

# Enrica Uggetti Curriculum vitae

## PERSONAL DETAILS

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Date of Birth: 26 February 1982  
Place of Birth: Ivrea (TO), Italy  
Nationality: Italian  
Sex: Female



## PROFESSIONAL CONTACT DETAILS

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GEMMA- Group of Environmental Engineering and Microbiology  
Universitat Politècnica de Catalunya BarcelonaTech  
c/Jordi Girona 1-3  
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Tel: +34 93 401 64 65  
E-mail: enrica.uggetti@upc.edu

## EXPERIENCE

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Dec 13-now **Researcher**

GEMMA - Group of Environmental Engineering and Microbiology

**Project FP7-SME-2013: ARBI Autonomous Reed Bed Installations**

**Topics:** low cost technologies for wastewater and sludge treatment, energy generation, microalgae production, anaerobic digestion, biogas.

2011-2013 **Researcher**

INRA – LBE Laboratoire de Biotechnologie de l'Environnement. Narbonne, France.

**Project ANR : Etude et Optimisation du Couplage MicroAlgues-Bactéries Anaérobies pour la Production d'Énergie par Voie Biologique à partir de Biomasse Primaire et de Déchets Organiques.**

**Symbiose: Study and optimization of coupling microalgae and anaerobic bacteria for energy production from biomass and organic waste**, financed by the French National Research, coordinated by the Laboratory of Environmental Biotechnology (INRA-LBE). 2008-2011

**Topics:** microalgae production for energy generation, anaerobic digestion, biogas.

2007-2011 **PhD in Civil Engineering.** Universitat Politècnica de Catalunya BarcelonaTech. Barcelona, Spain.

**Thesis:** Sewage Sludge Treatment in Constructed Wetlands: Technical, economic and environmental aspects applied to small communities of the Mediterranean Region.

**Topics:** water quality, wastewater and sludge treatment, constructed wetlands, life cycle assessment.

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## Projects:

**Bioalgas: Biogas production from algae biomass grown in high rate ponds for wastewater treatment**, financed by the Spanish Ministry of Science and Innovation, coordinated by the Environmental Engineering Division (UPC). 2011-2013

**Design criteria of constructed wetlands' new configurations for the removal of conventional and emerging pollutant in wastewater**, financed by the Spanish Ministry of Science and Innovation, coordinated by the Environmental Engineering Division (UPC). 2008-2011

**Drying reed beds for sludge treatment: assessment of process performance, design and operation criteria**, financed by the Spanish Environmental Ministry, coordinated by the Environmental Engineering Division (UPC). 2008-2011

**Research program for the development of sustainable biomass-based energy systems in rural areas of Andean Countries**, financed by the Centre for Development Cooperation (CCD-UPC), coordinated by the GRECDH (UPC). 2008-2009

**Drying reed beds for sludge treatment: assessment of process performance, design and operation criteria**, financed by the Spanish Environmental Ministry, coordinated by the Environmental Engineering Division (UPC). 2007-2008

**Design criteria of constructed wetlands' new configurations for the removal of conventional and emerging pollutant in wastewater**, financed by the Spanish Ministry of Science and Innovation, coordinated by the Environmental Engineering Division (UPC). 2005-2008

2010 **Scholarship AGAUR**. 18 weeks at Biogeochemistry Research Group - University of Eastern Finland, Kuopio (Finland) and 4 weeks at Plant Biology Research Group - University of Aarhus, Aarhus (Denmark).

## EDUCATION

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- 2007-2011 **PhD in Civil Engineering**. Universitat Politècnica de Catalunya BarcelonaTech. Barcelona, Spain.  
Thesis: Sewage Sludge Treatment in Constructed Wetlands: Technical, economic and environmental aspects applied to small communities of the Mediterranean Region
- 2005-2007 **MSc in Environmental Engineering**. Politecnico di Torino. Torino, Italy.  
MSc thesis "Study of clogging phenomena in subsurface horizontal flow constructed wetlands" Environmental Engineering Division, Technical University of Catalonia (UPC). Barcelona, Spain.
- 2005-2006 **Erasmus Program**. Ecole Polytechnique Fédérale Lausanne (EPFL). Lausanne, Switzerland.
- 2001-2005 **BSc in Environmental Engineering**. Politecnico di Torino. Turin, Italy.  
BSc thesis: Constructed wetlands for wastewater treatment

