Biography

Bruna Matturro is Senior Researcher at the Water Research Institute of the National Research Council in Italy (IRSA-CNR), specialized in industrial and environmental biotechnology with a solid academic background and extensive professional experience in the bioremediation of contaminated sites. She earned her PhD in Industrial Chemical Processes from the University of Rome Sapienza. Her career at IRSA-CNR began in 2010 as a Research Fellow, later becoming a Temporary Researcher on various national and international projects. Since 2018, she has been a Permanent Researcher at IRSA-CNR, focusing her research on the biodegradation processes of environmental pollutants and the role of microorganisms involved in these processes in both natural and engineered systems for bioremediation. She has also developed specialized microbial consortia for processes of interest in environmental biotechnology.

Throughout her career, she has held progressively responsible research roles at IRSA-CNR, contributing to numerous European projects focused on bioremediation and the biomolecular characterization of microorganisms of biotechnological interest. She has participated in international mobility programs, collaborating with prestigious institutions such as Cornell University and Newcastle University.

Currently, she is the Principal Investigator for the PRIN2022 BISURE project, responsible for an IRSA-CNR operational unit for the PNRR-NBFC project, and head of an operational agreement between IRSA and ISPRA for the definition of operational protocols for biomonitoring SIN areas. She is the author of approximately 42 publications in international peer-reviewed journals (H-index 21, as per July 2025), significantly contributing to the field of environmental microbiology and bioremediation technologies.

In addition to her research activities, she is actively involved in supervising thesis and doctoral dissertations. She is also a founding member of the start-up Trieme (a joint spin-off between CNR and Sapienza) operating in the field of environmental remediation.

With a career dedicated to scientific innovation and environmental sustainability, Bruna Matturro aims to continue her scientific activities with new projects, contributing to improving bioremediation approaches for a cleaner and healthier environment.

EDUCATION

- **2010-2013 (March 26, 2013): PhD in Industrial Chemical Processes** (26th cycle) at the University of Rome Sapienza with a thesis titled "Research on the correlation between biodegradation kinetics and specific biomass parameters in microbial consortia for bioremediation applications" (Supervisor: Dr. Simona Rossetti, Prof. Mauro Majone - Conducted in collaboration between IRSA-CNR and the Department of Chemistry at La Sapienza). Participated in the Summer school - GRICU PhD NATIONAL SCHOOL 2012: Transport phenomena/Separation Processes. Montesilvano (Pe), Italy. (Certificate issued and signed by Prof. Patrizia Perego on September 23, 2013).

- **2007-2009 (December 11, 2009): Master's Degree in Industrial and Environmental Biotechnology** at the University of Rome Sapienza with a thesis titled "Application of biomolecular methods for the characterization and monitoring of sites contaminated by chlorinated solvents" (Grade: 110 with honors/110, Supervisor: Dr. Simona Rossetti, Prof. Claudio Palleschi).

- **2004-2007 (December 4, 2007): Bachelor's Degree in Biotechnology** at the University of Rome Sapienza with a thesis titled "Characterization of micro-RNA 135a in a neuroblastoma murine cell line" (Grade: 110/110; Supervisor: Prof. Carlo Presutti).

WORK EXPERIENCE

- **Senior Researcher, Level II at IRSA-CNR** (since January 1, 2023 – now).

- **Permanent Researcher, Level III at IRSA-CNR** (December 28, 2018 – December 31, 2022).

- **Temporary Researcher, Level III at IRSA-CNR** (September 1, 2014 – December 27, 2018, Protocol Number IRSA-CNR: 0003682 of August 28, 2014). The contract was part of the European Project KillSpill.

- **Research Fellow at IRSA-CNR** (July 1, 2013 – August 31, 2014, Protocol Numbers IRSA-CNR: 0003009 of June 27, 2013; 0002937 of June 27, 2014). The research fellowship was part of the European Project BANDIERA

Ritmare for the theme "Fluorescence in situ hybridization assays (FISH, CARD-FISH) and analysis of functional genes (qPCR, RT-qPCR)".

- **Research Fellow at IRSA-CNR** (March 1, 2011 – May 31, 2013, Protocol Numbers IRSA-CNR: 0001049 of February 28, 2011; 889 of February 27, 2012, first renewal; 00001003 of February 26, 2013, second renewal). The research fellowship was part of the European Project ModelProbe for the theme "Molecular characterization of biomass capable of degrading chlorinated aliphatic compounds".

- **Research Fellow at IRSA-CNR** (February 15, 2010 – February 14, 2011, Protocol Number IRSA-CNR: 000040752 of February 12, 2010). The research fellowship was part of the European Project ModelProbe for the theme "Molecular characterization of biomass capable of degrading chlorinated aliphatic compounds".

INTERNATIONAL EXPERIENCE

- **2014**: **Short term mobility program funded by CNR.** Industrial Company "Vermicon, solutions for microbiology" (Munich, Germany). Objective: Development of a commercial kit for biomonitoring biomarkers involved in pollutant degradation processes (Contact: Dr. Claudia Beimfohr, www.vermicon.com).

- **2010: Short term mobility program funded by CNR**. School of Civil and Environmental Engineering – Cornell University (Ithaca, New York). Objective: Optimization of biomolecular techniques for estimating the activity levels of biomarkers involved in pollutant degradation processes and comparison with traditional microscopic analysis methods (Dr. Ruth Richardson, Dr. Gretchen Heavner).

- **2008: One-month autonomous initiative.** School of Civil Engineering and Geosciences – Newcastle University (Newcastle Upon Tyne, England). Objective: Optimization of biomolecular techniques for quantifying biomarkers involved in pollutant degradation processes (Contact: Dr. Micol Bellucci, Prof. Thomas Peter Curtis).

