PERSONAL INFORMATION Andrea Lanzini

WORK EXPERIENCE

Nov. 2019 – to now

Associate Professor

Politecnico di Torino, Energy Department

- Group leader of 'Innovation on gas infrastructure' at the Energy Center of Politecnico di Torino
- Group leader of research activities on 'Renewable and Smart Energy Communities' at the Energy Center of Politecnico di Torino
- Chair of the course 'Renewable Energy'
- 3+ M€ of acquired funding in the last five years including competitive funding and industrial research collaborations. The industrial collaborations include activities with leading Italian energy companies / utilities (such as ENI, Edison, Italgas and SNAM).
- Responsible Professor of Outgoing Mobility – Energy and Nuclear Engineering

Education, Research

Nov. 2021 – to now

CO_2 Circle Lab, senior member

Politecnico di Torino, Energy Department / Environment Park S.p.a.

- I am currently part of CO_2 Circle Lab (https://co2circlelab.eu/) research infrastructure in which I am leading the activities connected to two test rigs. One test rig is devoted to test adsorbent materials for biogas purification; the other one is devoted to test membrane technology for CO_2 separation.

Education, Research

Nov. 2021 – to now

Board Member, Ph.D. Program in Energetics

Politecnico di Torino, Energy Department

- I am currently part of the Board of the Ph.D. Program in Energetics at Politecnico di Torino. The Program enrolls tens of students every year.

Education, Research

Nov. 2016 – to now

Member, Energy Center Lab

Politecnico di Torino, Energy Center

- I am currently part of the Interdepartmental Center on Energy Research, the Energy Center Lab, at Politecnico di Torino. I am co-developer of the digital multi-energy co-simulation platform.

Education, Research

Nov. 2019 – to now

Scientific Board Member

IFEC, Italian Forum on Energy Communities (https://www.wec-italia.org/ifec-italian-forum-of-energy-communities/)

- Word Energy Council (WEC) - Italy and Energy Center of Politecnico di Torino co-founded the IFEC initiative to grow the knowledge about Energy Communities. The association counts tens of associated and affiliated partners all over Italy.

Education, Research, Knowledge Transfer

2020 – to now

Master in Climate Change, lecturer

Politecnico di Torino

- Teacher of the Carbon Capture and Negative Emission Technology module in the 2nd level Specializing Master's programme in "Climate Change: adaptation and mitigation solutions"

Education, Research, Knowledge Transfer

2015 – to now

Ph.D. students – Supervisor

Politecnico di Torino, Italy

- I am currently, or have been, tutoring an overall number of 13 doctoral students in the field of energy research.

Education, Research, Knowledge Transfer

2016 – now

Expert reviewer of national research programs

Various institutions

- Expert reviewer of competitive funding calls for various national research programs including:
  1) VQR 2015-2019, evaluator for Industrial Engineering, Italy.
  2) Austrian Science Fund, The Hertha Firnberg-Programme (the Programme is reserved exclusively for female researchers and has been conceived as a further way of increasing the career prospects of women in Austria.)
  3) Executive government agency of National Science Centre (Narodowe Centrum Nauki - NCN; http://www.ncn.gov.pl). Funding scheme OPUS. Panel expert and reviewer for ERC sector PE08
  4) Università di Padova, Bando UNI-IMPRESA 2018.
  5) National Research Foundation (NRF), South Africa.
  6) The Netherlands Organisation for Scientific Research (NWO).
  7) Singapore. International Peer Review (IPR) Panel Convened by Low Carbon Emission Energy Research Program Office (LCER PO) of Agency for Science, Technology and Research (A*STAR).
  8) National Research Council Canada / Government of Canada.
  9) Swiss National Science Foundation (SNSF).

Education, Research

Dec. 2016 – Nov. 2019

Tenure-track Assistant Professor (Ricercatore a t.d. lettera B)

Politecnico di Torino, Energy Department

- Group leader of activities in the field of hydrogen and fuel cells, energy systems analysis and carbon capture and utilization technologies.

Education, Research

Nov. 2015 – Dec. 2016

Non-tenured Assistant Professor (Ricercatore a t.d. lettera A)

Politecnico di Torino, Energy Department

- Group leader of activities in the field of hydrogen and fuel cells, energy systems analysis and carbon capture and utilization technologies.

Education, Research

Jun. 2011 – Nov. 2016

Post-doc research associate (Assegno di ricerca)

Politecnico di Torino, Energy Department

- Research activities in the field of hydrogen and fuel cells, energy systems analysis and carbon capture and utilization technologies.

