

CURRICULUM VITAE

Ing. Matia Mainardis, Ph.D.

(updated on 24/03/2023)

Personal information

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Current position

From October 2021

Fixed-term Assistant Professor (RTD-A), scientific sector Sanitary Environmental Engineering (ICAR-03), Department Polytechnic of Engineering and Architecture, University of Udine (IT)

Main research topics and interests

- Energy, water and resource recovery from the Integrated Water Cycle (IWC) and solid/liquid organic substrates
- Treated effluents reclamation in agriculture (fertigation)
- Life Cycle Assessment (LCA) and Life Cycle Costing (LCC) application to compare alternative waste and wastewater management/treatment routes
- Tertiary industrial wastewater treatment (filtration, adsorption)
- Treatment of leachate from the organic fraction of municipal solid waste
- Advanced oxidation processes for water and nutrient recovery from IWC
- Innovative systems (e.g., solar greenhouses) for sewage sludge desiccation
- Techno-economic feasibility and upscaling analysis of innovative wastewater treatment technologies
- Alternative technologies for seagrass management in the circular economy framework
- Physicochemical laboratory characterization of liquid and solid matrices (wastewater, sewage sludge, organic waste)
- Evaluation of sewage sludge properties for agricultural reuse
- Energy and process modelling for economic and environmental WWTP optimization

Previous academic positions

October 2022- December 2022

Visiting Assistant Professor, School of Food and Biosystems Engineering, local responsible Dr. Fionnuala Murphy, University College Dublin (IE)

Main research topics and interests

- Energy and resource recovery from waste materials (agricultural waste, manure) in the biorefinery framework
- Life Cycle Assessment application to alternative waste management strategies in Ireland
- Guest lectures on the topics of wastewater treatment and sludge management, anaerobic digestion and co-digestion processes

June 2022- August 2022

Visiting researcher, Water Environment Technology (WET) Division, local responsible prof. Britt-Marie Wilen, Chalmers University of Technology, Gothenburg (SE)

Main research topics and interests

- Energy recovery from aerobic granular sludge by anaerobic digestion
- Sustainability of alternative wastewater treatment processes
- Shift from mesophilic to thermophilic conditions in anaerobic digestion processes of sewage sludge

March 2019- September 2021

Post-doctoral researcher, scientific sector Sanitary Environmental Engineering (ICAR-03), Department Polytechnic of Engineering and Architecture, University of Udine

Main research topics and interests

- Energy, water and resource recovery from the integrated water cycle (IWC) and solid/liquid organic substrates
- Energy recovery from solid and liquid substrates through anaerobic digestion processes
- Biochar utilization in anaerobic digestion processes
- Life cycle assessment (LCA) and life cycle costing (LCC) application to analyze different waste management routes
- Physicochemical laboratory characterization of liquid and solid matrices
- Bio-methanation tests with batch AMPTS equipment
- Pre-treatment technologies to enhance anaerobic digestion yield from sewage sludge
- Evaluation of sewage sludge properties for agricultural reuse
- Advanced oxidation processes (ozonation of pulp and paper industrial wastewater)
- Energy and process modelling for economic and environmental WWTP optimization
- Treated wastewater reuse for agricultural purposes

- Evaluation of alternative techniques to pesticides for weed control in vineyards
- Collaboration with the scientific sector AGR/09 (Agricultural engineering)

November 2015- February 2019

Industrial PhD student in “Environmental and Energy Engineering Sciences”, scientific sector Sanitary Environmental Engineering (ICAR-03, supervisor prof. Daniele Goi), Department Polytechnic of Engineering and Architecture, University of Udine (IT)- Collaboration with CAFC S.p.A. water utility

Main research topics and interests

- Wastewater characterization and treatment, with a focus on resource and energy recovery from high-loaded organic substrates
- Physicochemical characterization and treatment of complex liquid organic substrates
- Optimization of high-rate UASB anaerobic processes
- Optimization of WWTP processes, focusing on plant modelling, energy efficiency, pollution reduction
- Participation in local, national and international conferences