## LANGUAGE SKILLS (B=Basic, I=Intermediate, P=Proficient)

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	Speaking	Reading	Writing
English	I	P	I
French	I	P	I

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Spanish	P	P	P
Catalan	I	I	I
Italian	Native		

## PUBLICATIONS IN REFEREED JOURNALS

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- 2014 Passos, F., **Uggetti, E.**, Carrère, H., Ferrer, I. Pretreatment of microalgae to improve biogas production: a review. *Bioresource Technology*, in press.
- Uggetti, E.**, Sialve, B., Latrille, E., Steyer, J.P. Anaerobic digestate as substrate for microalgae culture: the role of ammonium concentration on the microalgae productivity. *Bioresource Technology*, 152, 437-443
- Uggetti, E.**, Sialve, B., Trably, E., Steyer, J.P. Integrating microalgae production with anaerobic digestion: a biorefinery approach. *Biofuels, Bioproducts & Biorefining*, 8 (4), 516-529.
- Uggetti, E.**, Sialve, B., Hamelin, J., Steyer, J.P. Behaviour of a complex microalgal ecosystem subjected to inorganic carbon variations. *Water Research*, submitted.
- 2012 **Uggetti, E.**, Ferrer, I., Argilaga, A., García, J. (2012) Dewatering model for optimal operation of sludge treatment wetlands, *Water Research*, 46 (2), 335-344.
- Uggetti, E.**, García, J., Lind, S.E., Martikainen, P.J., Ferrer, I. (2012) Quantification of greenhouse gas emissions from sludge treatment wetlands, *Water Research* 46 (6), 1755-1762.
- Uggetti, E.**, Ferrer, I., Carretero, J., García J. (2012). Performance of sludge treatment wetlands using different plant species and porous media. *Journal of Hazardous Materials* 217-218, 263-270.
- Uggetti, E.**, Ferrer, I., Arias, C., Brix, H., García, J. (2012). Carbon footprint of sludge treatment reed beds. *Ecological Engineering* 44, 298-302.
- Uggetti, E.**, García, J., Nielsen, S., Arias, C., Brix, H., Ferrer, I. (2012) Characteristics of biosolids from sludge treatment wetlands for agricultural reuse. *Ecological Engineering* 40, 210-216.
- 2011 **Uggetti, E.**, Ferrer, I., Molist, J., García, J. (2011) Technical, economic and environmental assessment of sludge treatment wetlands, *Water Research*, 45 (2), 573-582.
- Ferrer, I., Garfi, M., **Uggetti, E.**, Ferrer, L., Carderon, A., Velo, E. (2011) Biogas production in low-cost digesters at the Peruvian Andes. *Biomass and Bioenergy* 35 (5), 1668-1674.
- 2010 **Uggetti, E.**, Ferrer, I., Llorens, E., García, J. (2010) Sludge treatment wetlands: a review on the state of the art. *Bioresource Technology*, 101, 2905-2912.
- 2009 **Uggetti, E.**, Llorens, E., Pedescoll, A., Ferrer, I., Castellnou, R., García, J. (2009) Sludge dewatering and stabilization in drying reed beds: characterization of three full-scale systems in Catalonia, Spain. *Bioresource Technology*, 100(17), 3882-3890.
- Uggetti, E.**, Llorens, E., Pedescoll, A., Ferrer, I., Castellnou, R., García, J. (2009) Sludge drying reed beds: a case study. *Journal of Residuals Science and Technology*, 6 (1), 57-59.
- Pedescoll, A., **Uggetti, E.**, Llorens, E., Granés, F., Garcia, D., Garcia, J. (2009) Practical method based on saturated hydraulic conductivity used to asses clogging in subsurface flow constructed wetlands. *Ecological Engineering*, 35(8), 1216-1224.