- **2008: Leonardo Project Funded by the European Community** at Instituto de Recursos Naturales y Agrobiologia de Sevilla Consejo Superior de Investigaciones Cientificas (IRNAS-CSIC), Departamento de Biotecnologia Vegetal e Departamento de Geoecologia, Biogeoquimica y Microbiologia Ambiental (Sevilla, Spain). Objective: Optimization of biomolecular techniques and cultivation systems for the study of microorganisms and processes of biotechnological interest (Dr. Francisco Javier Quintero Toscano, Dr. Juan Miguel Gonzales Grau).

SCIENTIFIC RESPONSIBILITIES IN RESEARCH PROJECTS

- **BISURE** – Biotechnologie for Sustainable Remediation. PRIN2022 Research Project (Directorate Decree No. 1409 of 14-9-2022) funded following a peer review evaluation.
  Duration: 24 months (November 2024 - 2026).
  Total funding (€): 248,788.00 IRSA-CNR Operational Unit funding (€): 135,730.00 (2022AXYMKY).
  Role: Principal Investigator

- **NBFC – National Biodiversity Future Center**. Research project under the National Recovery and Resilience Plan (PNRR), coordinated by CNR, funded following a peer review evaluation by the European Union NextGenerationEU as Key Enabling Technologies under the National Recovery and Resilience Plan (Mission 4 - Component 2 - Investment 1.4). NBFC Project - National Center CN00000033 - CUP B83C22002930006.
  Duration: 01/09/2022 – 2025 (ongoing project)
  Total funding (€): 328,217,375.39 Funding for each IRSA-CNR Operational Unit (€): 80,000.00 (Project code IRSA P0000109 PNRR SPOKE 3 PRR.AP005.006).
  Role: Head of the IRSA-CNR Operational Unit in the research line "Diversity, roles and interactions of the microbiomes with bioremediation implications in contaminated groundwater" within the activities: A2 and A4 of SPOKE 3 "Assessing and monitoring terrestrial and freshwater biodiversity and its evolution: from taxonomy to genomics and citizen science".

- **TERRE** – Nanofiber multifunctional systems to control and reduce environmental impacts in agricultural systems. Strategic research projects for the "Research Projects @CNR" (Deliberation No. 157/2020 of June 17, 2020), funded following a peer review evaluation Project SAC.AD002.173/Infrastructure Enhancement: strategic research projects for the Entity. CUP: B53C22000150005.
  Duration: 01/12/2021 - 30/11/2023 (ongoing project)
  Total funding (€): 200,620.00 IRSA-CNR Operational Unit funding (€): 25,000.00 (Project code IRSA P0000370)

Role: Head of the IRSA-CNR Operational Unit in Work Packages (WPs) 2 "Development of functional systems", WP 3 "Eco-functionality and monitoring" and WP5 "Management and dissemination".

SCIENTIFIC PARTICIPATION IN OPERATIONAL UNITS OF RESEARCH PROJECTS

- **ELECTRA** - Electricity Driven Low Energy and Chemical Input Technology for Accelerated Bioremediation. Funded under the European call H2020-EU.2.1.4 - Grant Agreement: 826244.
  Duration: 1/1/2019 - 31/12/2022.
  Total funding (€): €4,995,056.25. IRSA-CNR funding (€): 299,938.00.
  Role: Team member of the Scientific activity in: WP1. "Microorganisms for remediation technologies and monitoring tools for the assessment and control of these biotechnologies. SubTask: Characterization and monitoring of microbial communities"; WP2 "Low energy input instead of chemicals – reduced chemical bioremediation technologies. Subtask: Bioremediation of TPHs and their derivatives through in-situ and ex-situ strategies". Deliverables and publications were produced throughout the project. https://cordis.europa.eu/project/id/826244

- **KILL SPILL** – INTEGRATED BIOTECHNOLOGICAL SOLUTIONS FOR COMBATING MARINE OIL SPILLS. Funded under the European Project FP7-KBBE. Grant Agreement: 312139.
  Duration: 1/1/2013 - 31/12/2016.
  Total funding (€): €8,996,599.00. CNR funding (€): 804,595.50 (of which € 407,344.06 for IRSA-CNR)
  Role: Team member of the Scientific activity in WP2 "Development of biosensors and in-situ monitoring tools to determine biodegradation efficiency: Set of diagnostic FISH kits for fast and specific monitoring of relevant microorganisms; WP4 "Microbial and additive formulations for enhanced bioremediation: Isolation of hydrocarbon-degrading bacteria under different water stirring conditions"; WP5 "Efficient cleanup of contaminated sediments due to oil spills. Emphasis on biotechnological solution: Biomolecular characterization of mixed cultures selected in bioelectrochemical technologies"; WP8 "Field Testing of Most Promising Technologies and Benchmarking with existing products: Analysis of oil-degrading microorganisms in field conditions". Deliverables and publications were produced throughout the project. https://cordis.europa.eu/project/id/312139

- **LIFE4MarPiccolo** – A new LIFE for Mar Piccolo" - Life4marpiccolo, Life + LIFE14 ENV/IT/000461A. Project funded by the European Commission under the LIFE + 2014 program www.life4marpiccolo.it
  Duration: 1/2/2016 - 30/9/2021
  Total funding (€): 2,512,171.00. CNR funding (€): 506,903.00.
  Role: Team member of the Scientific activity in Action C3 – Environmental impact assessment. Biomolecular characterization and biorecovery potential of contaminated marine sediments from Mar Piccolo of Taranto. Deliverables and publications were produced throughout the project.

