



Sclocchi Award to Aronne Dell'Oca

Paolo Biscari, Dean, PhD School

Alberto Guadagnini, Head, PhD Programme in Environmental and Infrastructure Engineering

Dear PhD Candidates,

On behalf of the PhD School, I want to send you my best wishes for a fruitful and happy new year. With this January issue of the PhD Newsletter we introduce a new section, aimed at celebrating those of you who achieve a significant reward, or receive a noteworthy prize.

Our first nominee is Dr. Aronne Dell'Oca, who has been selected as recipient of the prestigious and very competitive Gustavo Sclocchi Theses Award 2017. The award has been established in 1993 by SPE (Society of Petroleum Engineers – Italian Section), the EAGE (European Association of Geoscientists & Engineers) and Assomineraria (Italian Petroleum and Mining Industry Association – Hydrocarbon and Geothermal Resources Sector) with the aim of encouraging and rewarding university graduates specializing in diverse aspects of disciplines related to the oil & gas industry. The Award ceremony has taken place on December 13, 2017, at the Eni Laboratory facilities in San Donato Milanese.

Aronne is now 28 years old, and obtained his Degree in Civil Engineering and Doctoral Degree (Doctoral Programme in Environmental and Infrastructure Engineering) at Politecnico di Milano, respectively in 2013 and 2017, with the highest honors. His PhD dissertation (Constant and Variable density flow in porous media, under multiple sources of uncertainty) focuses on key challenges related to modern civil and environmental engineering applications, including unconventional hydrocarbon resources and their effects on the competitive use of groundwater, seawater intrusion in coastal aquifers and risk assessment of groundwater bodies.

Prof. Monica Riva, Aronne's PhD supervisor, is "unambiguously convinced that Aronne is a person of extraordinary creativity. He has demonstrated a level of knowledge and skills that place him within the top 1 % of young researchers at a comparable career stage. Very few young scientists are as versatile and flexible as Aronne!" According to Prof. Alberto Guadagnini (Coordinator of the PhD Programme in Environmental and Infrastructure Engineering and Head of the Department of Civil and Environmental Engineering), "Aronne has a remarkably positive attitude when it comes to balance personal and working environments, thus making him invaluable in a truly collaborative team work. He will undoubtedly continue to surprise the scientific community and his early career accomplishments clearly indicate that he is a worthy recipient of the award."

Aronne is currently a post-doctoral fellow at the Department of Civil and Environmental Engineering of the Politecnico di Milano. He is involved in the extension of his approaches to concepts and models to characterize environmental risks associated with hydraulic fracturing engineered operations as well as with the feedback between groundwater extraction operations and seawater intrusion processes in coastal aquifers. He is collaborating actively with research teams throughout Europe in the context of EU-funded research projects. All of these elements are complemented by his interests in sports (including rock climbing, swimming, diving, and hiking), manual works (wood, copper, gardening) and theatre acting.

Short Interview with Aronne

Q: Tell us some highlights of your study and work experience and how you have started your research on porous and fractured media

A: I graduated in Civil Engineering at the Politecnico di Milano in 2013 and I started becoming interested in aspects associated with subsurface water reservoirs during the class of Groundwater Hydraulics, with Prof. Monica Riva and Alberto Guadagnini as instructors. I then started my Msc thesis project with their group, with focus on sea water intrusion in coastal





aquifers. I was intrigued and fascinated by the challenges posed by our incomplete knowledge of such systems and the way these can impact our ability to predict the way concentrations of chemical species evolve in the subsurface. I then enriched my knowledge on the subject during my PhD program, under the supervision of Prof. Monica Riva. It was a wonderful experience, where I was given the opportunity to grow, both professionally and personally, in the context of an internationally-oriented research environment. I had the opportunity to join EU-funded research projects and spent a research period of about 6 months at the Environmental Assessment and Water Research (IDAEA) Center of the Spanish National Research Council in Barcelona, Spain.

Q: What are the main practical implications of your research? Can you give us some examples?

A: My research mainly deals with the assessment of the main physical processes driving flow and transport of chemicals in the subsurface. The latter is a highly complex system, comprising groundwater reservoirs and deep oil and gas reservoirs, and defies a complete description. As such, there is considerable uncertainty associated with predictions on the state of the system. As we know, groundwater is subject to a very competitive use in modern society, including, for example, applications involving drinking water, or in the industrial, agricultural, geothermal, and urban sectors. In this context, main practical implications include the quantification of the effect of our incomplete knowledge of the subsurface on protection of drinking water wells, natural springs, or on the assessment and management of the environmental footprint of geothermal exploration as well as conventional and unconventional oil and gas engineering applications.