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## PUBLICATION IN NON-REFEREED JOURNALS

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- 2014 **Uggetti, E.**, J. Puigagut, J., García, J. (2014) Sensores de resonancia magnética para mejorar la operación de humedales construidos. *Automática e Instrumentación*, 459 (in Spanish).
- 2010 **Uggetti, E.**, Ferrer, I., Castellnou, R., Molist, J., García, J. (2010) Sewage sludge treatment in constructed wetlands. *Infoenviro*, 56, 68-74 (in Spanish).

## BOOKS and BOOK CHAPTERS

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- 2014 **Uggetti, E.**, Passos, F., Solé, M., García, J., Ferrer, I. Biogas from algae via anaerobic digestion. *Algae biotechnology: process and products*. Springer, 2014, in press.
- Uggetti, E.**, Passos, F., García, J., Ferrer, I. Biogas production from algae. In: *Algafuels: an assessment of opportunities and challenges*. Ed. by Chisty, Y. Future Science, in press.
- Passos, F., **Uggetti, E.**, Carrère, H., Ferrer, I. Algal Biomass– Physical Pretreatments. In: *Pretreatment of biomass: processes and technologies*. Ed. by Pandey, A., Negi, S., Binod, P., Larroche, C. Elsevier, in press.
- 2012 **Uggetti, E.** Sewage Sludge Treatment in Constructed Wetlands. Technical, economic and environmental aspects applied to small communities of the Mediterranean Region. (2012) Ed. LAP Lambert Academic Publishing AG & Co KG, 204 pages. ISBN: 978-38-473-4046-1.
- 2011 **Uggetti, E.**, Ferrer, I., Llorens, E., Güell, D., García, J. (2011) Properties of biosolids from sludge treatment wetlands for land application. Chapter 2 In: *water and nutrient management in natural and constructed wetlands*. Ed. Vymazal, J. Springer, 9-21. ISBN: 978-90-481-9584-8.
- 2010 **Uggetti, E.**, Ferrer, I., Castellnou, R., Molist, J., García, J. (2010) Economic analysis and life cycle approach to compare drying reed beds and conventional treatments for sludge management. In: *Constructed Wetlands for Sludge Treatment*, Uggetti, E., Ferrer, I., Castellnou, R. and García, J. Eds.

## CONTRIBUTIONS IN PROCEEDINGS

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- 2014 Ferrer, I., Passos, I., Gutierrez, R., Solé, M., **Uggetti, E.**, García, J. (2014). Producción de microalgas y biogás en sistemas de tratamiento de aguas residuales. *Mesa Española de Tratamiento de Aguas (META 14)*, Alicante, Spain.
- Hawes, P., Hughes-Riley, T., **Uggetti, E.**, Puigagut, J., Garcia, J., Morris, R.H. (2014). Clogging measurement, dissolved oxygen and temperature control in a wetland through the development of an Autonomous Reed Bed Installations (ARBI). *IWA 14th International Conference on Wetland Systems for Water pollution Control*, Shanghai, China.