- **SUSBIOREM** – Novel approaches and methodologies for sustainable bioremediation of groundwater contaminated by chlorinated hydrocarbons. Funded by Regione Lombardia under the Framework Agreement between Regione Lombardia and CNR of July 16, 2012.
  Duration: 2013-2015.
  Total funding (€): 968,780.00. Operational Unit funding (€): 510,844.00.
  Role: Team member of the Scientific activity in WP "Development and application at field scale of biomolecular methods for the evaluation of bioremediation potential of the chlorinated hydrocarbon contaminated site". Deliverables and publications were produced throughout the project.

- **RITMARE** – BANDIERA: RITmare – La RIcerca ITaliana per il MARE. Flagship Project funded by the European Community's Seventh Framework Programme for research, technological development and demonstration activities, coordinated by CNR.
  Duration: 2012 - 2016.
  Total funding (€): 250,000,000.00 IRSA-CNR Operational Unit funding (€): 300,000.00.
  Role: Team member of the Scientific activity in WP2_AZ3_UO_04 "Bioremediation Technologies: applications of innovative approaches for biological decontamination of contaminated marine sediments". Deliverables and publications were produced throughout the project.

- **ModelPROBE** - Model driven Soil Probing, Site Assessment and Evaluation. Funded under the European call 7th Framework Program Theme 6.3 Environmental Technologies – Grant Agreement No. 213161.
  Duration: 1/6/2008 - 30/9/2012.

Total funding (€): 3,397,609.00. IRSA-CNR funding (€): 99,600.00.
Role: Team member of the Scientific activity in WP6 "Monitoring dechlorinating microorganisms as map of contamination and naturally occurring dechlorination processes by advanced biomolecular tools". Deliverables and publications were produced throughout the project. https://cordis.europa.eu/project/id/213161

SUPERVISION, MENTORING AND TRAINING ACTIVITIES

- **Scientific responsibility for Research Fellowship** prot. n. 99831 of 25/03/2024 awarded to Dr. Emiliana Pandolfo.
- **Scientific responsibility for Research Fellowship** prot n. 0068475 awarded on 01/02/2021 to Dr. Maria Letizia Di Franca.

Supervision of Master's Theses

1. Alessandra Abignente "Metagenomic analysis in engineered systems for the bioremediation of sites contaminated by chlorinated compounds" (External Supervisor: Bruna Matturro, Internal Supervisor: Daniela Uccelletti). 2023-2024, University of Rome Sapienza, Faculty of Mathematical, Physical and Natural Sciences, Department of Biology and Biotechnology "Charles Darwin" Degree in Biotechnology and Genomics for Industry and Environment.
2. Maria Vittoria Barbieri "Bioremediation of marine sediments contaminated by chlorinated solvents (PCB, PCE), characterization of microbial communities with biomolecular methods (CARD-FISH, qPCR, RT-qPCR) and isolation of degrading strains" (Supervisors: Prof. Roberta Congestri, Dr. Simona Rossetti). 2015-2016. University of Rome Tor Vergata, Faculty of Evolutionary Biology, Ecology and Applied Anthropology.
3. Emauela Frascadore "Estimation of the biorecovery potential of marine sediments contaminated by Polychlorinated Biphenyls (PCB) and hydrocarbons using biomolecular techniques" (Supervisors: Prof. Claudio Palleschi, Dr. Simona Rossetti). 2014 – 2015. University of Rome Sapienza, Faculty of Industrial and Environmental Biotechnology.
4. Daniele Costantini "Reductive dechlorination process of chlorinated ethenes: estimation of biological activity and correlation with contaminant degradation kinetics" (Supervisors Prof. Mauro Majone, Dr. Simona Rossetti). 2012-2013. University of Rome Sapienza, Faculty of Industrial and Environmental Biotechnology.
5. Ilario Pesoli "Monitoring of dechlorinating bacteria in aquifers contaminated by chlorinated solvents using biomolecular methods" (Supervisors Prof. Mauro Majone, Dr. Simona Rossetti). 2009-2010. University Sapienza of Rome, Faculty of Industrial and Environmental Biotechnology.
6. Giulio Romano "Reductive dechlorination process of chlorinated ethenes: biodegradation kinetics, structure and activity of dechlorinating biomass" (Supervisors Prof. Mauro Majone, Dr. Simona Rossetti). 2011-2012. University Sapienza of Rome, Faculty of Industrial and Environmental Biotechnology.
7. Ana Lúcia Ferreira "Isolation and characterization of PHAs-accumulating bacteria using HSSL" (Supervisors Prof. Luisa Suanes Serafim, Dr. Simona Rossetti). 2013. University of Aveiro (Portugal) Faculty of Biotechnology.
8. Catarina Rangel "Selection of PHA producing bacteria using industrial waste" (Supervisors Prof. Luisa Suanes Serafim, Dr. Simona Rossetti). 2015. University of Aveiro (Portugal) Faculty of Biotechnology.
9. Diogo Queiros "PHA production by mixed cultures: a way to valorize industrial waste" (Supervisors Prof. Luisa Suanes Serafim, Dr. Simona Rossetti). 2014. University of Aveiro (Portugal) Faculty of Biotechnology.
10. Michele Pratola "Application of biomolecular techniques for the microbiological characterization of sites contaminated by chlorinated solvents". (Supervisors Prof. Mauro Majone, Dr. Simona Rossetti). 2011-2012. University Sapienza of Rome, Faculty of Industrial and Environmental Biotechnology.
11. Daniele Costantini "In situ hybridization techniques and Real-Time PCR for quantitative estimation of dechlorinating bacteria" (Supervisors Prof. Mauro Majone, Dr. Simona Rossetti). 2009-2010. University Sapienza of Rome, Faculty of Industrial and Environmental Biotechnology.
12. Giorgia Laudini "Molecular characterization of enrichment cultures involved in the aerobic degradation of chlorinated aliphatic compounds" (Supervisors Prof. Mauro Majone, Dr. Simona Rossetti). 2009-2010. University Sapienza of Rome, Faculty of Industrial and Environmental Biotechnology.
13. Supervision of Internship for the Second Level Master's Degree in "Characterization and technologies for the bioremediation of contaminated sites" at the University of Rome Sapienza (https://www.masterbonifica.uniroma1.it/)
14. Fabio Mussino "Advanced methodologies for the microbiological characterization of contaminated sites" (Supervisor Dr. Simona Rossetti). 2016.
15. Enrica Presta "Application of biomolecular techniques for the estimation of biodegradation potential in marine sediments contaminated by chlorinated solvents" (Supervisor Dr. Simona Rossetti). 2013 - 2014. Claudio Sechi "Biomolecular characterization methodologies of microbial communities involved in biological decontamination processes" (Supervisor Dr. Simona Rossetti). 2014.