Q: What is the award representing to you and what are your future plans?

A: SPE, EAGE and Assomineraria are important players in our field. Hence, I am very excited and proud of the award, which is undoubtedly to be shared with the groundwater research group where I operate. In particular, I am very grateful to Prof. Monica Riva, who showed infinite patience and perseverance with me, always pushing me to go beyond and providing an ideal environment to grow. The award is providing me with even stronger motivations to continue along this path, either in the context of academic or industrially-oriented sectors. The work I am currently involved in is in joint collaboration with prestigious international institutions and I am truly looking forward to establishing new and hopefully strong collaborations and partnerships.



News

THE ITALIAN STATE COUNCIL ON THE VALUE OF THE PHD TITLE

The Italian State Council (Consiglio di Stato) agreed on the request of 200+ Italian PhDs who claimed that the PhD title should be considered as sufficiently to be admitted to the exams to become High School professor. More information for this important milestone for the Italian recognition of the value of the PhD title can be found on the websites of the two lawyers who prepared the appeal, Avv. Santi Delia ([website](#)) and Avv. Michele Bonetti ([website](#))

Call and events

UNIVERSITÀ ITALO FRANCESE - VINCI 2018 CALL

[Website](#) (Italian and French only): **deadline: 6 Fer 2018 (12.00 noon)**

FULBRIGHT CALLS

Consider the following:

- [Research Scholar call](#) (Italian only)
- [Distinguished Lecturer Call](#) (Italian only)

deadline January 12th 2018
deadline February 16th 2018

ERASMUS+ (OUTGOING MOBILITY FOR STUDY PURPOSES)

The call for the 2018/2019 International Mobility for study (including the *Erasmus+ Programme*) has been issued. The *Programme* offers support for mobility of students within European countries. All Politecnico di Milano students may apply passing through the **International mobility for study** section of their Online Services. Remember that, although *Switzerland* does not take part in this *Programme*, some Swiss institutions are offered as possible mobility destinations: to choose one of them, please select **ACCORDI BILATERALI EXTRA UE** under **Programma di mobilità** (Mobility Programme) in the on-line application.

Applicants are strongly suggested to contact – informally – the chosen university and to check the feasibility of the visit in a convenient period, in advance: if mobility proposal is selected, in fact, it must be formally accepted by the hosting institution and this procedure often needs a certain time.

For general information about the Erasmus Programme and for a list of destinations available to PhD students please visit [this webpage](#). The call is available [here](#).

Deadline for applications: 10 January 2018 (12.00 noon)



ETH BRANCO WEISS FELLOWSHIP FOR POST-DOC RESEARCH

The *ETH Branco Weiss Fellowship* call is open for applications. This fellowship is designed for postdocs at home in sciences, engineering and social sciences who are willing to engage in a dialogue on relevant social, cultural, political or economic issues across the frontiers of their particular discipline. Fellows are free to choose their host institution among the top universities worldwide. Once a year in November a symposium takes place at ETH Zurich to bring together all fellows.

Deadline for applications: 15 January 2018



PEOPLE@DEIB

Interdisciplinary competition within the People@DEIB initiative: development of robots for playing with disable children. Spare time.

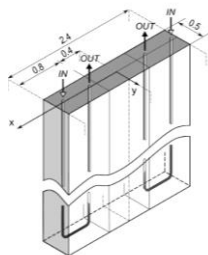
From March 1st to 9th April 2018





Seminars and Workshops

THERMO-ACTIVE GEOSTRUCTURES FOR NEAR-SURFACE GEOTHERMAL ENERGY



Dr. Donatella Sterpi

The seminar, organized by the Scientific Committee of the Dept. of Civil and Environmental Engineering, deals with the possible role of near-surface geostuctures in the (geo)thermal balance and energy need of the construction they are part of.

23 January 2018



PHD SPECIAL SEMINAR

UNFOLDING A PROOF OF CONCEPT WITHIN THE SERVDES CONFERENCE

Prof. Paola Bertola

“PhD Special Seminar: unfolding a proof of concept” is a seminar dedicated to PhD candidates and Early Career Researchers from across the Service Design discipline and within the ServDes Conference, that will take place on June, 18th-20th 2018 at Politecnico di Milano, Milan.

Deadline for applications: 29 January 2018



Starting courses – PhD School

COLLABORATIVE RESEARCH METHODOLOGIES

Prof. Shani Abraham Baruch

This course is designed to acquaint students with the basic knowledge of collaborative research methodologies. The aim of the course is to learn and investigate variety of collaborative research methodologies in management and organizations.