Other professional experience

January 2017- February 2019

Environmental engineer- Industrial PhD student, CAFC S.p.A., Viale Palmanova 192, 33100 Udine (IT)

Main activities

- Technical employee in Wastewater Treatment and Engineering Divisions
- Project manager (wastewater treatment)
- Responsible for Investment Plan 2018-2019 revision
- Data collection and analysis for Technical Quality of the Integrated Water Service (Deliberation 917/2017 by ARERA)
- Responsible for partnering with universities and research institutes for Horizon and Life European projects

November 2015- December 2016

Environmental engineer- Industrial PhD student, Carniacque S.p.A., Via Aita 2/H, 33028 Tolmezzo (IT)

Main activities

- Technical employee in Wastewater Treatment and Engineering Divisions

July 2015- October 2015

Post-lauream traineeship, Carniacque S.p.A., Via Aita 2/H, 33028 Tolmezzo (IT)

Main activities

- Employee in technical office, working on municipal WWTPs

December 2014- March 2015

Educational traineeship, Carniacque S.p.A., Via Aita 2/H, 33028 Tolmezzo (IT)

Main activities

- Employee in technical office, working on municipal WWTPs

July 2011- August 2011

Work experience for young people (<25 y.o.), Municipality of Amaro, Via Roma 33, 33020 Amaro (IT)

Main activities

- General employee

Education

October 2012- April 2015

Master's degree in "Engineering for environment and energy", final mark: 110 cum laude/110, dissertation title "UASB anaerobic treatment and OFMSW re-utilization: Tolmezzo case potentiality" (advisor prof. Daniele Goi)

November 2015- February 2019

Bachelor's degree in "Engineering of environment and resources"-Industrial Curriculum, final mark: 101/110, dissertation title "Polluting emissions in fossil fuel power plants" (advisor prof. Piero Pinamonti)

Indicators of scientific productivity

- Author of more than 35 scientific publications, including peer-reviewed articles, conference proceedings, and book chapters (see list of publications)
- ORCID ID: 0000-0002-6058-5827
- SCOPUS ID: 57205068501

Database	Number of items	Citations	H-index
Scopus	29	429	14
<i>Reference values for scientific sector ICAR/03, I band (Full Professor)</i>	19	306	11
<i>Reference values for scientific sector ICAR/03, II band (Associate Professor)</i>	13	190	8

Editorial and reviewer activity

- Referee for the following scientific journals (total of 257 verified reviews):
 - Water Research
 - Chemical Engineering Journal

- Journal of Cleaner Production
 - Energy Conversion and Management
 - Journal of Environmental Management
 - Science of the Total Environment
 - Chemosphere
 - International Biodeterioration & Biodegradation
 - Chemical Engineering Research and Design
 - Journal of Environmental Chemical Engineering
 - Waste Management
 - Energy & Fuels
 - Environmental Technology & Innovation
 - Sustainability: Science Practice and Policy
 - Biochar
 - South African Journal of Chemical Engineering
 - Environmental Science and Pollution Research
 - Ambio
 - Ocean and Coastal Management
 - Biomass Conversion and Biorefinery
 - Bioprocess and Biosystems Engineering
 - Sustainability
 - International Journal of Environmental Research and Public Health
 - Bioengineering
 - Energy Reports
 - Processes
 - Catalysts
 - Waste and Biomass Valorization
 - Water
 - Energies
 - Circular Economy and Sustainability
 - Energy and Environment
 - Water Science and Technology
 - Water Environment Research
 - Recycling
 - Symmetry
 - Fermentation
 - Plants
 - Agronomy
 - Applied Sciences
 - Clean-Soil, Air, Water
 - Microorganisms
 - Toxics
 - Applied System Innovation
 - Journal of Environmental Engineering
 - BioResources
 - Agronomy Research
 - AIMS Environmental Science
 - Guest Editor (together with Arianna Catenacci from Polytechnic of Milan and Fabiano Asunis from the University of Cagliari) for the special issue “Wastewater Treatment and Sustainability of Development”, Sustainability (MDPI)
 - Topic Editor for Sustainability journal (MDPI)
 - Member of Reviewers’ Board of Sustainability journal (MDPI)
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National and international collaborations

