

PERSONAL INFORMATION

Antonella Marone



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Italian

| Enterprise                                       | University   | EPR  |
|--|--|--|
| <input type="checkbox"/> Management Level        | <input type="checkbox"/> Full professor  | <input type="checkbox"/> Research Director and 1st level Technologist / First Researcher and 2nd level Technologist / Principal Investigator |
| <input type="checkbox"/> Mid-Management Level    | <input type="checkbox"/> Associate Professor   | <input checked="" type="checkbox"/> Level III Researcher and Technologist  |
| <input type="checkbox"/> Employee / worker level | <input type="checkbox"/> Researcher and Technologist of IV, V, VI and VII level / Technical collaborator | <input type="checkbox"/> Researcher and Technologist of IV, V, VI and VII level / Technical collaborator                                     |

WORK EXPERIENCE

March 2024 – present

**Researcher**

ENEA-Casaccia, via Anguillarese 301, 00123 Rome, Italy

- Bioenergy, Environmental Biotechnology, BioWaste valorisation, Hydrogen, Biomethane, advanced fuels and Chemicals, Fermentation, BES, Anaerobic Digestion, Biomethanation, Biorefinery Research

July 2021 – February 2024

**Head of Biotechnological Processes for Energy and Industry Lab (PBE)**

ENEA – Casaccia Research Centre – Rome, Italy

- Bioenergy, Environmental Biotechnology, BioWaste valorisation, Hydrogen, Biomethane, advanced fuels and Chemicals, Fermentation, BES, Anaerobic Digestion, Biomethanation, Biorefinery Research

February 2019 – June 2021

**Permanent Researcher**

ENEA – Casaccia Research Centre – Rome, Italy

- Energy efficiency, green roof and walls, urban agro-ecology; sustainable agriculture Research

October 2017- February 2019

**Project PI: Beatriu de Pinós Postdoc Grant (2016 BP 00218)**

GENOCOV group, at the Universitat Autònoma de Barcelona - <http://www.genocov.com/>

- Project PI BioERA: “BioElectrolysis for the Refinery of Agro-industrial wastewater”: for agro-industrial wastewater treatment and product recovery (hydrogen & chemicals) Research

February 2016- April 2017

**Postdoctoral Researcher**

Laboratory of Environmental Biotechnology, INRAE, France - [www6.montpellier.inrae.fr/narbonne](http://www6.montpellier.inrae.fr/narbonne)

Scientist in charge of the research activities project Hi-Solids: Optimizing the carboxylates production from residual lignocellulosic biomass Research

June 2013 – May 2015

**Project PI: Marie Curie Postdoctoral Research Fellow (Grant MC-IEF-326974)**

Laboratory of Environmental Biotechnology, INRAE, France - [www6.montpellier.inrae.fr/narbonne](http://www6.montpellier.inrae.fr/narbonne)

- Project PI: “Waste2bioHy” (Sustainable hydrogen production from waste via two-stage bioconversion process: an eco-biotechnological approach) Research

January 2008 - June 2013

**Research Fellow (4 not-permanent Research contracts)**

ENEA, CNR, Federico II Univ Naples, EU Social Found – Experimental activities carried at ENEA

Bioproduction of energy from wastes of agro-industrial sector ( Research

**EDUCATION AND TRAINING**

- Jan 2009 – Mar 2012 PhD “Excellent” in ecology and management of biological resources PhD  
Tuscia University of Viterbo, Italy
- Thesis: Biohydrogen production from vegetable waste: from screening of microbial diversity to bioaugmentation of indigenous fermentative communities
- Oct1999 – Dec 2006 MSc “Summa cum Laude” in Biology, specialization Ecology  
“La Sapienza” University of Rome

**WORK ACTIVITIES**

- Awards**
- 2013 Marie Curie Intra European Fellowship (IEF) – EU GRANT FLAGGED BY THE EUROPEAN COMMISSION
  - ECOTECHGREEN AWARD 2022

**Editorial activity** Guest Editor *Energies* SI: “Biological Processes in the Green Hydrogen Value Chain”

- Invited presentations**
- ANU-EC -ENEA workshop -“Hydrogen and Renewable Fuels: bridging continents” Dec2020;
  - I Jornada Científico-Técnica “El agua residual como fuente de recursos”, Cátedra DAM; University of Valencia, December 2018;
  - IBERIMET Workshop 2017, University of Girona, Dec 2017; BES workshop LEQUIA, University of Girona, March 2015;
  - UCV (Pontificia Universidad Católica de Valparaíso), Dec 2014;
  - KIER (Korean Institute of Technology) June 2014;
  - BES (Bioelectrochemical Systems ) International Meeting: ENEA May 2013;
  - Marie curie Ambassador at Marie Curie Road Show Roma April 2013.