16. Antonietta Ferraro "Biomolecular monitoring of dechlorinating bacteria in a treatability study" (Supervisor Dr. Simona Rossetti). 2014.
17. Chiara Drius "Application of FISH and CARD-FISH biomolecular techniques for the analysis of dechlorinating bacteria in laboratory enrichments and environmental samples" (Supervisor Dr. Simona Rossetti). 2011.
18. Andrea Uras "Application of FISH and CARD-FISH biomolecular techniques for the analysis of dechlorinating bacteria in laboratory enrichments and environmental samples" (Supervisor Dr. Simona Rossetti). 2011.
19. Supervision of PhD Students
20. Diogo Queiros "Valorization of industrial wastes through eco-engineering of mixed microbial cultures" (Supervisors Prof. Luisa Suanes Serafim, Dr. Simona Rossetti). 2015-2016. PhD in Industrial and Environmental Biotechnology - University of Aveiro, Portugal.
21. Luz Maria Bretòn-Deval "Evaluation of performances of fluidized bed bioreactors coupled to abiotic filters when challenged with significant increase of PCE concentration in their feed" (Supervisor Dr. Simona Rossetti). 2013. PhD in Biotechnology and Bioengineering - Center for Research and Advanced Studies of the Instituto Politecnico Nacional, IPN (Mexico).

EDITORIAL ACTIVITY IN SCIENTIFIC JOURNALS, ROLE IN ASSOCIATIONS

- **Guest editor for "Applied microbiology and biotechnology"** (IF 3.9) In Topical Collection titled" Pollutant Degradation through Microbial Consortia (ACTIVE) https://link.springer.com/collections/fbfgceceab

- **Topical advisory member** for Bioengineering MDPI (IF 5.046)

- **Guest editor for Bioengineering** MDPI (IF 5.046) in Special Issue "Advanced Bioremediation Technologies and Processes www.mdpi.com/journal/bioengineering/special_issues/9C7IQ9OF49 (ACTIVE); Special Issue "Bioengineering in Remediation of Polluted Environments" www.mdpi.com/journal/bioengineering/special_issues/Polluted_Environments (CLOSED);

- **Guest editor for Applied Sciences** (IF 2.7) in Special Issue "Sustainable Technologies and Approaches for Reducing Environmental Impacts of Industrial Activities" https://www.mdpi.com/journal/applsci/special_issues/5138T5H459 (ACTIVE);

- **Reviewer** for ISI Journals including: Bioengineering, Chemosphere, Frontiers, Applied Microbiology, Science Of Total Environments, Environmental Microbiology And Environmental Microbiology Report, Journal Of Hazardous Materials, Science Of The Total Environments, Environmental Microbiology, Annals Of Microbiology, Chemosphere, Journal Of Environmental Management, Water Research, Journal Of Microbiological Methods, Environmental Pollution, Microbial Ecology… and many others.
- **Member of the EFB** (European Federation of Biotechnology), Environmental Biotechnology Division www.efbiotechnology.org/envbiotechnology/

SCIENTIFIC RESPONSIBILITY AND PARTICIPATION IN CNR AGREEMENTS WITH EXTERNAL/INTERNAL CLIENTS TO CNR, PARTICIPATION IN SPIN-OFF COMPANIES

- **SPIN-OFF AND START-UP COMPANY**: Founding member of the start-up company Trieme – Technologies for Reliable and Innovative Remediation www.trireme.it (since July 2020 – ongoing).

- **OPERATIVE AGREEMENT IRSA-ISPRA**: Responsible for the Agreement for drafting biomonitoring protocols under the Framework Agreement between ISPRA and CNR signed on June, 2019.
  Role: Agreement Responsible (January, 2024).

- **ABAG GOLDER** (Responsible: Matturro Bruna) Fee-based agreements for biomolecular analysis between IRSA-CNR and private companies. Duration: 2019-2021
  Role: Technical-scientific responsibility for the biomonitoring of biomarkers of pollutant biodegradation processes in the context of remediation interventions. Technical reports were produced (March, 2021).

- **ERM** (year 2020, Responsible: Aulenta Federico): Fee-based agreements for microcosm studies between IRSA-CNR and private company. Duration: 1 year (completed). **Role: Technical-scientific execution** of the biomonitoring of biomarkers of pollutant biodegradation processes in the context of remediation interventions. Support for the drafting of technical-scientific reports.
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- **AMAF2021** (Responsible: Matturro Bruna): Fee-based agreement for biomolecular analysis between IRSA-CNR and private companies. Duration: 1 year (completed).
  Role: Technical-scientific responsibility for the biomonitoring of biomarkers of pollutant biodegradation processes in the context of remediation interventions. Technical reports were produced (December, 2021).