- International collaboration with University of Liege- Prof. Angelique Leonard e Prof. Dominique Toye- Department of Chemical Engineering
- International collaboration with University of Malaga (Spain)- Prof. Maria Altamirano Jeschke, Department of Botany and Plant Physiology
- International collaboration with Chalmers University of Technology (Gothenburg, Sweden)- Prof. Britt- Marie Wilen, Water Environment Technology (WET) Division
- International collaboration with Malardalen University (Vasteras, Sweden)- Prof. Eva Thorin and Prof. Pietro Elia Campana, Research group in “Renewable Energy”
- International collaboration with Ghent University (Ghent, Belgium)- Prof. Stijn Speelman, Faculty of “Bioscience Engineering”
- International collaboration with Danmarks Tekniske Universitet (DTU) (Copenhagen, Denmark)- Assistant Prof. Valentina Bisinella, Department of Environmental Engineering
- International collaboration with HAWK University (Gottingen, Germany)- Dr. Fabian Gievers, Faculty of “Resource Management”
- International collaboration with University College of Dublin (Ireland)- Assistant Prof. Fionnuala Murphy and Assistant prof. Recep Kaan Dereli, School of Biosystems Engineering
- National collaboration with the University of Salerno- Prof. Giovanni De Feo, Department of Industrial Engineering
- National collaboration with the University of Pavia- Prof. Andrea G. Capodaglio, Department of Civil Engineering and Architecture
- National collaboration with the University of Trento- Dr. Roberta Ferrentino, Department of Environmental, Civil and Mechanical Engineering
- National collaboration with Polytechnic of Milan- Prof. Francesca Malpei, Prof. Manuela Antonelli, and Prof. Roberto Canziani, Department of Civil Engineering and Architecture
- National collaboration with the University of Cagliari- Prof. Aldo Muntoni and Prof. Giovanna Cappai, Department of Civil-Environmental Engineering and Architecture
- National collaboration with Università La Sapienza of Rome- Dr Camilla Di Marcantonio, Department of Civil, Construction and Environmental Engineering

Teaching and tutor experience

- Lecturer for the course “Waste pollution and management”, Bachelor’s Degree in “Prevention techniques in the environment and the working field”, University of Udine, A.Y. 2019/2020 and A.Y. 2021/2022, and University of Trieste, A.Y. 2020/2021, 2 CFU (20 h)
- Lecturer for the course “Sustainability of the Integrated Water Cycle”, Bachelor’s Degree in “Industrial engineering for environmental sustainability, University of Udine, A.Y. 2022/2023, 6 CFU (60 h)
- Lecturer for the crash course “Water, energy and nutrient recovery from Integrated Water Cycle” for PhD students in “Environmental and Energy Engineering Sciences”, University of Udine, A.Y. 2021/2022- 2.5 CFU (20 h) and A.Y. 2022/2023- 1 CFU (8 h)
- Supplementary teaching for master’s degree students in “Engineering for Territory and Environment”, Course in “Sanitary Environmental Engineering” (main prof. Daniele Goi), University of Udine, A.Y. 2021/2022, 20 h
- Guest lecture “Substrates for bioeconomy: Sewage sludge”, Bioeconomy feedstocks module (main lecturer Dr. Fionnuala Murphy), University College Dublin (IE), 27/10/2022.
- Co-supervisor of Alessandro Moretti (main supervisor prof. Daniele Goi), title of the thesis: “Integrated water cycle sustainability: water reuse in circular economy”, Ph.D. program in “Environmental and Energy Engineering Sciences”, XXXV cycle, University of Udine
- Co-relator of the following master’s degree dissertations:

- "Energetic recovery from Cheese Whey using Anaerobic Digestion: A case study in Friuli-Venezia Giulia plain", Simone Flaibani, Master's degree in Engineering for Energy and Environment, A.Y. 2017/2018.
- "Energy recovery from brewery waste through anaerobic digestion in the mountain area of Friuli-Venezia Giulia region", Fabio Mazzolini, Master's degree in Engineering for Energy and Environment, A.Y. 2017/2018.
- "Ozone treatment of pulp and paper wastewater: Tolmezzo (Ud) case study", Marco Buttazzoni, Master's degree in Engineering for Territory and Environment, A.Y. 2018/2019.
- "Technical evaluation of anaerobic digester revamping and the possibility to upgrading to co-digestion: the case-study of Staranzano", Sara Prapotnich, Master's degree in Engineering for Territory and Environment, A.Y. 2019/2020.
- "Filtration as a sustainable tertiary treatment of pulp and paper wastewater", Silvia Mulloni, Master's degree in Engineering for Territory and Environment, A.Y. 2020/2021.
- "A model to optimize energy feed to decarbonize dairy industry", Francesco Da Dalto, Master's degree in Mechanical Engineering, A.Y. 2021/2022.
- "Technologies for the treatment of sewage sludge: solar drying", Riccardo Dominici, Master's degree in Mechanical Engineering, A.Y. 2021/2022.
- Referent person for the Environmental Sanitary Engineering laboratory of the "Paths for the transversal skills and orientation" of the Polytechnic Department of Engineering and Architecture, University of Udine, 13-17/06/2022 and 13-16/02/2023.
- Commission member for final examinations of master's degree students in "Engineering for Territory and Environment", 25/03/2022, A.Y. 2021/2022.
- Commission member for 3rd-year assessment of Ph.D. students in "Environmental and Energy Engineering Sciences", Area of "Chemical and material processes", XXXV cycle, University of Udine, 20/10/2022.
- Commission member for a post-doctoral fellowship entitled "Characterization and treatment of sewage sludge for agricultural reuse", responsible prof. Daniele Goi, 28/03/2023.
- Commission member (secretary) for a post-doctoral fellowship entitled "Sewage sludge sustainability: characterization and final destinations", responsible prof. Daniele Goi, 9/11/2021.
- Seminar lecture (as a teacher) "Anaerobic technology and integrated water service" (4 h), Master's Degree in Engineering for Territory and Environment, University of Udine, A.Y. 2019/2020
- Oral presentation (as a lecturer) "Perspectives and innovation in the integrated water cycle in Friuli region: CAFC S.p.A. and Poiana S.p.A. case studies- Energy and material recovery", World Water Day 2018, Udine, 22/03/2018
- Seminar lecture "Sustainability & Innovation in the IWS: a territory-oriented approach", Tolmezzo (Udine), 06/02/2018
- Lesson (as teacher) "Integrated Water Service management in Friuli-Venezia Giulia region", Ohio State University (OSU) Study Abroad, Udine, 01/07/2017
- Lesson "Integrated water cycle: from freshwater withdrawal to wastewater treatment", Event "Knowledge in Party", Udine University, 30/06/2017
- Lesson (as a teacher) "Anaerobic digestion: principles and applications", Master's Degree students in "Engineering for Environment and Energy" (25/05/2016) and "Engineering for Environment and Territory" (14/06/2016), 4 h
- Academic tutor for high-school students of ISIS Solari (Tolmezzo), 2016-2018 (40 hours per year)
- Academic tutor for bachelor's degree students in "Industrial Engineering for Environmental Sustainability", A.Y. 2020/2021

- Academic tutor for master's degree students in "Engineering for Environment and Energy", A.Y. 2015/2016