- Grants**
- 2017 Beatriz de Pinós (BP 2016) AGAUR GRANT
  - 2013 Marie Curie Intra European Fellowship (IEF)
  - 2008 Research fellow European Social Fund (FSE)

- Academic activity**
- Ph.D. Committee Membership:**
- December 2023 (Narbonne, France) École doctorale GAIA – Biodiversité, Agriculture, Alimentation, Environnement, Terre, Eau. PhD candidate Axel Rous
  - December 2019 (Paris, France). The Advanced Biological Waste-to-Energy Technologies (ABWET) European Joint Doctorate (EJD) - Marie Skłodowska-Curie Innovative Training Networks (MSCA-ITN-2014-EJD). PhD candidate Samayita Chakraborty “Anaerobic treatment of refinery waste gases” Tampere University of Technology
  - September 2018 (Narbonne, France) École doctorale GAIA – Biodiversité, Agriculture, Alimentation, Environnement, Terre, Eau. PhD candidate Javiera Toledo Alarcón “Biotechnology and Microbiology; Université de Montpellier / Unité de recherche Laboratoire de Biotechnologie de l’Environnement
- Students Supervision:**
- Eleonora De Santis, PhD student (2023-ongoing), Federico II, University of Naples
  - Pacôme Prompsy (2016-2017), Master Degree student, UTC-Génie Biologique, Compiègne, France;
  - Olga Rocio Ayala Campos (2015), Master Degree student Universidad de Guadalajara;
  - Muñoz-Montoya Gerardo and René Cardeña (2014), visiting PhD students from UNAM (Universidad Nacional Autónoma de México);
  - Florian Paillet (2014), Master Degree student University of Montpellier, France;
  - Silva Illanes Fernando (2014), visiting student from UCV (Pontificia Universidad Católica de Valparaíso, Chile); Gloria Moreno (2014), visiting assistant engineer from UNAM (Universidad Nacional Autónoma de México); Javiera Toledo, (2013), visiting student from UCV (Pontificia Universidad Católica de Valparaíso, Chile); Vincenzo Sgulò (2012-2013), Master Degree Student, Sapienza University, Italy.
- Teaching assignment:**
- 2023 - Summer School CIVIS (European Civic University Alliance) Blended Intensive Programme: H2O pollution: holistic approach and nature based solutions. Lecture: “*Application of Microbial Electrochemical Technologies (METs) for wastewater treatment and energy recovery*”

- 2021 - Città Metropolitana di Roma Capitale (CMRC) – Energy Shool  
Teaching assignment (8h); lectures held: "Green roof and ecological regeneration" and "Green roof for the protection of biodiversity in the urban environment"
- 2016 - Technical Univ of Perpignan, Chemical Engineering, Process Engineering, Narbonne (FR)  
Teaching assignment (8h); lectures held: "Bioprocess Microbiology", "Bio-informatics"
- 2015 - "Parthenope" University of Naples, faculty of engineering - academic program "FUEL CELL LAB - Innovative systems and high efficient technologies for polygeneration";  
Teaching assignment (6h); lectures held: "Biological production of hydrogen and methane from organic waste - into the biorefinery concept" and "Bioelectrochemical systems as a technological solution for sustainable energy production in anaerobic treatment of organic waste streams"
- 2014 - Technical Univ of Perpignan, Chemical Engineering, Process Engineering, Narbonne (FR)  
Teaching assignment (9h); lectures held: "Bioprocess Microbiology"
- 2011 - IPSAA "C. P. Strampelli" of Rieti, Italy lectures held: "Biomass Production for Energy"
- 2010 - IFTS-LAZIO REGION (ENERGY & ENVIRONMENT) lectures held: "Biological Hydrogen Production" and "Microbial Fuel Cells"
- 2007 – 2010 IPSSAR "Antonelli Ranieri Costagini" of Rieti, Italy; lectures held: "Hygiene and food safety" and "Food Commodity"

**Refereeing** Water Research; International Journal of Hydrogen Energy; Bioresource Technology; Chemosphere; Chemical Engineering Journal; Industrial Crops and Products; Environmental Engineering and Management Journal; Sustainability journal; African Journal of Biotechnology; Referee for Energy Conversion and Management; Referee for Energies; Referee for SpringerNature book; Referee for European Fuel Cell 2011 and 2013 - Piero Lunghi Conference & Exhibition - Section Microbial Fuel Cells

## PERSONAL SKILLS

**Mother tongue(s)**

**Italian**

**Other language(s)**

**English (C1); French (C1); Spanish (B2)**

**Job-related skills**

Research group management and coordination; Bioprocess development, monitor & optimisation; Electrochemistry, Chromatography, Microbiology & Molecular Biology, Microscopy, Characterization techniques of organic matrices