- **AMAF2019** Fee-based agreements for biomolecular analysis between IRSA-CNR and private companies. Duration: 2 years (completed).
  Role: Technical-scientific execution of the biomonitoring of biomarkers of pollutant biodegradation processes in the context of remediation interventions. Drafting of technical-scientific reports. (2019-2020).

- **AMAF2017**: Fee-based agreements for biomolecular analysis between IRSA-CNR and private companies. Duration: 2 years (completed).
  Role: Technical-scientific execution of the biomonitoring of biomarkers of pollutant biodegradation processes in the context of remediation interventions. Drafting of technical-scientific reports.

PARTICIPATION IN PROJECT EVALUATION COMMISSIONS, JOB POSITION ASSIGNMENT AND EVALUATION COMMISSIONS

- **COMMISSION MEMBER and SCIENTIFIC RESPONSIBLE** for the Selection call n. AdR 036-2023 RM Prot. N. 414421 of 21/12/2023 for the awarding of a Professional Research Grant under the BISURE PRIN project.

- **MISE EXPERT EVALUATOR:** MISE-Fondo calls for sustainable growth, Ministerial Decree of 31/12/2021 – "Agreements for Innovation". Duration: from 20/10/2022 – ongoing. Appointment

- **EXPERT FOR THE EUROPEAN COMMISSION**: Projects for which availability for evaluation was requested: EU Horizon Europe - MISSION SOIL (EX2021D406641; July 2020).

- **COMMISSION MEMBER:** Selection call IRSA-CNR n. 400.03.IRSA.PNRR.01 for the awarding of 1 III level Researcher unit, Fixed-term in microbial ecology.

- **COMMISSION MEMBER and SCIENTIFIC RESPONSIBLE:** Selection call IRSA-CNR n. 018/2020 RM2020 for the awarding of a Professional Research Grant under the Electra project.

- **COMMISSION MEMBER:** Selection call IRSA-CNR n. 126.114.BS.006/2021 RM for the awarding of a scholarship under the Electra project.

- **COMMISSION MEMBER**: Selection call IRSA-CNR n° 010/2018 RM for the awarding of 1 Professional Research Grant under the Electra project.

INSTITUTIONAL AND MANAGERIAL ACTIVITIES WITHIN THE ENTITY

- **Representative of Researchers in the Institute Council** IRSA Duration: from 4/7/2019 to 25/6/2023

- **Coordinator of the Covid/Pandemics Working Group IRSA** Duration: from 03/08/2020 – ongoing

- **Participant in the Biomolecular Working Group IRSA** for research and development of biomolecular methodologies in the environmental sector (2017)

INTERNAL TECHNICAL AND MANAGERIAL ASSIGNMENTS

- **Responsible of Molecular Biology Laboratory** at IRSA CNR Montelibretti (2021)

PARTICIPATION IN INITIATIVES AND EVENTS FOR NATIONAL AND INTERNAL DISSEMINATION

- **DEHALOCON IV:** Keynote speaker with an oral presentation "Metagenomics of a Mini-Pilot Scale Bioreactor Utilizing Polyhydroxyalkanoates and Biochar as Bio-Based Materials for Enhanced Reductive Dechlorination Processes" (26-28 September, 2024, China). Role: Invited Speaker, https://dehalocon2024.scievent.com/dashboard/
- **ICME13 Course**: CRASH COURSE ON NANOPORE SEQUENCING FOR MICROBIAL ECOLOGY (11- 14 March 2024, CNR-IRSA, Rome, Italy). Role: Invited Speaker, Organizer https://www.microbeco.org/icme13-roma-2024/
- **CNR – IRSA Seminar**: Bioremediation of contaminated sites: experiences from laboratory scale to field remediation (April 23, 2023). Role: Speaker https://eventi.irsa.cnr.it/event/3/
- **CNR – IRSA Online Workshop**: "Contaminated sites: characterization, monitoring, and remediation technologies" I-session - Characterization and monitoring of contaminated sites - Bioremediation of sites contaminated by chlorinated compounds: how omic sciences support the development of innovative biotechnologies and remediation strategies" (January 26, 2022). Role: Speaker https://eventi.irsa.cnr.it/event/13/
- **Organization of DehaloCon III Conference** - Third International Conference on Anaerobic Biological Dehalogenation from September 27 to 30, 2021. Role: Co-chair, Scientific Committee, Organizing Committee
- **Researchers' Night 2019**: Seminar "Molecular biology at the service of environmental remediation" (September 27, 201). Role: Speaker. http://www.mlib.cnr.it/notte-della-ricerca/seminari/
- **Organization of IRSA-CNR workshop** "Contaminated site remediation: Application of advanced tools to control biological processes" (Editions 2011, 2013). Role: Member of the organizing committee, Speaker https://www.cnr.it/it/evento/13195/contaminated-site-remediation-application-of-advanced-tools-to-control-biological-processes

PUBLICATIONS
JOURNAL ARTICLES with impact factor (https://orcid.org/0000-0002-9250-5633)

P1. Lorini L, Rossi MM, Di Franca ML, Villano M, **Matturro B,** Petrangeli Papini M. A Coupled Adsorption–Biodegradation (CAB) Process Employing a Polyhydroxybutyrate (PHB)–Biochar Mini Pilot-Scale Reactor for Trichloroethylene-Contaminated Groundwater Remediation. Bioengineering. 2025; 12(2):148. https://doi.org/10.3390/bioengineering12020148

P2. Zeppilli M, **Matturro B**. Bioremediation Experience Collected in "Bioengineering in Remediation of Polluted Environments": A Closing Perspective by Guest Editors. Bioengineering. 2025; 12(2):122. https://doi.org/10.3390/bioengineering12020122