Participation in research projects

- Scientific collaborator for the Spanish national proposal (Proyectos de Generación de Conocimiento 2022) "Contributions to the efficient management of beached biomass of the invasive seaweed *Rugulopteryx okamurae* within the framework of its control strategy (BEACH-RO)", PI Prof. Maria Altamirano Jeshke (University of Malaga)
- Responsible for the project partner CAFC S.p.A. for the administrative activities related to the Interreg Project "AdSWiM" (Managed use of treated urban wastewater for the quality of the Adriatic Sea)
- Researcher in the EU-funded project "CITYCIRCLE" (Technical feasibility study for an industrial symbiosis project between a biogas-fed cogeneration plant and a wastewater treatment plant), responsible Dr Patrizia Simeoni (University of Udine)
- Scientific collaborator for the PRIN 2022 proposal "AD-BIO+" (Anaerobic sludge digestion enhancement with the addition of renewable biochar materials for the improvement of methane yield and circular economy residuals value), PI Dr Arianna Callegari (University of Pavia)
- Scientific collaborator for the PRIN 2020 proposal "IMPROVE-AD" (IMPROVEMENT of energy recovery and circular economy performance of Anaerobic Digestion process by integration of innovative sustainable technologies and reuse materials), PI Dr Federico Aulenta (CNR-Rome)
- Scientific collaborator for the research project "Validation support for the executive project to realise the organic waste treatment plant located in Via Gonars", responsible prof. Marina Campolo (University of Udine)
- Scientific collaborator for the research project "Integrated water cycle sustainability and efficient management of integrated water system: networks, processes and residues", responsible prof. Daniele Goi (University of Udine)

Participation in conferences (as a speaker or session chair)

- Oral presentation "Integrated water cycle closure in a circular economy perspective: Resource and energy recovery", 1st Seminary AUSIR (Regional Authority for Waste and Water) "Water resource and territory: current situation and case studies in FVG Region", University of Udine (Italy), 22/03/2023.
- Invited speaker at the session "Meeting UTILITALIA-IWA about the Young Water Professional (YWP) Initiative", "Water Festival"- organized by UTILITALIA, Turin (Italy), 21-23/09/2022.
- Chair of the session "Biosolids management & reuse", World Water Congress and Exhibition by the International Water Association (IWA), Copenhagen (Denmark), 11-15/09/2022.
- Invited webinar "Energy, resource and water recovery from waste and wastewater", Water Division, Chalmers University of Technology (online event), 10/11/2021.
- Oral presentation "Resource and energy recovery from seagrass: a life cycle assessment approach", Sardinia Symposium 2021-18th International Symposium on Waste Management and Sustainable Landfilling, S. Margherita di Pula (Italy), 11-15/10/2021.
- Oral presentation "Ozonation as a sustainable treatment for pulp and paper wastewater", conference "SIDISA 2021", Turin (Italy), 29/06-02/07/2021.
- Oral presentation "Sewage sludge pre-treatments as a technical solution to enhance methane yield in existing anaerobic digesters", conference "IWA ecoSTP, Ecotechnologies for Wastewater Treatment", Milan (Italy), online event, 21-25/06/2021.
- Oral presentation "Energy and material recovery from beach-cast seagrass: The case study of high-Adriatic coast", conference "12th Eastern European Young Water Professionals (YWP) 2021", Riga (Latvia), online event, 31/03-02/04/2021

- Co-chair at the session “Economic and Environmental Sustainability Assessment” IWA Resource Recovery (RR) Conference, Venice (Italy), 10/09/2019
- Oral presentation “Techno-economic feasibility of diffused AD implementation in small breweries in Friuli Venezia Giulia region and biochar effect on methane yield”, conference “11th Eastern European Young Water Professionals (YWP) 2019”, Prague (Czech Republic), 2-4/10/2019
- Oral presentation “Thermo-economic evaluation of combined heat and power generation in the wastewater treatment plant to optimize sludge drying”, conference “SMICE (Sludge Management In Circular Economy)”, Rome, 23-25/05/2018
- Oral presentation “A territory-oriented approach to improve high loaded liquid waste management: the case study of Tolmezzo (Ud)”, conference “10th Eastern European Young Water Professionals (YWP) 2018”, Zagreb (Croatia), 7-12/05/2018
- Poster presentation “UASB anaerobic digestion of high-loaded liquid substrates: a pilot study in Friuli-Venezia Giulia region”, conference “European Biogas Association (EBA) Conference 2018”, Antwerp (Belgium), 24-26/01/2018
- Oral presentation “Anaerobic treatment of liquid wastes: Tolmezzo case study”, conference “16th Annual Conference of Friulian Scientific and Technologic Society”, Capriva del Friuli (Gorizia), 18/11/2017
- Poster presentation “UASB Anaerobic Treatment of Liquid Substrates: A Case Study in Friuli-Venezia Giulia Region”, conference “Young Water Professionals (YWP) 2017”, Budapest (Hungary), 24-27/05/2017
- Poster presentation “Selecting liquid substrates for UASB process upgrade: Characterization and BMP tests”, summer school “Advances in biogas technology”, comprehensive of “European Biogas Association (EBA) Conference 2016”, Gent (Belgium), 26-30/09/2016
- Poster presentation “Characterization of high-loaded organic substrates and suitability as a potential feed for high-velocity anaerobic UASB reactors”, conference “SIDISA-SIBESA (Italo-Brasilian Symposium of Environmental Sanitary Engineering) 2016”, Rome, 20-23/06/2016

