

Vincenzo Spallina

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RESEARCH PROFILE SUMMARY

Dr Vincenzo Spallina is a Senior Lecturer in the Department of Chemical Engineering with expertise in the field of fuel cells, membrane/membrane reactors and gas-solid technologies. His research combines experimental activity, modelling and technology assessment for low-carbon energy, biofuels and CCUS. He has been awarded a total of 6 research grants totalling over £2.7M as PI or co-PI for different funding sources including industry (Argent Energy, British Steel, Total Energies), UK-based sources (EPSRC, Innovate UK), European Commission (H2020) and BEIS. He has published 50+ academic papers (Citations: 1100+; h-index: 21). He is currently the project coordinator and PI of an EU-H2020 project on negative emissions aviation biofuels (H2020 GLAMOUR), PI of an EPSRC project (EP/S030654/1) within the EPSRC CREDS program, Co-I in an H2020 project (H2020 C4U), EPSRC (EP/V026089/1), INNOVATE UK (code 113237). He holds a BSc (2005) and MSc (2008) in Energy Engineering and a PhD cum laude in 2013 in Nuclear and Energy Science and Technology program from Politecnico di Milano (IT) working in the group of Energy Conversion System (GECoS). Before joining the University of Manchester as Lecturer, he spent 4 years as postdoc in the group of Chemical Process Intensification at the TU Eindhoven and 6 months as researcher at Tecnalia Research Centre in the group of Membrane technology. At the University of Manchester, he is also the academic lead of the James Chadwick Building.

PROFESSIONAL EXPERIENCE

- Since 2021** **Senior Lecturer in Chemical Engineering** at the Department of Chemical Engineering, **University of Manchester**, UK. Leading the **Gas-Solid Reaction and Process Intensification lab**.
- 2018 - 2021** **Lecturer in Chemical Engineering** at the Department of Chemical Engineering, **University of Manchester**, UK
- 2017 - 2018** **Research Scientist** at the Group of **Membrane Technology**, Tecnalia Research Center, San Sebastian, Spain.
- 2013 - 2017** **Research Associate**, Department of Chemical Engineering and Chemistry, **Eindhoven University of Technology**, The Netherlands. **Profs. Martin van Sint Anannaland and Fausto Gallucci**.
- 2009 - 2010** **Research Assitant**, Group of Energy Conversion Systems, Department of Energy, **Politecnico di Milano**, Italy. **Prof. Giovanni Lozza**

EDUCATION

- 21 Mar. 2013** **Politecnico di Milano**, Italy. PhD "*cum laude*" in Energy and Nuclear Science and Technology. Title: *Mid-long terms solutions for coal power plants with near zero emissions*. Supervisor: **Prof. Giovanni Lozza**
- 2002 – 2008** **Politecnico di Milano**, Italy, MEng in Energy Engineering

SELECTED GRANTS

- 2022** **Wolfson Foundation (PI) – Sustainable Industrial Hub**
- 2022** **BEIS – RECYCLE Phase I (PI)** RECYCLE: Rethinking low Carbon hYdrogen production by Chemical Looping rEforming (HYS2137)
- 2021** **EPSRC SPACING (Co-I)**, Sustainable Production of ACrylic acid from reNewable waste Glycerol (EP/V026089/1)
- 2020** **H2020 C4U, (Co-I)**, Advanced carbon capture for steel industries in CCUS clusters (C4U) <https://c4u-project.eu/>

- 2020 H2020 GLAMOUR, PI and Project coordinator**, GLycerol to Aviation and Marine prOducts with sUustainable Recycling (GLAMOUR) <https://www.glamour-project.eu/>
- 2019 EPSRC BREIN-STORM (PI)** Boosting Reduction of Energy Intensity in cleaN SSteelwork platffORM (EP/S030654/1)
- 2019 UKCCSRC CLYCHING (PI)** CLean hYdrogen and Chemicals production via chemical loopING

SELECTED PUBLICATIONS

From the 51+ publications in international high-impact journals, the 8 more relevant publications of the last 5 years relevant to the RECYCLE project include:

1. P. A. Argyris, A. Wright, O. Taheri Qazvini, and V. Spallina, "Dynamic behaviour of integrated chemical looping process with pressure swing adsorption in small scale on-site H₂ and pure CO₂ production," *Chem. Eng. J.*, vol. 428, no. June 2021, p. 132606, 2022, doi: 10.1016/j.cej.2021.132606.
2. P. A. Argyris, C. de Leeuwe, S. Z. Abbas, and V. Spallina, "Mono-dimensional and two-dimensional models for chemical looping reforming with packed bed reactors and validation under real process conditions," *Sustain. Energy Fuels*, vol. 6, no. 11, pp. 2755–2770, 2022, doi: 10.1039/d2se00351a.
3. C. De Leeuwe, S. Z. Abbas, A. Zaidi, P.A. Argyris, A. Amieiro, S. Poulston, D.Wails, V. Spallina., "Thermochemical CO₂ utilisation via solid looping process: an experimental demonstration using Fe-based material," *Chem. Eng. J.*, p. 139791, 2022, doi: 10.1016/j.cej.2022.139791.
4. S. Z. Abbas, J. R. Fernández, A. Amieiro, M. Rastogi, J. Brandt, and V. Spallina, "Lab-scale experimental demonstration of Ca[*sbnd*]Cu chemical looping for hydrogen production and in-situ CO₂ capture from a steel-mill," *Fuel Process. Technol.*, vol. 237, no. August, 2022, doi: 10.1016/j.fuproc.2022.107475.
5. Lee Pereira, R.J., Argyris, P.A., Spallina, V., **(2020)**, A comparative study on clean ammonia production using chemical looping based technology *Applied Energy*, 280, 115874
6. Medrano, J. A., Potdar, I., Melendez, J., Spallina, V., Pacheco-Tanaka, D. A., van Sint Annaland, M. & Gallucci, F., **(2018)**, The membrane-assisted chemical looping reforming concept for efficient H₂ production with inherent CO₂ capture: Experimental demonstration and model validation, *Applied Energy*. 215, 75-86.
7. Spallina, V., Maturro, G. E., Ruocco, C., Meloni, E., Palma, V., Fernandez, E., Melendez Rey, J., Pacheco Tanaka, D. A., Viviente, J. L., van Sint Annaland, M. & Gallucci, F. **(2018)**, Direct route from bio-ethanol to pure hydrogen through autothermal reforming in a membrane reactor: experimental demonstration, reactor modelling and design: *Energy*. 143, p. 666-681.
8. Spallina, V., Marinello B., Gallucci, F., Romano M.C., Sint Annaland, M. van. **(2017)**. Chemical Looping Reforming in packed bed reactors: experimental validation and large scale reactor design. *Fuel Processing Technology*, 156, 156-170