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2019

NOON TALK @ DIATI

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Please bring
your own mug.
Coffee and tea
will be
provided
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**Mercoledì 8 Maggio 2019
ore 13.00**

**Politecnico di Torino
Sala Riunioni, primo piano,
DIATI ingresso 3**

Dr. Youri Amerlinck
Research Associate at Ghent University

Good modelling practice: It's all about balance!

Prof. Mariachiara Zanetti moderates the discussion

ABSTRACT

Water is a very vulnerable resource and needs to be protected. In order to optimise wastewater treatment technology, we need to better understand the processes taking place in them. Mathematical modelling is a powerful tool to build knowledge about complex processes as it can exploit the power of computation. In order to describe/model a WWTP it is mandatory to describe all of the processes in a sufficiently detailed manner (i.e. not overly complex nor oversimplified). Indeed, it does not make sense to use an overly detailed bio-kinetic model including hundreds of components and to oversimplify hydraulics, chemical reactions, gas-liquid transfers or settling behaviour. Emphasis is given to sub processes that are known to have a large impact on the overall process performance, i.e. influent characterization, primary sedimentation, aeration and energy consumption. In this presentation concepts as what-if scenarios, uncertainty analysis and optimal experimental design will be addressed accompanied by several case studies.



**POLITECNICO
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Dipartimento di Ingegneria
dell'Ambiente, del Territorio
e delle Infrastrutture



BIOGRAPHY

Dr. Youri Amerlinck is a research associate at BIOMATH (department of Data analysis and mathematical modelling) at Ghent University. His main expertise and interests lie in the field of mathematical modelling and optimization of biological and chemical processes. Graduated as an industrial Engineer in Chemistry option Environment, he worked as a wastewater treatment engineer and operator focussing on water recovery (Levi Strauss), international customer support engineer for the modelling and simulation software WEST (HEMMIS N.V.), senior consultant (MOSTforWATER N.V.) and being co-founder of that same company. In 2015, Youri obtained his PhD, entitled "Model refinements in view of wastewater treatment plant optimization: improving the balance in sub-model detail". Afterwards he worked as a postdoc on modelling the evolution of particle size distributions for the precipitation of metal hydroxides using population balance models. Dr. Amerlinck has published several peer-reviewed papers in the field of water science and technology and he contributed to two technical reports of the IWA. He is a lecturer in Modelling and control of wastewater treatment plants (lecturer at Ghent University and guest lecturer at IHE Delft).

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Save the date for our next speaker-event, on June 5 2019, at 13:00.