



ABWET Doctorate Project Final Conference



G16 Conference 2018 Research Frontiers in Chalcogen Cycle Science & Technology

December 6th - 7th, 2018 — Naples, Italy

Conference Center, University of Naples Federico II, Largo San Marcellino 10, Naples

ABOUT G16 CONFERENCE.

"CHALCOGENS" are elements belonging to periodic table Group 16 (G16) and include the elements oxygen, sulfur, selenium and tellurium. These elements, their bio-geological cycles and interactions with metals, still have many unrevealed scientific curiosities and technological potentials. The 1st G16 conference was held in June 2008 in Wageningen, The Netherlands, on the conclusion of the Marie Curie Excellence Grant "Novel Biogeological Methods for Heavy Metal Removal", headed by Prof Piet Lens. The 2nd, 3rd and 4th G16 conferences were held in Delft, The Netherlands and the 5th one in Goa, India. The conferences overviewed the wide range of topics related to CHALCOGEN research. The 6th International conference on Research Frontiers in Chalcogen Cycle Science & Technology, to be held in Naples (Italy), will serve as a platform for academicians, researchers, scientists, plant managers, and industrial experts to discuss and exchange the latest scientific and technological advancements in chalcogen-based and waste-to-energy research.

THE ABWET PROJECT

The Advanced Biological Waste-to-Energy Technologies (ABWET) Marie Skłodowska-Curie European Joint Degree project provides education and research at PhD level on environmental technologies that convert waste materials into bioenergy. ABWET is centered on environmental technologies for treatment of waste, with a focus on anaerobic treatment processes, valorisation of the digestate and biofuel clean-up. ABWET focuses on fundamental and applied research of different treatment technologies as well as on the development of innovative recovery and reuse technologies with enhanced market potential. More information at www.internationaldoctorate.unicas.it/abwet



 Venue, Congress Center of University of Naples Federico II – Largo San Marcellino 10, Naples, Italy

 www.g16-abwet.unicas.it — G16@unicas.it

INFORMATION

SUBMISSION OF SCIENTIFIC CONTRIBUTIONS

Authors interested in giving a presentation are invited to submit an abstract in English, preferably as a word-file. It should not exceed 1000 words. If it contains figures or tables, it should not exceed 2 pages. The abstract must include a comprehensive title, the name of all authors, their complete affiliation (address, fax, e-mail), and clear results and conclusions to allow the scientific committee to judge on the quality of the work.

Abstracts should be submitted by e-mail, as an attached file, to G16@unicas.it, before November 1st 2018. Registration is a prerequisite for an abstract to be included in the final programme.

PUBLICATIONS

Selected original research papers from the conference will be published as a special issue of a peer reviewed journal. The organizers expect the special issue to make a significant contribution to Chalcogen Science & Technology, and other inter-disciplinary research areas. Prospective authors are welcome to submit short communications, research papers, and critical review articles, as deemed appropriate by the editors of this special issue. Authors willing to contribute to this special issue should submit their full paper by December 9th 2018.

INFORMATION ON BOOK DISCOUNTS

All G16 participants are also entitled to a 25% discount on the book *Environmental Technologies to Treat Sulfur Pollution (2000)*, edited by Piet Lens & Hulshof Pol, published by IWA Publishing (www.iwapublishing.com). For a 25% discount on the print copies of this book use code IWAJET18 at checkout (iwapublishing.com), or quote the code in email orders to iwap@turpin-distribution.com. Code valid until the end of 2018.

ACCOMPANYING EVENTS

Doctoral Defenses of the ABWET PhD Candidates

Date: December 5th, 2018

Venue: Conference Center of the University of Naples Federico II, Largo San Marcellino 10, Naples

Several early stage career researchers of the ABWET project will defend their PhD. Topics include bio-H₂ production, autotrophic denitrification and modeling of anaerobic digestion.

For further details on the defense topics and times, please see the G16 website.

TOPICS OF THE CONFERENCE

The 6th International Conference on Research Frontiers in Chalcogen Science & Technology covers the theoretical, analytical and experimental developments, multi-disciplinary aspects and practical applications of chalcogens. The broad range of chalcogen-related research topics covered in this conference includes:

(I) NOVEL (BIO)CONVERSIONS OF CHALCOGEN AND METALS

Microbiological aspects of Chalcogen or metal bioconversions: physiology and metabolism, new species, application of novel microbiology approaches
Use of elemental sulfur for denitrification and other bioreduction conversions
Anaerobic methane oxidation coupled to sulfate or metal reduction
Dissimilatory reduction of metals and Chalcogen oxyanions
Biological production of volatile, alkylated Chalcogens and mixed Se/S/Te compounds

