UNIVERSITÀ
POLITECNICA
DELLE MARCHE

Supervisor: Prof. Alessia Amato

Dept. of Life and Environmental Sciences

UNIVERSITÀ POLITECNICA DELLE MARCHE

Supervisor: Prof. Alessia Amato

Short CV of the supervisor

DISVA
DIPARTIMENTO DI SCIENZE DELLA VITA E DELL'AMBIENTE

- **Associated Professor of Analysis, Design and Control of Chemical Processes** at Università Politecnica delle Marche (UnivPM), Italy, since 2025.
- Previously researcher (2020–2025) at UnivPM.
- **Reviewer** for more than 20 journals and competitive **research projects at national and international level**.
- **Tutor/co-tutor for more than 5 PhD candidates** and supervisor of over 30 Master's theses about **urban mining, sustainability and circularity quantification**

Alessia Amato carries out research activities within the **Environmental Technologies research group at DiSVA**. Research is aimed at the development of **innovative processes for the valorisation of waste as a source of secondary raw materials**. **Environmental sustainability assessment and circularity evaluation** applied to processes and scenarios in different fields represent the guiding theme of the entire research activity.

The scientific career is characterised by several national and international collaborations, for example with **University of L'Aquila, Sapienza University of Rome, the University of Málaga (Spain) and the University of Tirana, University of Wyoming (USA), Eskisehir Technical University Turkey, Stazione Zoologica di Napoli (Italy), Institute for Mediterranean and Subtropical Horticulture "La Mayora" Spain, Tulancingo University of Technology (Chile)** .

SUN RISE

EXCELLENCE IN RESEARCH

ORCID profile: https://orcid.org/0000-0002-0840-1584
Scopus profile: https://www.scopus.com/authid/detail.uri?authorId=56645861200
UnivPM: https://www.univpm.it/Entra/Docenti_1/Scienze_1/docname/idsel/839/docname/ALESSIA%20AMATO

UNIVERSITÀ POLITECNICA DELLE MARCHE

Supervisor: Prof. Alessia Amato

Research topics, Main Research Projects

DISVA
DIPARTIMENTO DI SCIENZE DELLA VITA E DELL'AMBIENTE

Research topics

Main research topics include:

- recovery of critical and precious metals from WEEE and batteries through **hydrometallurgical and biotechnological processes;**
- valorisation of residues using a **circular economy** approach;
- Environmental sustainability, Life cycle Assessment, Carbon footprint, Water Footprint, Circularity estimation
- contaminated wastewater treatment;
- sustainable **waste management** after emergency events;
- environmental assessment of agricultural residues.

Main Italian and European research projects

2025- Ongoing –PI Italian Fund for Science – BRAVE - Biotechnologies for the recovery of critical RAw materials from Vehicles

2024-Ongoing-subcontractor of Univaq LIFE23-ENV-IT-LIFE-GRAPhiREC/101147368- Waste GRAPhite RECycling for new lithium and alkaline batteries.

2021- 2025 Sustainability analysis LIFE SEDREMED – Enhanced bioremediation of marine sediments (LIFE20 ENV/IT/000572)

2023-2026 – RU Research Projects of National Interest – PRIN-HYDROCAVI-TECH, Sustainable Management strategies of liquid waste for transition to circular economy through hydrodynamic cavitation technology

She has participated in several national and international projects, including H2020, PSR, LIFE

Ministero dell'Università e della Ricerca

FIS

BRAVE

SUN RISE

EXCELLENCE IN RESEARCH

UNIVERSITÀ POLITECNICA DELLE MARCHE

Supervisor: Prof. Alessia Amato

DISVA
DIPARTIMENTO DI SCIENZE DELLA VITA E DELL'AMBIENTE

Publications, Paper Selection, and Bibliometric Indices

Publications

- Author of 61 scientific papers in leading international journals (mostly first quartile).
- Authors of 3 National patents related to metals recovery from WEEE
- Collaborations with international researchers
- Authors of more than 20 contributions at national and international conferences.