P3. Yaqoubi GH, Sassetto G, Presutti M, Belfaquir M , **Matturro B,** Rossetti S, Lorini L, Petrangeli Papini M, Zeppilli M. Evaluation of the biological treatment of a real contaminated groundwater through reductive dechlorination biostimulation. *Front. Chem. Eng.*Sec. Environmental Chemical Engineering, Volume 7 - 2025 | doi: 10.3389/fceng.2025.1511251

P4. Bocci, V., Galafassi, S., Levantesi, C., Crognale, S., Amalfitano, S., Congestri, R., **Matturro, B.,** Rossetti, S., & Di Pippo, F. (2024). Freshwater plastisphere: A review on biodiversity, risks, and biodegradation potential with implications for the aquatic ecosystem health. *Frontiers in Microbiology, 15*, 1395401. https://doi.org/10.3389/fmicb.2024.1395401

P5. Resitano, M., Tucci, M., Mezzi, A., Kaciulis, S., **Matturro, B.,** D'Ugo, E., Bertuccini, L., Fazi, S., Rossetti, S., Aulenta, F., & Cruz Viggi, C. (2024). Anaerobic treatment of groundwater co-contaminated by toluene and copper in a single chamber bioelectrochemical system. *Bioelectrochemistry, 158*, 108711. https://doi.org/10.1016/j.bioelechem.2024.108711

P6. Botti, A., Musmeci, E., **Matturro, B.,** Vanzetto, G., Bosticco, C., Negroni, A., Rossetti, S., Fava, F., Biagi, E., & Zanaroli, G. (2024). Chemical-physical parameters and microbial community changes induced by electrodes polarization inhibit PCB dechlorination in a marine sediment. *Journal of Hazardous Materials, 469*, 133878. https://doi.org/10.1016/j.jhazmat.2024.133878

P7. **Matturro, B.,** Di Franca, M. L., Tonanzi, B., Cruz Viggi, C., Aulenta, F., Di Leo, M., Giandomenico, S., & Rossetti, S. (2023). Enrichment of aerobic and anaerobic hydrocarbon-degrading bacteria from multicontaminated marine sediment in Mar Piccolo site (Taranto, Italy). *Microorganisms, 11*(11), 2782. https://doi.org/10.3390/microorganisms11112782

P8. Tucci, M., Fernández-Verdejo, D., Resitano, M., Ciacia, P., Guisasola, A., Blánquez, P., Marco-Urrea, E., Cruz Viggi, C., **Matturro, B.,** Crognale, S., & Aulenta, F. (2023). Toluene-driven anaerobic biodegradation of chloroform in a continuous-flow bioelectrochemical reactor. *Chemosphere, 338*, 139467. https://doi.org/10.1016/j.chemosphere.2023.139467

P9. Cruz Viggi, C., Tucci, M., Resitano, M., Palushi, V., Crognale, S., **Matturro, B.,** Petrangeli Papini, M., Rossetti, S., Aulenta, F. (2023). Enhancing the anaerobic biodegradation of petroleum hydrocarbons in soils with electrically conductive materials. *Bioengineering, 10*(4), 441. https://doi.org/10.3390/bioengineering10040441

P10. Tucci, M., Viggi, C.C., Crognale, S., **Matturro, B.,** Rossetti, S., Capriotti, A.L., Cavaliere, C., Cerrato, A., Montone, C.M., Harnisch, F., & Aulenta, F. (2022). Insights into the syntrophic microbial electrochemical oxidation of toluene: A

combined chemical, electrochemical, taxonomical, functional gene-based, and metaproteomic approach. *Science of the Total Environment, 850*, 157919. https://doi.org/10.1016/j.scitotenv.2022.157919

P11. Viggi, C.C., Tucci, M., Resitano, M., **Matturro, B.,** Crognale, S., Feigl, V., Molnár, M., Rossetti, S., & Aulenta, F. (2022). Passive electrobioremediation approaches for enhancing hydrocarbons biodegradation in contaminated soils. *Science of the Total Environment, 845*, 157325. https://doi.org/10.1016/j.scitotenv.2022.157325

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P23. Cruz Viggi, C., Tucci, M., **Matturro, B.,** Crognale, S., Pietrini, I., Rossetti, S., & Aulenta, F. (2021). The microbial electrochemical snorkel: A passive electrobioremediation system for enhancing hydrocarbons biodegradation in contaminated soils. Paper presented at *ICEEM 11, 11th International Conference on Environmental Engineering and Management*, September 8-10, Muttenz, Switzerland (Online).

P24. **Matturro, B**., Zeppilli, M., Lai, A., Majone, M., & Rossetti, S. (2021). Metagenomics of a bioelectroremediation system treating TCE and Cr(VI) co-contamination: Revealing microbial diversity and interactions. Paper presented at *Dehalocon III*, September 27-30, Rome, Italy.

P25. Tucci, M., Cruz Viggi, C., Tomei, P., **Matturro, B.,** Crognale, S., Pietrini, I., Rossetti, S., & Aulenta, F. (2020). All-in-one: Removal of oxidizable (hydrocarbons) and reducible (sulfate) contaminants from contaminated groundwater in a single bioelectrochemical reactor. Paper presented at the *71st annual meeting ISE (International Society of Electrochemistry)*, August 31-September 3, Belgrade, Serbia (Online).

P26. Cappello, S., Cruz Viggi, C., Yakimov, M., Rossetti, S., **Matturro, B.,** Molina, L., Segura, A., Marqués, S., Yuste, L., Sevilla, E., Rojo, F., Sherry, A., Mejeha, O. K., Head, I. M., Malmquist, L., Christensen, J. H., Kalogerakis, N., & Aulenta, F. (2018). Electrobioremediation of crude oil-contaminated marine sediments: Results of a long-term, mesocosm-scale experiment. Paper presented at the *4th European International Society for Microbial Electrochemistry and Technology Meeting*, September 12-14, Newcastle upon Tyne, United Kingdom.