**Digital skills**

MS Windows, Office, Software: for GIS, graphics, statistical analysis and publication of results

**Other skills**

Persistence, belief, keenness, confidence, determination and creative awareness

## ADDITIONAL INFORMATION

**Publications**

28 publications in peer-review journals and books; 20 Conference reviewed proceedings; 49 Oral presentation and poster at international and national conferences  
total Impact Factor (IF) (average IF/paper) 74.2 / ( 5.3),  
total number of citations 1457  
H Index 15 i10-index 17

1) Giuseppe Lembo, Silvia Rosa, Antonella Marone\*, and Antonella Signorini, 'In Situ Biogas Upgrading in a Randomly Packed Gas-Stirred Tank Reactor (GSTR)', *Energies*, 2023  
<<https://doi.org/https://doi.org/10.3390/en16073296>>

2) Sanjeet Mehariya, Antonella Signorini, Antonella Marone\*, and Silvia Rosa, 'Simultaneous Hydrogen and Ethanol Production from Crude Glycerol by a Microbial Consortium Using Fed-Batch Fermentation', *Energies*, 16.11 (2023) <https://doi.org/10.3390/en16114490>

3) Lembo, Rosa, Mazzurco Miritana, **Marone**, et al. *Thermophilic Anaerobic Digestion of Second Cheese Whey: Microbial Community Response to H<sub>2</sub> Addition in a Partially Immobilized Anaerobic Hybrid Reactor*. *Processes* 2021, 9 (43).

- 4) Paillet, **Marone**, Tapia-Venegas, Bernet, Steyer, Trably. *Improvement of biohydrogen production from glycerol in micro-oxidative environment*. International Journal of Hydrogen Energy, 2019, 44 (33): 17802-17812.
- 5) Yun, Lee, Im, **Marone**, et al.. *Biohydrogen production from Food Waste: Current Status, Limitations, and Future Perspectives*. Bioresource Technology 2018, 248: 79-87;
- 6) **Marone\***, et al. *Coupling dark fermentation and microbial electrolysis to enhance biohydrogen production from agro-industrial wastewaters and by-products in a bio-refinery framework*. International Journal of Hydrogen Energy 2017, 42 (3): 1609–1621;
- 7) Cabrol & **Marone** et al. *Microbial Ecology of fermentative hydrogen producing bioprocesses: useful insights for driving the ecosystem function*. FEMS Microbiology Reviews 2017, 41: 158–181;
- 8) **Marone**, et al.. *Bioelectrochemical treatment of table olive brine processing wastewater for biogas production and phenolic compounds removal*. Water Research 2016, 100: 316-325.
- 9) **Marone et al.** *Optimization of substrate composition for biohydrogen production from buffalo slurry co-fermented with cheese whey and crude glycerol, using microbial mixed culture*. International Journal of Hydrogen Energy 2015, 40: 209-218;
- 10) Tapia-Venegas, Ramirez-Morales, Silva, Toledo-Alarcón, Paillet, Escudie, Lay, Chu, Leu, **Marone**, et al. *Biohydrogen production by dark fermentation: scaling-up and biohythane-based process integration*. Reviews in Environmental Science and Bio/Technology 2015? 14: 761-785;
- 11) **Marone\*** et al. *Vegetable waste as substrate and source of suitable microflora for bio-hydrogen production*. Renewable Energy 2014, 68: 6-13;
- 12) **Marone\*** et al.. *Hydrogen Production From Vegetable Waste By Bioaugmentation of Indigenous Fermentative Communities*. International Journal of Hydrogen Energy 2012; 37(7): 5612-5622.

