



UNIVERSITÀ  
DEGLI STUDI  
DI PALERMO



**International Seminars on Sanitary and  
Environmental Engineering:  
PhD doctoral program**

**Department of Civil, Environmental,  
Aerospace, Materials Engineering -  
Polytechnic School – University of Palermo,**

18|19|25 May, 2017 Palermo, Italy

# Foreword

These International seminars aim at deepen the knowledge on available advanced technologies in the field of wastewater treatment. The water-energy nexus will be addressed with the aim to reduce energy costs for wastewater treatment, to limit greenhouse gas emissions through the use of advanced technologies.

The seminar will be harmonized into two sections. A first section where two international speakers, will present research boundaries and limits regarding wastewater treatment. A second section during which the fundamental of the wastewater treatment key elements will be discussed by lecturers highly qualified which will share their knowledge and ideas.

These seminars are organized in the context of the PhD program of Civil, Environmental, materials Engineering of the the Department of Civil, Environmental, Aerospace, Materials Engineering – Palermo University. Further, the seminars are also part of the educational activities of the PRIN-GHG project "Energy consumption and emissions of climate-altering gases in sewage plant: a decision support system for the design and management" - coordinated by the University of Palermo, which was financially supported by the Italian Ministry of Education, University and Research

I would like to thank all lectures for sharing their knowledge and the Director of the PhD program – prof. Mario Di Paola – for contributing to this initiative.

Giorgio Mannina



# Program

## 18 May 2017 “Phosphorus recovery and surface water”

15.00-17.00 – Phosphorus recovery from sludge ash

**prof. Neslihan Semerci**  
*Marmara University, Turkey*

17.00-19.00 – Conjunctive use of surface water and groundwater: Concept, benefits and limitations, and applied system analysis

**prof. João Vieira**  
*University of Coimbra, Portugal*

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## 19 May 2017 “Technical approaches for nutrient recovery and Water Economics”

15.00-17.00 – Design of wastewater treatment plants for nutrient removal: Comparison of different design approaches

**prof. Neslihan Semerci**  
*Marmara University, Turkey*

17.00-19.00 – Water Economics and hydro-economic models: Case study

**prof. João Vieira**  
*University of Coimbra, Portugal*

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## 25 May 2017 “Outstanding contributions to water sector”

08.30-09.00 – Welcome words and opening session

**prof. Goffredo La Loggia**  
**prof. Mario Di Paola**  
**prof. Giorgio Mannina**  
*University of Palermo, Italy*

09.00-10.20 – Phosphorus removal from wastewater

**prof. George A. Ekama**  
*University of Cape Town, South Africa*

10.20-11.40 – Anaerobic digestion in the context of plant wide modelling

**prof. Damien Batstone**  
*The University of Queensland, Australia*

11.40-12.10 – break

12.10-13.30 – Process control of sulfate reducing reactors

**prof. Piet Lens**  
*UNESCO-IHE, The Netherlands*

# Biography of Lecturers



## **Prof. Damien Batstone, The University of Queensland – Australia**

Dr Damien Batstone is Professor in the School of Chemical Engineering and Deputy Director of the Advanced Water Management Centre of The University of Queensland – Australia. He has a doctorate in Chemical Engineering, from the University of Queensland, Australia, 2000. He has over 20 years experience in wastewater process modelling, design, and environmental biotechnology. He is current holder of an Australian Research Fellow from the Australian Research Council.



## **Prof. George A. Ekama, University of Cape Town - South Africa**

Professor George A. Ekama, PhD, has 40 years research experience into activated sludge systems at the University of Cape Town. In 2017 has been recognized as an IWA Distinguished Fellow for “unique contributions to water sector”. He invented the University of Cape Town system. He contributed to the setting up of activated sludge models 1 and 2. Over the years he has been at the forefront of developments in biological nutrient removal activated sludge systems modelling, secondary settling tank design and modelling.



## **Prof. Piet Lens, UNESCO-IHE – The Netherlands**

Dr. Lens is Professor of Environmental Biotechnology at the Pollution Prevention and Resource Recovery Chair Group of the Department of Environmental Engineering and Water Technology of UNESCO-IHE. His research focuses on biofilms, sulfur biotechnology, metal speciation, bioavailability and removal, natural treatment systems, anaerobic wastewater and waste gas treatment for resource recovery and reuse. His awards include a Marie Curie Excellence Grant (2004) and a nomination as IWA fellow (2010).



## **Prof. Neslihan Semerci, Marmara University– Turkey**

Dr Neslihan SEMERCI is Professor at Marmara University, Faculty of Engineering. She has a doctorate in Environmental Sciences. Her main research topics are: Enhanced Biological Phosphorus Removal Phosphorus recovery from sewage sludge; Anaerobic Dynamic Membrane Bioreactors Bio-plastic (PHA). She has ten years research experiences on wastewater treatments. Over the years she has been involved in numerous international projects.



## **Prof. João Vieira, University of Coimbra - Portugal**

João Vieira is Professor at the Department of Civil Engineering of the University of Coimbra. João Vieira obtained his Ph.D. from the University of Coimbra on environmental engineering for his work on decision models for multisource water systems. His research interests include integrated water resources management, control of water systems, decision support systems, and optimization under uncertainty including climate change scenarios.

# CONTACTS

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