P27. **Matturro, B.,** & Rossetti, S. (2017). Hunting for microbes able to detoxify PCB contaminated marine sediments: Experiences from a chronically contaminated site of national interest in Italy. Paper presented at *AquaConSoil*, June 26-30, Lyon, France.

P28. **Matturro, B.,** & Rossetti, S. (2017). High-throughput sequencing analysis revealed Dehalobium enrichment during PCE-to-ethene dechlorination in marine sediments. Paper presented at *Dehalocon II*, Jena, Germany.

P29. **Matturro, B.,** & Rossetti, S. (2017). Stima predittiva del potenziale di biorecupero di siti inquinati da solventi clorurati con metodi biomolecolari avanzati. Paper presented at *Remtech*, Ferrara, Italy.

P30. **Matturro, B.,** & Rossetti, S. (2017). High-throughput sequencing analysis revealed microbe interactions during PCB detoxification in contaminated marine sediments. Paper presented at *FEMS*, July 9-13, Valencia, Spain.

P31. Petrangeli Papini, M., Arjmand, F., Majone, M., Pierro, L., Sagliaschi, M., Sucato, S., Bartsch, E., Alesi, E., **Matturro, B.,** & Rossetti, S. (2016). Accoppiamento dei groundwater circulation wells (GCWs) con la declorazione riduttiva biologica per il trattamento di sorgenti residuali di DNAPLs. Paper presented at *Siti contaminati: Esperienze negli interventi di risanamento. SiCon Workshop*, February 11-13, Brescia, Italy.

P32. Petrangeli Papini, M., Majone, M., Pierro, L., Arjmand, F., Sagliaschi, M., Sucato, S., Alesi, E., Barstch, E., Rossetti, S., & **Matturro, B.** (2016). In situ remediation of aged DNAPL source zones by coupling chemical/physical and biological processes through Groundwater Circulation Wells: Results from the first full-scale test. Paper presented at *SIDISA 2016, X Simposio Internazionale di Ingegneria Sanitaria Ambientale*, June 19-23, Rome, Italy.

P33. **Matturro, B.,** Di Lenola, M., Grenni, P., Barra Caracciolo, A., Ubaldi, C., & Rossetti, S. (2015). Chlorinated byphenil (PCB) contamination in marine sediments: Role of the autochthonous bacteria and efficacy of bioaugmentation on contaminant biodegradation. Paper presented at the *6th European Bioremediation Conference*, June 2015, Chania, Greece.

P34. Petrangeli Papini, M., Majone, M., Pierro, L., Sagliaschi, M., Sucato, S., Bartsch, E., **Matturro, B.,** & Rossetti, S. (2015). Coupling groundwater recirculation by GCW and chemical/biological reductive processes for residual DNAPL source removal. Lab investigation and large pilot testing. Paper presented at the *42° Congresso IAH – AQUA 2015*, Rome, Italy.

P35. **Matturro, B.,** & Rossetti, S. (2014). Biomonitoring of chlorinated solvents contamination in groundwater: Four years of field experience. Paper presented at the *International Water Association (IWA) Conference*, Lisbon, Portugal.

P36. Cruz Viggi, C., Bellagamba, M., **Matturro, B.,** Rossetti, S., & Aulenta, F. (2014). An innovative bioelectrochemical approach to accelerate hydrocarbons biodegradation in anoxic contaminated marine sediments: The "Oil-Spill Snorkel". Paper presented at the *2nd European International Society for Microbial Electrochemistry and Technology Meeting*, September 3-5, Alcalá de Henares, Madrid, Spain.

P37. **Matturro, B.,** Majone, M., Aulenta, F., Tandoi, V., & Rossetti, S. (2012). Kinetics of reductive dechlorination of chlorinated ethenes: Dynamics, abundance, and activity of dechlorinating population. Paper presented at *Environmental Microbiology and Biotechnology in the frame of the knowledge-based bio & green economy (EMB)*, Bologna, Italy.

P38. Rossetti, S., **Matturro, B.,** Aulenta, F., Majone, M., & Tandoi, V. (2011). Field validation of molecular tools for tracking key-degrading bacteria at chlorinated solvents contaminated aquifers. Paper presented at the *5th European Bioremediation Conference*, Chania, Greece.

P39. **Matturro, B**., Aulenta, F., & Rossetti, S. (2010). Confronto tra tecniche di ibridazione in situ e Real-time PCR per il monitoraggio di specie decloranti in campioni ambientali: Vantaggi e potenzialità applicative. Paper presented at the *Meeting di Microbiologia Ambientale*, Bertinoro, Italy.
P40. Rossetti, S., **Matturro, B.**, Tandoi, V., Aulenta, F., Petrangeli Papini, M., & Majone, M. (2010). In situ molecular tracking of dehalogenating bacteria in groundwater and soil contaminated by chlorinated solvents. Paper presented at *ConSoil*, Salzburg Congress, Austria.
P41. Rossetti, S., **Matturro, B.,** Aulenta, F., Valentino, F., Petrangeli Papini, M., & Tandoi, V. (2010). Biomonitoring of chlorinated solvents-degrading bacteria in contaminated soil and groundwater. Paper presented at the *International Biotechnology Symposium and Exhibition (IBS)*, Rimini, Italy.
P42. Tandoi, V., Aulenta, F., **Matturro, B.,** Rossetti, S., & Volpe, A. (2009). Application of molecular tools for the identification and quantification of dechlorinating microorganisms. Paper presented at *Ecomondo – Bonifiche*, Università di Bologna, Italy.
P43. Rossetti, S., Tandoi, V., **Matturro, B**., Aulenta, F., Majone, M., & Petrangeli Papini, M. (2009). Metodi biomolecolari per la caratterizzazione di siti inquinati: Dallo sviluppo di laboratorio all'applicazione su campo. Paper presented at *Metodologie avanzate nella caratterizzazione dei siti inquinati, RemTech*, Ferrara, Italy.

