

Curriculum accademico

Il curriculum accademico del **Prof. FRANCESCA BEOLCHINI**

Francesca BEOLCHINI, is currently **Full Professor in Theory for the Development of Chemical Processes** (Italian SSD ING-IND/26) at the Department of Life and Environmental Sciences (DISVA) of the Polytechnic University of Marche, Ancona, Italy (UNIVPM). She is the **Head of the Master Degree Program in Environmental Risk and Civil Protection** and of the **Bachelor Degree Program in Environmental Sciences and Civil Protection**, she holds the teaching courses of **Waste Management and Environmental Remediation** (Master Degree in Environmental Risk and Civil Protection), **Environmental technologies** (Bachelor Degree in Environmental Sciences and Civil Protection), **Mathematics** (Bachelor Degree in Biological Sciences). She is the **reference professor** inside the Polytechnic University of Marche for the area **Outreach, study rights and disability**. She is the **National Coordinator of the Italian initiative for scientific degrees improvement, in Natural and Environmental Sciences** (project *PLS- Piano Lauree Scientifiche*).

She achieved her master degree in Chemical Engineering (1995) at the University of L'Aquila, Italy, and her PhD (1998) in Chemical Engineering at the University "Federico II" of Napoli, Italy. She became Assistant professor in Process Design on 1998 at the University of L'Aquila, she moved on 2003 at the Department of Marine Sciences of the Polytechnic University of Marche, she achieved a position as Associate professor in Theory for the Development of Chemical Processes on 2015.

Her main research activities are in the field of **chemical engineering for the environment**, and they deal with the development of innovative processes in the following fields:

-hydrometallurgy/biohydrometallurgy for metal recovery from waste (WEEE - waste of electric and electronic equipment, batteries, industrial wastes) and from low grade ores (manganiferous ores, refractory gold bearing ores);

-hydrometallurgy/biohydrometallurgy for the remediation of sediments contaminated with metals;

-environmental technologies for the remediation of contaminated sediments and wastewater (organics and metals), including membrane processes and biosorbents;

-environmental impact assessment by Life Cycle Assessment (LCA) methodology.

Her scientific production is documented by 6 patents, more than 110 indexed publications, H-index = 29, total citations >3400 (source SCOPUS, April 2020).

She has also carried out activity as evaluator of research proposals and as external expert for project review in the sector of *Raw materials, metals, minerals and forest-based industries* within international frameworks (e.g. EC FP7, H2020, EIT Raw Materials, ERAMIN).

Most relevant grants:

2018-2021 Third party in the project **H2020 -MSCA-RISE e.THROUGH** Thinking rough towards sustainability.

2019-2020 Research agreement in the project **LiBat - LIFE16 ENV/IT/000389** Recycling of primary Lithium BAttery by mechanical and hydrometallurgical operations. Task: Environmental sustainability assessment.

2018-2019 Sub-contractor in the project **H2020 Fenix 760792**-Future business models for the efficient recovery of natural and industrial secondary resources in extended supply chain context. Task: Development of biotechnological processes.

2018-2019 Research agreement in the project **BITMAPS - LIFE 15 ENV/IT 000332**. Pilot technology for aerobic Biodegradation of spent TMAH Photoresist solution in Semiconductor industries. Task: Environmental sustainability assessment.

2017-2021 Marche Region **PSR MARCHE 2014-2020** Grasciari riuniti: Circular economy in agriculture.

2012-2016 **FP7-308549 HydroWEEE DEMO**. Innovative Hydrometallurgical processes to recover metals from WEEE including lamps and batteries - Demonstration.

2009-2012 **FP7-231962 HydroWEEE**. Innovative Hydrometallurgical processes to recover metals from WEEE including lamps and batteries.

2005-2008 Recovery of manganese and zinc from exhaust batteries by hydrometallurgical processes. Granted by the Italian Ministry of Research (**PRIN, Call 2005**).

2006-2014 Remediation of dredged contaminated sediments by hydrometallurgical and biohydrometallurgical processes. Socrates/Erasmus Project with Turkey.

2005-2020 Projects granted by Italian SMEs aimed at the recovery of metals from wastes

Patents:

Beolchini F., Amato A., Mariani P., Carducci F., Ruello M.L., Monosi S. Metodo di trattamento e valorizzazione di schermi a cristalli liquidi a fine vita con rifiuti zero Brevetto depositato in data 28.08.2018 No. 102018000008207.

Toro L., Vegliò F., Beolchini F., Pagnanelli F., Furlani G., Granata G., Moscardini E. Plant and process for the treatment of exhausted accumulators and batteries. Brevetto Europeo EP2450991 (09.05.2012).

Toro L., Vegliò F., Beolchini F., Pagnanelli F., Granata G., Moscardini E. Recupero di metalli da elettrodi di accumulatori esausti litio ed installazione di un impianto mobile per il loro trattamento Brevetto Italiano ITRM20100590 (09.05.2012).

Toro L., Vegliò F., Beolchini F., Pagnanelli F., De Michelis I., Kopacek B., Bianco B. Recovery of basic and precious metals from liquid crystal displays (lcd screens) and plant for recovery thereof. Brevetto depositato in Serbia RS20100480 (2012).

Toro L., Vegliò F., Beolchini F., Pagnanelli F., De Michelis I., Varelli E., Ferella F., Recovery of basic and precious metals from the fluorescent powders and plant for recovery thereof Brevetto depositato in Serbia RS20100479 (2012).

Toro, L.; Vegliò, F.; Beolchini F.; Pagnanelli, F.; Zanetti M.; Furlani G. Process and plant for the treatment of run down batteries. Brevetto Europeo EP1684369 (26.07.06).

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