Education, Research

EDUCATION AND TRAINING

2008 – 2011

Ph.D. in Energetics

Politecnico di Torino (Italy)

- Integration of high temperature fuel systems with various carbonaceous fuels

2010-2011

Fulbright scholarship

Princeton University (USA)

- I joined the Carbon Mitigation Initiative at the Princeton Environmental Institute. I contributed with studies on novel integrated energy systems capable of producing electricity at high efficiency (i.e., high-temperature fuel cell systems) while capturing the CO_2 from the flue gas.

2004-2007

Master Degree in Energy and Nuclear Engineering

Politecnico di Torino (Italy)

PERSONAL SKILLS

Mother tongue(s) Italian

Other language(s) Written and spoken English: proficient (C1/C2)

Digital skills Proficient user of Matlab, Phyton, Process Simulation Tools (e.g., Aspen Plus) and thermodynamic equilibrium tools.

ADDITIONAL INFORMATION

Publications

1. Schiera, D., Barbierato, L., Lanzini, A., Borchiellini, R., Pons, E., Bompard, E., Patti, E., Macii, E., Bottaccioli, L., *A Distributed Multi-model Platform to Co-simulate Multi-energy Systems in Smart Buildings*, (2021) IEEE Transactions on Industry Applications, 57 (5), art. no. 9472969, pp. 4428-4440. DOI: 10.1109/TIA.2021.3094497

2. Marocco, P., Ferrero, D., Lanzini, A., Santarelli, M., *Optimal design of stand-alone solutions based on RES + hydrogen storage feeding off-grid communities*, (2021) Energy Conversion and Management, 238, art. no. 114147. DOI: 10.1016/j.enconman.2021.114147

3. Minuto, F.D., Lazzeroni, P., Borchiellini, R., Olivero, S., Bottaccioli, L., Lanzini, A., *Modeling technology retrofit scenarios for the conversion of condominium into an energy community: An Italian case study*, (2021) Journal of Cleaner Production, 282, art. no. 124536. DOI: 10.1016/j.jclepro.2020.124536

4. Viti, S., Lanzini, A., Minuto, F.D., Caldera, M., Borchiellini, R., *Techno-economic comparison of buildings acting as Single-Self Consumers or as energy community through multiple economic scenarios*, (2020) Sustainable Cities and Society, 61, art. no. 102342. DOI: 10.1016/j.scs.2020.102342

5. Schiera, D.S., Minuto, F.D., Bottaccioli, L., Borchiellini, R., Lanzini, A., *Analysis of Rooftop Photovoltaics Diffusion in Energy Community Buildings by a Novel GIS- and Agent-Based Modeling Co-Simulation Platform*, (2019) IEEE Access, 7, art. no. 8756277, pp. 93404-93432. DOI: 10.1109/ACCESS.2019.2927446

6. Calise, F., D'Accadia, M.D., Santarelli, M., Lanzini, A., Ferrero, D., *Solar Hydrogen Production: Processes, Systems and Technologies*, (2019) Solar Hydrogen Production: Processes, Systems and Technologies, pp. 1-560. DOI: 10.1016/C2017-0-02289-9

7. Marchese, M., Giglio, E., Santarelli, M., Lanzini, A., *Energy performance of Power-to-Liquid applications integrating biogas upgrading, reverse water gas shift, solid oxide electrolysis and Fischer-Tropsch technologies*, (2020) Energy Conversion and Management: X, 6, art. no. 100041. DOI: 10.1016/j.ecmx.2020.100041

8. Cannone, S.F., Stendardo, S., Lanzini, A., *Solar-Powered Rankine Cycle Assisted by an Innovative Calcium Looping Process as an Energy Storage System*, (2020) Industrial and Engineering Chemistry Research, 59 (15), pp. 6977-6993. DOI: 10.1021/acs.iecr.9b05605

9. Sechi, S., Giarola, S., Lanzini, A., Gandiglio, M., Santarelli, M., Oluleye, G., Hawkes, A., *A bottom-up appraisal of the technically installable capacity of biogas-based solid oxide fuel cells for self-power generation in wastewater treatment plants*, (2021) Journal of Environmental Management, 279, art. no. 111753. DOI: 10.1016/j.jenvman.2020.111753

10. Mbatha, S., Everson, R.C., Musyoka, N.M., Langmi, H.W., Lanzini, A., Brilman, W., *Power-to-methanol process: A review of electrolysis, methanol catalysts, kinetics, reactor designs and modelling, process integration, optimisation, and techno-economics*, (2021) Sustainable Energy and Fuels, 5 (14), pp. 3490-3569. DOI: 10.1039/d1se00635e

Bibliometric impact H-Index: 40; Citations: 4,000+ (Source: SCOPUS).

Torino. 20.04.2022

Andrea Lanzini