Selection of papers (2024–2026)

- Becci, A., Beolchini, F., Labolani, D., & **Amato, A.** (2026). Environmental sustainability assessment processes for flat panel displays dismantling. *Waste Management*, *211*, 115284.
- **Amato, A**., Becci, A., Merli, G., Innocenzi, V., Vegliò, F., Villen-Guzman, M., ... & Beolchini, F. (2025). End of life permanent magnet recycling: state of the art and material flow analysis in the framework of potential substitution of RE-based magnets with ferrites. Journal of Environmental Chemical Engineering, 120928 DOI: 10.1016/j.jece.2025.120928 .
- Becci, A., Rodríguez-Maroto, J. M., Paz-Garcia, J. M., Beolchini, F., & **Amato, A.** (2025). Sustainable Optimization of Biotechnology for Cu Recovery from Printed Circuit Boards. ACS omega, 10(36), 41190-41199. DOI: 10.1021/acsomega.5c03870
- **Amato, A.,** Ippolito, N. M., D'Arcangelo, M., Becci, A., Innocenzi, V., & Ferella, F. (2025). Vanadium, molybdenum and nickel: A sustainability analysis of the extraction from ores versus recovery from spent catalysts. Journal of Cleaner Production, 515, 145817 DOI: 10.1016/j.jclepro.2025.145817.
- Becci, A., **Amato, A.,** D'Arcangelo, M., Merli, G., & Beolchini, F. (2024). Optimization of Sustainable Processes for the Extraction of Precious Metals from End-Of-Life Printed Circuit Boards. *Chemical Engineering Transactions*, *111*, 607-612. 10.3303/CET24111102

Bibliometric Indices: h-index: 25, n. documents 61, citations 2060

SUN RISE SMALLER (STRATEGIC) UNIVERSITIES NETWORK FOR REGIONAL INNOVATIVE AND SUSTAINABLE EVOLUTION

EXCELLENCE IN RESEARCH

UNIVERSITÀ POLITECNICA DELLE MARCHE

Supervisor: Prof. Alessia Amato

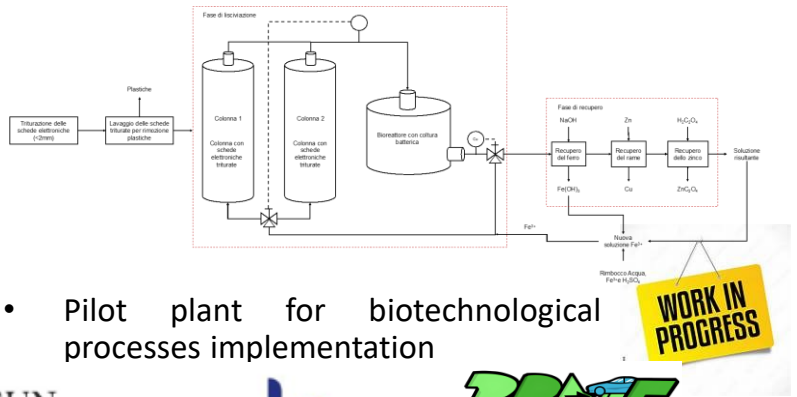
Research Group Description

DISVA
DIPARTIMENTO DI SCIENZE DELLA VITA E DELL'AMBIENTE

Members of the research group of Environmental technology lab

- Prof. Francesca Beolchini (Full Professor)
- Prof. Alessia Amato (Associate Professor)
- Dr Alessandro Becci (Researcher)
- 1 Post-doc fellows
- 4 PhD students

			
Spectrophotometer	Autoclave	Cutting mill	Planetary ball mill
			
Centrifuge	XRF Analyzer	Biological Safety Cabinet	Bioreactor



- Pilot plant for biotechnological processes implementation

SUN RISE

EXCELLENCE IN RESEARCH

UNIVERSITÀ POLITECNICA DELLE MARCHE

Supervisor: Alessia Amato

Project idea

Development of innovative and sustainable bio/hydrometallurgical processes for the recovery of rare earth from permanent magnets necessary for the green transition and the medical applications

…open to any other valuable and innovative project proposal

SUN RISE

EXCELLENCE IN RESEARCH