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- Uggetti, E., Sialve, B., Steyer, J.P.** (2014). Recycling of anaerobic digestion effluents in microalgae culture. Proceedings of 2<sup>nd</sup> Young algaeeners symposium, Narbonne, France.
- 2012 **Uggetti, E., Sialve, B., Bernet, N., Steyer, J.P.** (2012). Growth performance of a freshwater algal ecosystem: effect of winter time and carbon dioxide addition. Proceedings of 1<sup>st</sup> Young algaeeners symposium, Wageningen, The Netherlands.
- 2011 **Uggetti, E., Ferrer, I., García, J.** (2011). Measurement of greenhouse gas emissions from constructed wetlands for sludge treatment. Proceedings of 3<sup>rd</sup> International Congress on Wastewater in Small Communities SMALLWAT, Seville, Spain.
- Pedescoll, A., Uggetti, E., Samsó, R., Knowles, P., García, J.** (2011). Design criteria on clogging of subsurface flow constructed wetlands: full-scale experience. Proceedings of 3<sup>rd</sup> International Congress on Wastewater in Small Communities SMALLWAT, Seville, Spain.
- 2010 **Uggetti, E., Ferrer, I., Molist, J., García, J.** (2010) Economic analysis and life cycle approach to compare constructed wetlands and conventional treatments for sludge management. Proceedings of 12<sup>th</sup> International Conference on Wetland Systems for Water Pollution and Control, Venice, Italy.
- Uggetti, E., Ferrer, I., Güell, D., Molist, J., García, J.** (2010) Technical, economic and environmental analysis of sludge treatment wetlands. Proceedings of 2<sup>nd</sup> European Conference on Sludge Management (ECSM2010), Budapest, Hungary.
- Uggetti, E., Ferrer, I., Güell, D., Molist, J., García, J.** (2010) Sludge treatment in constructed wetlands: technic and economic aspects. Proceedings of Young Water Professional Spain, Barcelona, Spain.
- 2009 **Uggetti, E., Pedescoll, A., Llorens, E., Ferrer, I., Castellnou, R., Molist, J., García, J.** (2009) Treatment of sludge by means of drying reed beds: technical aspects. Proceedings of 7<sup>th</sup> International Workshop on Nutrient Cycling and Retention in Natural and Constructed Wetlands, Třeboň, Czech Republic.
- Uggetti, E., Ferrer, I., Llorens, E., García, J.** (2009) Treatment processes in sludge drying reed beds. 3<sup>rd</sup> Wetland Pollutant Dynamics and Control (WETPOL2009), Barcelona, Spain.
- Ferrer, I., Uggetti, E., Poggio, D., Martí, J., Velo, E.** (2009) Biogas production from organic wastes in low cost biodigesters. II Congress Sustainable UPC 2015, Barcelona, Spain (in Catalan).
- 2008 **Uggetti, E., Llorens, E., Pedescoll, A., Ferrer, I., Castellnou, R., García, J.** (2008) Sludge dewatering and mineralisation in two full-scale drying reed beds in Catalonia, Spain. Proceedings of the European Conference on Sludge Management (ECSM 08), Liège, Belgium.
- Uggetti, E., Llorens, E., Pedescoll, A., Ferrer, I., Castellnou, R., García, J.** (2008) Sludge dewatering and mineralisation in two full-scale drying reed beds in Catalonia, Spain. Proceedings of the International Symposium on Sanitary and Environmental Engineering (SIDISA 2008), Florence, Italy.
- Uggetti, E., Llorens, E., Pedescoll, A., Ferrer, I., Castellnou, R., García, J.** (2008) Sludge dewatering in drying reed beds. Proceedings of the Spanish Water Treatment Network (META 08), Tenerife, Spain (in Spanish).
- 2007 **Pedescoll, A., Uggetti, E., Llorens, E., Puigagut, J., Granes, F., Garcia, D., García, J.** (2007) Linking indirect measures to clogging phenomena in full-scale subsurface flow constructed

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wetlands. Proceedings of the II International Congress Wastewater Treatment in Small Communities (SMALLWAT 2007). Seville, Spain.

## TECHNICAL REPORTS - TECHNOLOGY TRANSFER

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- 2010 Annual and final technical reports concerning the project "Drying reed beds for sludge treatment: assessment of process performance, design and operation criteria". Technical report for the Spanish Environmental Ministry.
- 2009 Annual technical report concerning the project "Drying reed beds for sludge treatment: assessment of process performance, design and operation criteria". Technical report for the Spanish Environmental Ministry.
- 2008 Annual technical report concerning the project "Drying reed beds for sludge treatment: assessment of process performance, design and operation criteria". Technical report for the Spanish Environmental Ministry.
- Uggetti, E., Llorens, E., Ferrer, I., García, J. (2008)** Sewage sludge treatment in drying reed beds: study of design and operation parameters. Technical report for the Catalan Water Agency, Catalan Government (In Catalan).
- Uggetti, E., Llorens, E., Ferrer, I., García, J. (2008)** Design criteria for sewage sludge treatment in drying reed beds. Technical report for the Catalan Water Agency, Catalan Government (In Catalan).

