# **CURRICULUM VITAE Martina Damizia**

# **EDUCATION**

- Oct/2018 Master degree in Chemical Engineering (104/110), Sapienza Università di Roma, thesis title (translated from Italian) "Hydrothermal liquefaction of lignocellulosic biomass", advisor Prof. B. de Caprariis.
- Dec/2014 Bachelor degree in Chemical Engineering (90/110), Sapienza Università di Roma, thesis title (translated from Italian) "Design of pressure vessels", advisor Prof. M. Cavallini.

# **CURRENT POSITION**

Nov/2019-present PhD student in Chemical Processes for Industry and Environmental at Sapienza University of Rome, tutor Prof. P. De Filippis, granted by MUR.

## **PREVIOUS POSITION**

Nov/2018-Oct/2019 Scholarship at the Department of Mechanical and Aerospace Engineering at Sapienza University on "Steam reforming of bio-ethanol to produce hydrogen".

# **TEACHING ACTIVITIES**

- June/2022 Seminar for M.Sc. in Chemical Engineering entitled "Chemical looping processes for pure hydrogen production"
- April/2020 Seminar for B.Sc. in Chemical engineering during the course of Industrial Chemical Processes entitled "Green hydrogen production".

### FUNDINGS

2021 Sapienza fundings for PhD students "Avvio alla Ricerca" 1200 Euro.

### **RESEARCH ACTIVITY**

#### Hydrothermal liquefaction

Study of the effect of zero valent metals as hydrogen producers on bio-crude quality and yields. Optimization of operative conditions. Development of innovative catalyst for the up-grading of bio-crude.

# Production of green hydrogen

Development of a chemical looping process for the production of pure H2 from bioethanol. Development of materials resistant to thermal and chemical deactivation. Optimization of the process for high number of cycles. Collaboration with Sevilla University for the development of Fe foam to increase process efficiency and to make possible the process scale-up.

### Chemical recycling of plastic

Development of a HTL process for the chemical recycling of plastics, optimization of the operative parameters and study of the obtained products.

# PhD SPECIALIZATION SCHOOL

2022 "Fundamentals of Electrochemical Processes and their Applications. Heterogeneous Catalysis" Organized by GRICU (GRuppo dell'Ingegneria Chimica dell'Università), 3-9 July 2022, Ischia, Italy.

- 2021 "Digitalization Tools for the Chemical and Process Industries" Organized by GRICU.
- 2021 "Short Cycle Training on Thermal Analysis" Organized by The University of Cyprus, 4-8 October 2021, Nicosia, Cyprus.

### SCIENTIFIC PRODUCTION

Scopus 9 documents, 85 citations, h-index 4 (Date: 15/07/22)

### PRESENTATIONS AT INTERNATIONAL CONFERENCES

- June/2022 "Utilization of Al<sub>2</sub>O<sub>3</sub> and MgO as structural promoters of Fe into 2 and 3 steps chemical looping process: pure and green H2 production", WHEC2022, 23rd World Hydrogen Energy Conference 26-30/06 2022 Istanbul, Turkey.
- June/2022 "Hydrothermal liquefaction of biomass using waste material as catalyst : effect on the bio-crude yield and quality", IconBM2022, International Conference on Biomass, 5-8 June 2022, in Naples, Italy.
- May/2021 "High Thermal stability Fe<sub>2</sub>O<sub>3</sub>-Al<sub>2</sub>O<sub>3</sub> system to produce renewable pure H<sub>2</sub> in steam iron process" ICHEAP15, 15th International Conference on CHEMICAL AND PROCESS ENGINEERING, 23-26 May, Naples, Italy.

# PUBBLICATIONS

Hamidi, R., Tai, L., Paglia, L., Scarsella, M., Damizia, M., De Filippis, P., Musivand, S., de Caprariis, B. Hydrotreating of oak wood bio-crude using heterogeneous hydrogen producer over Y zeolite catalyst synthesized from rice husk (2022) Energy Conversion and Management, 255.

Tai, L., Musivand, S., de Caprariis, B., Damizia, M., Hamidi, R., Ma, W., De Filippis, P. Co-treatment of plastics with subcritical water for valuable chemical and clean solid fuel production (2022) Journal of Cleaner Production, 337.

Tai, L., Hamidi, R., de Caprariis, B., Damizia, M., Paglia, L., Scarsella, M., Karimzadeh, R., De Filippis, P. Guaiacol hydrotreating with in-situ generated hydrogen over ni/modified zeolite supports(2022) Renewable Energy, 182, pp. 647-658.

de Caprariis, B., Damizia, M., De Filippis, P., Bracciale, M.P. The role of Al2O3, MgO and CeO2 addition on steam iron process stability to produce pure and renewable hydrogen (2021) International Journal of Hydrogen Energy, 46 (79), pp. 39067-39078.

De Filippis, P., D'Alvia, L., Damizia, M., de Caprariis, B., Del Prete, Z. Pure hydrogen production by steam-iron process: The synergic effect of MnO2 and Fe2O3(2021) International Journal of Energy Research, 45 (3), pp. 4479-4494.

Damizia, M., Bracciale, M.P., De Caprariis, B., Genova, V., De Filippis, P. High thermal stability fe system to produce renewable pure hydrogen in steam iron process(2021) Chemical Engineering Transactions, 86, pp. 547-552.

Scarsella, M., de Caprariis, B., Damizia, M., De Filippis, P. Heterogeneous catalysts for hydrothermal liquefaction of lignocellulosic biomass: A review(2020) Biomass and Bioenergy, 140. de Caprariis, B., Bracciale, M.P., Bavasso, I., Chen, G., Damizia, M., Genova, V., Marra, F., Paglia, L., Pulci, G., Scarsella, M., Tai, L., De Filippis, P. Unsupported Ni metal catalyst in hydrothermal liquefaction of oak wood: Effect of catalyst surface modification(2020) Science of the Total Environment, 709.

de Caprariis, B., Bavasso, I., Bracciale, M.P., Damizia, M., De Filippis, P., Scarsella, M. Enhanced bio-crude yield and quality by reductive hydrothermal liquefaction of oak wood biomass: Effect of iron addition (2019) Journal of Analytical and Applied Pyrolysis, 139, pp. 123-130.

Rome, 4 August 2022