Participation in conferences (as an attendee)

- 1st Seminary AUSIR (Regional Authority for Waste and Water) “Water resource and territory: current situation and case studies in FVG Region”, University of Udine (Italy), 22/03/2023.
- “Bioeconomy Research Symposium: Ireland 2022”, organized by BiOrbic (Irish National Bioeconomy Research Centre), Dublin (Ireland), 6-7/12/2022.
- “Water Festival” organized by UTILITALIA, Turin (Italy), 21-23/09/2022.
- “World Water Congress and Exhibition” organized by the International Water Association (IWA), Copenhagen (Denmark), 11-15/09/2022.
- Conference “IWA Micropol 2022”, Santiago de Compostela (Spain), 06-10/06/2022.
- Webinar “State-of-the-art in anaerobic digestion modelling”, organized by IWA Modelling and Integrated Assessment Specialist Group (MIA) (online), 22/11/2021.
- “Ecomondo” exhibition, 26/10/2021.
- Conference “Sardinia Symposium”, Pula (Italy), 11-15/10/2021.
- Conference “SIDISA 2021”, Turin (Italy), 29/06-02/07/2021.
- Conference “IWA ecoSTP, Ecotechnologies for Wastewater Treatment”, Milan (Italy), online event, 21-25/06/2021.
- Webinars related to SIDISA 2021 Conference (online events), 4/05/2021 and 11/05/2021.
- Conferences “Coastal biogas”, online events, 30/09/2020 and 09/12/2020
- Seminary “Waste to energy and more”, Ghent (Belgium) (Online event), 11/09/2020
- Seminary “Process modelling for WWTP optimization”, Milan, 18/10/2019

- Conference “Young Water Professionals (YWP) 2019”, Prague (Czech Republic), 2-4/10/2019
- Conference “IWA Resource Recovery 2019”, Venice, 08-12/09/2019
- Conference “SMICE (Sludge Management In Circular Economy)”, Rome, 23-25/05/2018
- Conference “Young Water Professionals (YWP) 2018”, Zagreb (Croatia), 7-12/05/2018
- Conference “European Biogas Association (EBA) Conference 2018”, Antwerp (Belgium), 24-26/01/2018
- Cycle of seminars “Integrated water cycle lessons”, IRES Fvg, Udine, 11/2017-01/2018
- Seminar “Integrated Water System: Water Safety Plan- Cooperation between authorities”, CAFC- Udine, 07/12/2017
- Conference “16th Annual Conference of Friulian Scientific and Technologic Society”, Capriva del Friuli (Gorizia), 18/11/2017

Scientific organizations membership

- Co-founder and chair of the Young Water Professionals Italy (YWPIT) group, formed under the umbrella of the International Water Association (IWA) (since February 2022)
- Member of the International Water Association (IWA) (since 2018)
- Junior member of the “Italian Environmental Sanitary Engineering Group” (GITISA) (since 2019)
- Registered to Engineers’ Order of Udine, Section A- Industrial Sector, position n° 3577 (since 12/07/2017)
- Member of Young Engineers Commission of Engineers Order of Udine (2017-2021)