## COURSES TAUGHT

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- 2014-2015 Water Engineering-Universitat Politècnica de Catalunya-BarcelonaTech
- 2013-2014 Ecology. Microalgae -Université de Perpignan
- 2010-2011 Water Quality Analysis (Lab course)-Universitat Politècnica de Catalunya-BarcelonaTech  
Environmental Engineering-Universitat Politècnica de Catalunya-BarcelonaTech  
Ecology-Universitat Politècnica de Catalunya-BarcelonaTech
- 2009-2010 Water Quality Analysis (Lab course) -Universitat Politècnica de Catalunya-BarcelonaTech  
Environmental Engineering-Universitat Politècnica de Catalunya-BarcelonaTech  
Ecology -Universitat Politècnica de Catalunya-BarcelonaTech
- 2008-2009 Water Quality Analysis (Lab course)-Universitat Politècnica de Catalunya-BarcelonaTech  
Environmental Engineering-Universitat Politècnica de Catalunya-BarcelonaTech
- 2007-2008 Environmental Engineering-Universitat Politècnica de Catalunya-BarcelonaTech

## SUPERVISION OF STUDENTS

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- 2013- now Raquel Gutierrez, PhD thesis in Environmental Engineering, Microalgal biomass production and separation within wastewater treatment systems.
- 2014-2015 Clara Cugol, BSc thesis in Civil Engineering, Microbial fuel cells to controlling the anaerobic degradation of microalgal biomass.  
Andrés Aguajo, BSc thesis in Civil Engineering, Microalgal production in closed photobioreactor treating wastewater.
- 2013-2014 Elisabeth Ramos, BSc thesis in Civil Engineering, Microbial fuel cells as sensors controlling anaerobic digestion of microalgal biomass.  
Ignacio Marín, BSc thesis in Civil Engineering Enhancement of microalgal separation by means of natural coagulants.
- 2010-2011 Albert Argilaga, BSc thesis in Civil Engineering, "Numerical modelling of sludge dewatering process in sludge treatment wetlands", Technical University of Catalonia (UPC).  
Ana Ferrer, MSc thesis in Environmental Engineering, "Methane production sludge treatment wetlands", Technical University of Catalonia (UPC).

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## STAYS IN INTERNATIONALLY RECOGNISED RESEARCH CENTERS

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- 2010 Biogeochemistry Research Group - University of Eastern Finland, Kuopio, Finland. 18 weeks. Topic: greenhouse gases emissions measurement in natural ecosystems.
- 2010 Plant Biology Research Group - University of Aarhus, Aarhus, Denmark. 4 weeks. Topic: greenhouse gases emissions measurement in constructed wetlands.
- 2009 Soluciones Prácticas ITDG, Cajamarca, Peru. 9 weeks. Topic: Biogas quality and production: a comparative study on low-cost digesters at the peuvian andes.

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## OTHER ACHIEVEMENTS

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- 2014 Organising and scientific committee of the 2<sup>nd</sup> Young Algaeneers Symposium, 3<sup>rd</sup>-5<sup>th</sup> April 2014 Narbonne, France.
- 2013 Special Price for the PhD thesis from the Doctoral School of the Universitat Politècnica de Catalunya-BarcelonaTech.
- 2010 3<sup>rd</sup> special price "Young Constructed Wetlands Special Prize" of the "12th International Conference on Water Systems for Water Pollution Control". Venice 4<sup>th</sup>-8<sup>th</sup> October 2010.  
Organising committee of the seminar Constructed wetlands for sludge treatment, 15<sup>th</sup> June 2010 Vic, Barcelona, Spain.
- 2009 Organising committee of the 3<sup>rd</sup> Wetland Pollutant Dynamics and Control (WETPOL2009), 20<sup>th</sup>-24<sup>th</sup> September 2009 Barcelona, Spain.

Reviewer of the following journals: Water Research, Journal of Hazardous Materials, Water Science and Technology, Ecological Engineering, The environmentalist, Desalination, Energy, Environmental and Science Technology.

Editorial board of Environmental Processes Journal.