POSTERS PRESENTED AT CONFERENCES
P1. **Matturro, B**., & Rossetti, S. (2024). Microbial biodiversity of impacted marine sediments: The case of Mar Piccolo of Taranto. Poster presented at the *Forum Nazionale della Biodiversità*, May 20-22, Palermo, Italy.
P2. **Matturro, B.,** Rossetti, S., Pelino, A., Abignente, A., & Petrangeli Papini, M. (2024) Integrating genomics, metagenomics, and kinetics for bio-kinetic correlations in D. mccartyi enriched consortia: Implications for field-scale biodegradation modeling. Poster presented at the *Chlorinate Conference Battelle*, June 2-6, Denver, CO, USA.
P3. **Matturro, B.,** & Rossetti, S. (2024). Exploring digital droplet PCR as a third-generation quantification method for rapid and sensitive biomonitoring of reductive dechlorination biomarkers. Poster presented at the *Chlorinate Conference Battelle*, June 2-6, Denver, CO, USA.
P4. **Matturro, B.,** Di Franca, M. L., Rossetti, S., Lorini, L., Rossi, M., & Petrangeli Papini, M. (2023). Metagenomics of a column bioreactor with polyhydroxyalkanoates (PHA) and biochar as biomaterials to prompt reductive dechlorination. Poster presented at the *Sixth International Symposium on Bioremediation and Sustainable Environment Technologies*, May 8-11, Austin, TX, USA.
P5. **Matturro, B.,** Di Franca, M. L., & Rossetti, S. (2023). Advances for the rapid and sensitive biomonitoring of the reductive dechlorination's biomarkers: Digital droplet PCR. Poster presented at the *Sixth International Symposium on Bioremediation and Sustainable Environment Technologies*, May 8-11, Austin, TX, USA.
P6. **Matturro, B.,** & Rossetti, S. (2021). Metagenomic analysis of a novel Dehalococcoides mccartyi enrichment culture capable of PCE-to-ethene dechlorination. Poster presented at *Dehalocon III*, September 27-30, Rome, Italy.
P7. **Matturro, B**., & Rossetti, S. (2017). High-throughput sequencing analysis revealed Dehalobium enrichment during PCE-to-ethene dechlorination in marine sediments. Poster presented at *Dehalocon II*, Jena, Germany.
P8. Petrangeli Papini, M., Majone, M., Pierro, L., Sagliaschi, M., Sucato, S., Alesi, E., Bartsch, E., Rossetti, S., & **Matturro, B.** (2016). First full-scale test for reductive dechlorination of residual DNAPLs in a 30-m heterogeneous aquifer via groundwater circulation well (GCW). Poster presented at the *Tenth International Conference on Remediation of Chlorinated Compounds*, Palm Springs, CA, USA.
P9. Petrangeli Papini, M., Pierro, L., Arjmand, F., Sagliaschi, M., Sucato, S., Alesi, E., Bartsch, E., Rossetti, S., & **Matturro, B**. (2015). Polyhydroxyalkanoate as a slow-release carbon source for in situ bioremediation of contaminated aquifers: From lab investigation to pilot-scale testing on field. Poster presented at the *8th European Symposium on Biopolymers (ESBP)*, September 15-18, Rome, Italy.
P10. **Matturro, B.,** Emanuela, E., Cappello, S., & Rossetti, S. (2015). GeneCARD-FISH detection of alkB genes in Alkanivorax borkumensis SK2T by a novel whole detection assay based on gene hybridization. Poster presented at the *6th European Bioremediation Conference*, Chania, Greece.
P11. **Matturro, B.,** Frascadore, E., & Rossetti, S. (2015). GeneCARD-FISH assay for in situ detection of AlkB2 gene involved in Alcanivorax borkumensis SK2T hydrocarbon biodegradation. Poster presented at the *Kill•spill meeting*, Ghent, Belgium.
P12. **Matturro, B.,** Tandoi, V., & Rossetti, S. (2014). Microbial population dynamics and analysis of reductive dehalogenase genes expression in a PCE-dechlorinating mixed culture throughout the establishment of pseudo steady state operating conditions. Poster presented at the *Ninth International Conference on Remediation of Chlorinated and Recalcitrant Compounds*, Monterey, CA, USA.
P13. Breton-Deval, L., Rossetti, S., Ríos-Leal, E., **Matturro, B.,** & Poggi-Varaldo, H. (2014). Environmental molecular diagnostic for monitoring and confirmation of bioremediation of water polluted with perchloroethylene. Poster presented at the *Ninth International Conference on Remediation of Chlorinated and Recalcitrant Compounds*, Monterey, CA, USA.

P14. **Matturro, B.,** & Rossetti, S. (2012). Predictive evaluation of bioremediation potential of chlorinated solvents contaminated sites. Poster presented at *Environmental Microbiology and Biotechnology in the frame of the knowledge-based bio & green economy (EMB)*, Bologna, Italy.

Autorizzo il trattamento dei miei dati personali ai sensi del Decreto Legislativo 30 giugno 2003, n. 196 "Codice in materia di protezione dei dati personali"

La sottoscritta dichiara di essere consapevole che il presente curriculum vitae sarà pubblicato sul sito istituzionale dell'Ateneo, nella Sezione "Amministrazione trasparente , nelle modalità e per la durata prevista dal d.lgs. n. 33/2013, art. 15.