Understanding		Speaking	Writing
Reading	Listening	C1	C1
C2	C1		

GERMAN (2021)

Understanding		Speaking	Writing
Reading	Listening	B1	B1
B2	B2		

Date

May 2021

Signature