(II) ANALYTICAL TECHNIQUES

Characterization of metal speciation and bioavailability in aquatic systems
Novel analytical techniques for liquid phase speciation, such as DMT, DGT, among others
New developments in solid phase speciation using XANES, STXM and SIMS
Engineering of FRET-based fluorescent sensor proteins
NMR and MMR imaging of transport in biofilms
Sensing, monitoring and control procedures
Gas-phase analytical techniques

(III) CHALCOGEN - METAL INTERACTIONS

Impact and treatment of Chalcogen or metal pollution
Selective metal sulfide precipitation
New approaches to selenium and tellurium removal from wastewaters
On site, in situ and industrial, pilot and full-scale applications
Characterization of Chalcogen interactions with metals
Metal-Chalcogen cluster complexes

(IV) PRODUCTION OF CHALCOGEN NANOPARTICLES

Chemistry of Chalcogen nanoparticles
Synthesis of Chalcogen nanoparticles
Absorption and fluorescence by Chalcogen-containing nanoparticles
Biological production of nanoparticles and quantum dots
Production of colloidal metal Chalcogenide nanoparticles
Fate and toxicity of Chalcogen nanoparticles

(V) SPECIATION OF CHALCOGENS

In acidic environments
Chemical speciation in environmental samples
Speciation by inductively coupled plasma-mass spectrometry
Speciation by capillary electrophoresis
Trace determination in environmental samples
Understanding the chemistry of Chalcogen diazoles

(VI) ROLE OF METALS IN BIODEGRADATION

Role of metal speciation in biodegradation of organic compounds
Use of transporters for heavy metal removal
Trace metal retention in anaerobic granules and biofilms
Trace metal requirements of aquatic biota
Application in soil and groundwater remediation
Metal enhanced degradation processes

(VII) (BIO)REACTOR SYSTEMS

Performance and optimization of conventional Bioreactors
Improved/innovative bioreactor concepts
Two-liquid phase systems and (inversed) fluidized bed reactors
Microbial fuel cells
Electro-fenton process
RO, Filtration and ligand-exchange processes
Microbial populations in bioreactors
Kinetics and mathematical modeling
Fault detection and diagnosis in (bio)reactors
Scale-up and economics of (bio)reactors
Model predictive/multi-variable/sensor control systems for (bio)reactors

(VIII) EMERGING RESEARCH AREAS FOR APPLICATION

Role of Chalcogens in early planet life
Chalcogens and sustainable environmental technology
Life cycle assessment (LCA)/Life cycle inventory (LCI) of chalcogens
Chalcogen halides and alkali based arrays
Chalcogen-Chalcogen bridges
Chalcogen based thin films, alloys and membranes
Chalcogen containing antioxidants
Electrochemistry of Chalcogens
Other novel chalcogen-based applications

SCIENTIFIC COMMITTEE

Francesco Di Capua (University of Naples Federico II, Italy)
Giovanni Esposito (University of Cassino and Southern Lazio, Italy)
Francesco Fatone (Polytechnic University of Marche, Italy)
Eugênio Foresti (Universidade de São Paulo, Brazil)
Karel Keesman (Wageningen University, The Netherlands)
Christian Kennes (University of La Coruña, Spain)
Piet Lens (IHE Delft, The Netherlands; NUI Galway, Ireland)
John Lloyd (University of Manchester, UK)
Francesca Malpei (Polytechnic University of Milano, Italy)

Paul Mason (Utrecht University, The Netherlands)
Vincenzo Naddeo (University of Salerno, Italy)
Kannan Pakshirajan (IIT Guwahati, India)
Stefano Papirio (University of Naples Federico II, Italy)
Francesco Pirozzi (University of Naples Federico II, Italy)
Jaakko Puhakka (Tampere University of Technology, Finland)
Eldon Rene (IHE Delft, The Netherlands)
Jukka Rintala (Tampere University of Technology, Finland)
Erkan Sahinkaya (Istanbul Medeniyet University, Turkey)
Piero Salatino (University of Naples Federico II, Italy)
Eric van Hullebusch (IHE Delft, The Netherlands; University of Paris-Est, France)

IMPORTANT DEADLINES

Conference dates: December 6th – 7th, 2018
Submission of abstracts: October 15th 2018
Notification of acceptance: November 1st 2018
Early bird registration: November 15th 2018
Full papers for proceedings: November 15th 2018
Full papers for special issue: December 9th 2018

REGISTRATION

The full registration fee is 100 € before November 15th 2018

and 150 € after November 15th 2018. The cost of one day registration is 75 €. For participants from developing countries and students full registration fee is 50 €. Registration includes access to conference sessions, conference materials, coffee and lunch.

BANK INFORMATION

bank: Banca Popolare del Cassinate
account holder: Università degli Studi di Cassino e del Lazio Meridionale
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