Awards & qualifications

- National scientific qualification (ASN) for Associate professor in Italy, scientific sector ICAR/03 (Sanitary environmental engineering), obtained on 10/06/2022 (valid until 10/06/2032)
- Highly cited paper for the manuscript “Up-flow Anaerobic Sludge Blanket (UASB) technology for energy recovery: A review on state-of-the-art and recent technological advances”, Bioengineering (MDPI), October 2022.
- Winner of Seed Funding Scheme for visiting Assistant Professors (total financed budget: 10,000 €) from University College Dublin (UCD)- Ireland
- Winner of the Best Poster Prize for 2nd year PhD students in “Environmental and Energy Engineering Sciences”, received during the Doctoral Week of University of Udine, 24/10/2017
- Certificate of the Best graduated student of master’s degree “Engineering for Environment and Energy”, Dies Academicus of Udine University, A.Y. 2013/2014, 03/07/2015

Technical skills

- Good knowledge of common equipment for waste/wastewater physicochemical analysis and characterization (spectrophotometers, ovens, centrifuges, titrators, multi-parameter probes, filtration apparatus)
- Experience in building and running laboratory and pilot reactors (batch and continuous mode of operations), mainly focused on anaerobic digestion and advanced oxidation processes
- Experience in pretreatment application (physical, chemical, biological) to enhance biogas yield in anaerobic digestion processes
- Experience in advanced oxidation processes (ultrasound, ozone)

Languages

- Mother tongue: Italian, Friulian
- Other languages: English (level C1), French (level A1)

Relational skills

- Optimum aptitude for group working and collaborating in complex contexts
 - Strong interest in collaborating with colleagues to continuously improve personal skills and mutual knowledge
 - Good oral presentation skills, acquired during participation in national and international reputable conferences in waste/wastewater treatment sectors
 - Good communication skills
 - Friendly personality
 - Capability of communicating specialized know-how to different people
 - Ability to synthesize and communicate complex scientific and research concepts to different audience targets
 - Experience in initiating several new national and international partnerships
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Organizational skills

- Capability of adjustment to the context
 - Capability of efficiently organizing group working
 - Leadership and orientation at R&D
 - Ability to efficiently manage own time and work to deadlines
 - Good planning skills
 - Experience in EU-funded projects management and experimental activities (as project partner)
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IT skills

- Very good knowledge of Windows OS and familiarity with Microsoft Office main software (Word, Excel, PowerPoint, Outlook)
- Familiarity with the main browsers (Google Chrome, Internet Explorer)
- Basic knowledge of C programming language (University studies)
- Basic knowledge of AutoCAD (technical drawing) software
- Basic knowledge of GPSX and WEST (WWTP modelling) software
- Basic knowledge of EPA-SWMM (sewer modelling) software
- Academic knowledge of Polymath software
- Good ability to interpret technical drawings
- Basic knowledge of ImageJ and Origin software
- Basic knowledge of modeFRONTIER (multi-objective engineering optimization) software
- Basic knowledge of R (statistical analysis) and Python (mathematical modelling) software

