ABOUT THE G16 CONFERENCE SERIES

``**CHALCOGENS**´´ are elements belonging to the 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, the 5th in Goa (India) and the 6th in Naples (Italy). The 7th G16 conference was held online from Galway (Ireland). The 8th edition is the final conference of the SFI Research Professorship *Innovative Energy Technologies for Biofuels, Bioenergy and a Sustainable Irish Bioeconomy* (IETSBIO^3). The research supports the transition of our society towards a bioeconomy and a circular economy. In particular, techniques for recovery of alternative fuels and renewable commodities from solid waste, waste gases and wastewater are developed. It is funded by the Science Foundation Ireland (SFI, www.sfi.ie)

The conferences overview the wide range of topics related to **CHALCOGEN** research. The 8th International conference on Research Frontiers in Chalcogen Cycle Science & Technology, to be held from National University Ireland Galway (Galway, Ireland), online via video-link, 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 research.

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 and 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 **m.logan4@nuigalway.ie**, before September 15th 2022. Registration is a prerequisite for an abstract to be included in the final programme.

INFORMATION

VENUE:
Online
Link will be provided upon registration

Organised from:
National University of Ireland Galway
University road
Galway, H91 TK33
Ireland

CONTACT:
Dr. Mohanakrishnan Logan
Department of Microbiology, NUI Galway, Ireland
E-MAIL: m.logan4@nuigalway.ie

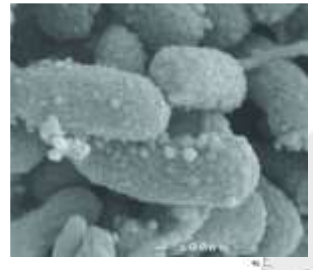
IMPORTANT DEADLINES:
Conference dates : November 17-18th, 2022
Submission of abstracts : September 15th 2022
Notification of acceptance : September 25th 2022

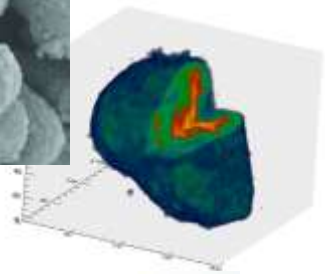
REGISTRATION:
There is no registration fee for this conference. However, online registration over e-mail in advance of the conference is strongly recommended.

FURTHER INFORMATION:
See: www.nuigalway.ie/ietsbio3/events/
For updates: www.twitter.com/ietsbio3/

8th INTERNATIONAL CONFERENCE ON

RESEARCH FRONTIERS IN CHALCOGEN CYCLE SCIENCE & TECHNOLOGY





November 17 – 18th, 2022
Galway, Ireland
(Online conference)

Department of Microbiology
National University of Ireland Galway
Galway, Ireland

INFORMATION

SCIENTIFIC COMMITTEE

Piet Lens, NUI Galway (Chair)
Kannan Pakshirajan, IIT Guwahati (Co-chair)
Francesco Di Capua, Polytechnic University of Bari, Italy
Marcelo Zaiat, Universidade de São Paulo, Brazil
Karel Keesman, Wageningen University, The Netherlands
Christian Kennes, University of La Coruña, Spain
Zeynep Cetecioglu, KTH Royal Institute of Technology, Sweden
John Lloyd, University of Manchester, UK
Vincent O'Flaherty, NUI Galway, Ireland
Artin Hatzikioseyian, National Technical University, Greece
Stefano Papirio, University of Naples Federico II, Italy
Eldon Rene, IHE Delft, The Netherlands
Mohanakrishnan Logan, NUI Galway, Ireland
Rachel Costa, Sao Paulo State University, Brazil
Giovanni Esposito, University of Naples Federico II, Italy
Joshua P Boltz, Arizona State University, USA
Erkan Sahinkaya, Istanbul Medeniyet University, Turkey
Owen Missen, Monash University, Australia

PUBLICATIONS

Selected original research papers from the conference are expected to be published as a special issue of a peer reviewed journal. The special issue is anticipated to make a significant contribution to Chalcogen Science & Technology, and inter-disciplinary research areas. Authors willing to contribute to this special issue should submit their full paper by October 31st 2022.

INFORMATION ON BOOK DISCOUNTS

Recently, three books related to the conference theme have been released:

- Environmental Technologies to Treat Sulfur Pollution, 2nd edition, edited by Piet Lens
- Environmental Technologies to Treat Selenium Pollution, edited by Piet Lens and Kannan Pakshirajan
- Environmental Technologies to Treat Rare Earth Elements Pollution, edited by Arindam Sinharoy and Piet Lens

All three books are published open access by IWA Publishing (www.iwapublishing.com). G16 participants are entitled to a 25% discount on the purchase of the hardcopy of any of the three titles. The hard copies of the books can be ordered directly from: **iwap@turpin-distribution.com** (*Key code*: **G16LENS25**).

TOPICS OF THE CONFERENCE

The 8th 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:

NOVEL (BIO)CONVERSIONS OF CHALCOGENS 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) CHALCOGEN - METAL INTERACTIONS

- ✓ Impact and treatment of Chalcogens 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

(III) PRODUCTION OF CHALCOGEN NANOPARTICLES

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

(IV) ROLE OF METALS IN BIODEGRADATION

- ✓ Role of metal speciation in biodegradation of organic compounds
- ✓ Trace metal retention in anaerobic granules and biofilms
- ✓ Trace metal requirements of aquatic biota
- ✓ Application in soil and groundwater remediation
- ✓ Metal enhanced degradation processes

TOPICS OF THE CONFERENCE

(V) SPECIATION OF CHALGOGENS

- ✓ Chemical speciation 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 Chalcogenadiazoles

(VI) 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
- ✓ Sensoring, monitoring and control procedures
- ✓ Gas-phase analytical techniques

(VII) (BIO)REACTOR SYSTEMS

- ✓ Performance and optimization of conventional bioreactors
- ✓ Improved/innovative bioreactor concepts
- ✓ Microbial fuel cells
- ✓ RO, Filtration and ligand-exchange processes
- ✓ Kinetics and mathematical modelling
- ✓ 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