From 15 January 2018 to 21 March 2018



PROFESSIONAL COMMUNICATION

Prof. Nicoletta Di Blas

The goal is to enhance students' communication skills in: public speaking, written communication (special emphasis on project proposals), digital communication. This MIT quote summarizes the goal: "engineers who don't write [=communicate] well end up working for engineers who do write well".

From 16 January 2018 to 6 February 2018



RESEARCH SKILLS

Prof. Donatella Sciuto

The Goal of this programme is to offer a wide range of courses that may help PhD Students to build up their knowledge in research fields with regards to the following aspects: communication, management, cross cutting knowledge, soft skills.

From 23 January 2018 to 3 July 2018



RESOURCE PLANNING AND MANAGEMENT WITHIN SUSTAINABLE DEVELOPMENT

Prof. Emanuela Colombo

The mission is to increase the understanding for Ph.D candidates about the global challenges of development at the light of the 2030 Agenda. The main goals are to deepen the implication on global resource management and to provide a context to framework their research work within the paradigm of Sustainable Development.

From 28 January 2018 to 2 February 2018





SUSTAINABILITY METRICS, LIFE CYCLE ASSESSMENT AND ENVIRONMENTAL FOOTPRINT

Prof. Monica Lavagna

The objective of the course is to introduce to the use of environmental sustainability metrics as tools that measure the benefits achieved through a sustainability strategy, leading to informed environmental decisions. The course will explain in detail the LCA methodology, with examples and exercises

From 15 January 2018 to 24 January 2018



Starting courses – Doctoral Programmes

PhD in *Physics*

MODELLING WITH MULTI-SCALE METHODS

Prof. Paola Folegati

Different approaches to multi-scale modelling of materials will be presented, together with examples of applications.

10 January 2018 – 28 February 2018



PhD in *Mechanical Engineering*

COMPUTATIONAL FRACTURE MECHANICS AND COHESIVE MODELS FOR DAMAGE/DEGRADATION

Prof. Wolfgang Brocks - Christian-Albrechts-University, Kiel

Theory of plasticity Modelling of true-strain curves and comparison with experiments. Numerical computation of the energy at crack tip field during plastic deformation. Modelling of ductile crack extension Material failure domains.

From 16 January 2018 to 15 February 2018



PhD in *Architecture, Built Environment and Construction Engineering*

SOCIAL AND ECONOMIC SUSTAINABILITY METRICS

Prof. Andrea Caragliu

The course introduces to the measure of the sustainable performances of the built environment: descriptive (statistical) and interpretative (econometric) methods. At the end of the course, the student will be able of highlighting the main economic features and the determinants of economic performance of the built environment, with a particular focus on the implications of such measures for sustainable development.

From January 10th to February 08th 2018



STRUCTURAL DYNAMICS FOR CONDITION ASSESSMENT AND SEISMIC MONITORING

Prof. Gentile Carmelo

The course deals with the analysis of the dynamic response of real structures and infrastructures in operational (ambient vibration) and seismic conditions and the identification of modal parameters (natural frequencies, mode shapes and modal damping ratios) with the aim of obtaining information about their safety/vulnerability and degradation conditions and risk. The course includes laboratory and full scale-building practice with dynamic tests.

From January 17th to February 09th 2018





RESEARCH IN BUILDING PROCESS MANAGEMENT

Prof. Bruno Daniotti

The course aims to deepen the topic of building process innovation and to develop a deep information skills about research framework at an international level. It is divided into five modules and it deals with the following topics: Digital and circular economy: performance based approach, Digitalization: information management (BIM, ICT), Digital performance based design, construction process re-engineering, service life and maintenance planning.

From January 30th to March 13th 2018



TEMPORARY ARCHITECTURE AND LIGHTWEIGHT CONSTRUCTION (TEAL-S)

Prof. Alessandra Zanelli

Lightweight environments have the form of construction of necessity; they are usually made of materials easy to find and to handle, such as textiles and other thin raw materials, to create adaptable spaces, which can be easily disassembled and transported. The main goal of the course is to stimulate a “lightweight thinking”: the use of minimal mass materials and structures to be used in the most efficient way. Different questions will be approached through a set of invited lectures, adopting a multidisciplinary approach. The students will be then trained in a design work.

From January 8th to 12th 2018



Colloquia Doctoralia

MECCPHD COLLOQUIA DOCTORALIA 2018

Prof. Daniele Rocchi – Programme Coordinator

Final Defence of PhD Candidate Sara Gonizzi Barsanti

26 January 2018, 10.00 am, Sala Comunicante, Department of Mechanical Engineering