List of publications

a. Scientific articles published in peer-reviewed journals

1. **M. Mainardis**, C. Ferrara, C. Di Marcantonio, B. Cantoni, G. De Feo, D. Goi, "The path towards sustainability: life cycle assessment application to alternative tertiary treatments of pulp and paper effluents", *in progress*.
2. **M. Mainardis**, R.K. Dereli, "Circular economy implementation in craft breweries: a critical review", *in progress*.
3. L. Penserini, A. Moretti, **M. Mainardis**, B. Cantoni, D. Goi, M. Antonelli, "Prioritization schemes for wastewater reuse in agriculture", *in progress*.
4. **M. Mainardis**, R. Ferrentino, B.M. Wilen, "Techno-economic assessment of solar energy implementation for sewage sludge drying", *in progress*.
5. **M. Mainardis**, V. Bisinella, A. Catenacci, F. Magnolo, C. Vance, C. Ferrara, G. De Feo, D. Goi, F. Malpei, F. Murphy, S. Speelman, "Seagrass wrack management technologies: a review and methodological approach", *in progress*.
6. M. Cottes, **M. Mainardis**, P. Simeoni, "Evaluation of WEEE plant installation feasibility in Friuli-Venezia Giulia Region using a multi-decisional modelling approach" *in progress*.
7. C. Vance, **M. Mainardis**, F. Magnolo, J. Sweeney, F. Murphy, "Modelling ecosystem changes effects on seagrass wrack valorization sustainability: merging system dynamics with life cycle assessment", *Journal of Cleaner Production*, 370, 133454, 2022. <https://doi.org/10.1016/j.jclepro.2022.133454>.
8. A. Catenacci, M. Peroni, F. Gievers, **M. Mainardis**, E. Pasinetti, F. Malpei, "Integration of sludge ozonation with anaerobic digestion: from batch testing to scenario analysis with energy, economic and environmental assessment", *Resources, Conservation and Recycling*, 186, 106539, 2022. <https://doi.org/10.1016/j.resconrec.2022.106539>.
9. **M. Mainardis**, S. Mulloni, A. Catenacci, M. Danielis, E. Furlani, S. Maschio, D. Goi, "Sustainable alternatives for tertiary treatment of pulp and paper wastewater", *Sustainability*, 14, 6047, 2022. <https://doi.org/10.3390/su14106047>.
10. A. Catenacci, G. Boniardi, **M. Mainardis**, F. Gievers, G. Farru, F. Asunis, F. Malpei, D. Goi, G. Cappai, R. Canziani, "Processes, applications and legislative framework for carbonized anaerobic digestate: opportunities and bottlenecks. A critical review", *Energy Conversion and Management*, 263, 115691, 2022. <https://doi.org/10.1016/j.enconman.2022.115691>.
11. D. Cecconet, **M. Mainardis**, A. Callegari, A. Capodaglio, "Psychrophilic treatment of municipal wastewater with a combined UASB/ASD system, and perspectives for improving urban WWTP sustainability", *Chemosphere*, 297, 134228, 2022. <https://doi.org/10.1016/j.chemosphere.2022.134228>.
12. **M. Mainardis**, D. Cecconet, A. Moretti, A. Callegari, D. Goi, S. Freguia, A. Capodaglio, "Wastewater fertigation in agriculture: Issues and opportunities for improved water management and circular economy", *Environmental Pollution*, 296, 118755, 2022. <https://doi.org/10.1016/j.envpol.2021.118755>.
13. **M. Mainardis**, M. Buttazzoni, F. Gievers, C. Vance, F. Magnolo, F. Murphy, D. Goi, "Life Cycle Assessment of sewage sludge pretreatment for biogas production: from laboratory tests to full-scale applicability", *Journal of Cleaner Production*, 322, 129056, 2021. [10.1016/j.jclepro.2021.129056](https://doi.org/10.1016/j.jclepro.2021.129056).
14. **M. Mainardis**, F. Magnolo, C. Ferrara, C. Vance, G. Misson, G. De Feo, S. Speelman, F. Murphy, D. Goi, "Alternative seagrass wrack management practices in the circular bioeconomy framework: a life cycle assessment approach", *Science of the Total Environment*, 798, 149283, 2021. <https://doi.org/10.1016/j.scitotenv.2021.149283>.
15. **M. Mainardis**, M. Buttazzoni, M. Cottes, A. Moretti, D. Goi, "Respirometry tests in wastewater treatment: why and how? A critical review", *Science of the Total Environment*, 793, 148607, 2021. <https://doi.org/10.1016/j.scitotenv.2021.148607>.

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b. Book chapters

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c. Conference proceedings

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I allow the use and processing of my data according to the D. Lgs. 196/2003 concerning the handling of personal data.

Udine, 24/03/2023

Ing. Matia Mainardis, Ph.D.

A handwritten signature in black ink, appearing to read 'Matia Mainardis', written over a horizontal line.