## Projects

- POR-H2 — NextGenerationEU – M2C2 Investimento 3.5. (2022 – ongoing)
- WP1.1 • LA 1.1.27 - Sviluppo di processi di produzione biologica di idrogeno tramite fermentazione (Dark Fermentation) da reflui agro-industriali, inclusa l'applicazione delle scienze ohmiche per l'ottimizzazione del processo • LA 1.1.28 - Sviluppo di tecnologie di celle elettrolitiche microbiologiche per la produzione di idrogeno dalla conversione dei sottoprodotti della fermentazione in un processo a cascata –*Responsabile scientifico* • LA 1.1.29 - Produzione di idrogeno da microalghe: ingegneria genetica per aumentare la produzione di idrogeno nelle microalghe WP2.1 • LA 2.1.8: Sviluppo di processi biologici "Power to Gas" per l'utilizzo dell'idrogeno verde per la conversione della CO2 contenuta nel biogas in CH4 • LA 2.1.9: Realizzazione di una piattaforma per lo sviluppo di biocatalizzatori per la produzione di carriers per l'idrogeno e/o la trasformazione dell'idrogeno in derivati ed e-fuels
- NEST – "Network for Energy Sustainable Technologies" NextGenerationEU - Spoke 3 Bio-energy and new fuels for a sustainable future – (2022 – ongoing) WP 3.3 Biochemical and bioelectrical conversion processes: •D3.3.4a Evaluation of the effects of biochar amendments on dark fermentation process performances and microbial community- *Principal Investigator*; •D3.3.4b Biochar boosts in-situ bi-methanation process for biological biogas upgrading
- AGRITECH - National Research Centre for Agricultural Technologies - NextGenerationEU - Spoke 8 Circular Economy in Agriculture through Waste Valorization and Recycling (2022 – ongoing) WP 8.2 "Agroenergy production from wastes to reduce energy dependence" – Task 8.2.1 "Biotechnologies to produce electricity/heat and advanced fuel from wastes" PI activity "Advanced two stages anaerobic digestion process for biofuel production".
- ECOSISTER - Ecosystem for Sustainable Transition in Emilia-Romagna - NextGenerationEU - Spoke 2 - Clean energy production, storage and saving (2022 – ongoing). *Coordinator* sub-TASK WP4 – D.2.4.3 "Study and application for the integration of biological methanation and catalytic methanation technologies for biomethane revamping of small/medium scale anaerobic digestion plant."
- Joint Cooperation Agreement ENI S.p.A.-ENEA N-5210001622, Project n. 2 "Biomass"/ Subproject 2.1 "Setting up and development up to the pilot scale of a pre-treatment technology to use aquatic plants (ex. posidonia) and / or macroalgae in anaerobic digestion processes for biogas / biomethane production" / Subproject 2.2 "Sugar testing for microbial oils production with ENI technology"/ Subproject 2.3 "Development of a thermochemical process for the production of biochars from agricultural and forest waste" 2022-ongoing
- WWGF – Wet Waste to Green Fuel (Liquid organic waste gasification with supercritical water for biomethane production ) PON "Ricerca e Innovazione" 2014 – 2020 (ARS01\_00868 WWGF) – 2021-ongoing
- ADP - Tecnologie, tecniche e materiali per l'efficienza energetica ed il risparmio di energia negli usi finali elettrici degli edifici nuovi ed esistenti. (PTR 2019-21: Prog. 1.5) – 2019/2021
- BioERA: BioElectrolysis for the Refinery of Agro-industrial wastewater – Agència de Gestió d'Ajuts Universitaris I de Recerca (AGAUR) – 2017/19 – project PI
- HIPATIA: Towards the implementation of the biorefinery concept and the energy self-sustainability in an urban wastewater treatment plant (Hacia la Implementación del concepto biorrefinería y la

- Autosostenibilità energética en una depuradora urbana) – Spanish national research Agency – 2018/2020
- HI-SOLIDS - Food security and demographic challenges. Biotechnologies: biotransformation of biological resources – French national Research Agency (ANR) – 2015/19.
  - WASTE2BIOHY - Sustainable hydrogen production from waste via two-stage bioconversion process: an eco-biotechnological approach – COFOUND FP7 - (MC-IEF –326974) - (2013/15) project PI
  - BITA - Bioprocess and Control Engineering for Wastewater Treatment - PIRSES-GA-2011-295170 – FP7 (Marie Curie IRSES) - (2013/15)
  - ECOMODH2 - Towards "next-generation" biohydrogen production: wider application range and new insights in process understanding through molecular ecology and bioprocess modeling - French National Research Agency (ANR) - (2013/15)
  - M00697 - Optimized bioconversion of crude glycerol into hydrogen and ethanol using Geo-Chip and coupling with MEC - Italy-China Bilateral Agreement - Executive Programme \_ITALIA\_CINA (2013/2015)
  - ADP – Enhanced biogas production from organic waste and substrate degradation by optimization of hydrogen production phase - Program Agreement between the Italian Ministry of Economic Development and ENEA – (2011/2013)
  - MAREA - Valorization of livestock manure, realization of a two-stage pilot-scale prototype for production of hydrogen coupled with methane - project funded by the Italian Ministry of Agriculture and Forestry – (2010/2012)
  - METISOL – Bioproduction of Hythane (CH<sub>4</sub>+ 10/7 % H<sub>2</sub>) for motor vehicles supply - funded by the Italian Ministry of the Environment, Territory and Sea – (2010/2012)
  - IDROBIO - Innovative methods for hydrogen production from organic sources - Integrated Special Fund for Research (FISR) – (2006/2009)

According to law 679/2016 of the Regulation of the European Parliament of 27th April 2016, I hereby express my consent to process and use my data provided in this CV

Rome, 21 March 2024

