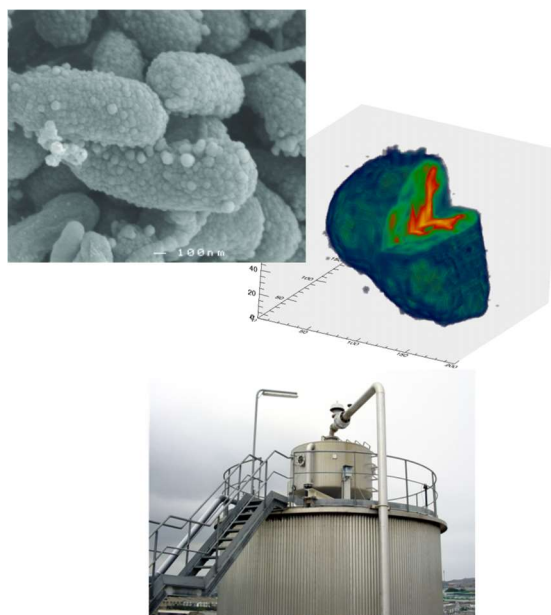




OLLSCOIL NA GAILLIMHÉ
UNIVERSITY OF GALWAY

**8th INTERNATIONAL CONFERENCE ON
RESEARCH FRONTIERS IN
CHALCOGEN CYCLE SCIENCE AND TECHNOLOGY**



November 17 – 18th, 2022

(Online Conference)

Zoom links given in schedule below

Time schedule in London/Dublin time zone

**Department of Microbiology
University of Galway
Galway, Ireland**



Day 1: November 17 (Time in London/Dublin time zone)

Link for Day 1:

<https://nuigalway-ie.zoom.us/j/93779082308>

10.00: Opening of G16 Conference

Chair person: Piet Lens (University of Galway, Galway, Ireland)

10.10 – 10.40: Keynote: Metal and selenium bio-recovery: Implications for circular economy

Kannan Pakshirajan (IIT Guwahati, Guwahati, India)

Part I. Chalcogen bioconversions

Chair person: Simon Mills (University of Galway, Galway, Ireland)

10.40 – 11.00: Validation of analytical method for determination of selenium in spinach (*Spinacia oleracea*) using ICPMS

Nagaraj M. Naik (University of Agricultural Sciences, Raichur, India)

11.00 – 11.20: Sustainable biorefining and bioprocessing of sulfated polysaccharide (ulvan) from marine macroalgal biomass (*Ulva* sp.)

Arul Manikandan (Dublin City University, Dublin, Ireland)

11.20 – 11.40: Biohydrogen production from wastewater using microbial electrolysis cells

Amit Kumar Chaurasia (MVJ College of Engineering, Bangalore, India)

11.40 – 12.00: Bioelectrochemical systems for sustainable treatment of acid mine drainage coupled with resource recovery

Annie Modestra Jampala (Luleå University of Technology, Luleå, Sweden)

Lunch Break 12.00 – 13.00

Part II. Chalcogen – metal interactions

Chair person: Amulya Kotamraju (University of Galway, Galway, Ireland)

13.00 – 13.30: Keynote: Advancing the state of art large scale selenium capture (and beneficiation)

Jason D. Monnell (Electric Power Research Institute, Charlotte, USA)

13.30 – 13.50: When less is more – highest sulfate removal did not yield highest metal recovery

Rachel Costa (University of São Paulo, São Paulo, Brazil)

13.50 – 14.10: Effects of waste scrap iron on sludge anaerobic digestion: Performances microbial community and potential metabolic functions

Le Chen (Beijing Forestry University, Beijing, China)

14.10 – 14.30: Microbial reduction of antimony(V)-bearing ferrihydrite by *Geobacter sulfurreducens*

Jinxin Xie (University of Manchester, Manchester, UK)

14.30 – 14.50: Might SBR activity impact positively the methanogenic activity of granular sludge? Effect of pH regulation

Parvin Hasani Zadeh (University of Galway, Galway, Ireland)

14.50 – 15.05: Flash-poster presentations

Biominalization of indium to indium chalcogenide nanoparticles using anaerobic granular sludge and fungal pellets

Arindam Sinharoy (University of Galway, Galway, Ireland)

A review on desulfurization methods for pyrolysis oil

Nagaraja (Bannari Amman Institute of Technology, Sathyamangalam, India)

The interplay between microbial sulfur reduction, methanogenesis, and transition metals supplementation

Marco Prevedello (University of Galway, Galway, Ireland)

15.05: End of Day 1

Day 2: November 18 (Time in London/Dublin time zone)

Link for Day 2:

<https://nuigalway-ie.zoom.us/j/92342267110>

Chair person: Eldon Raj Rene (IHE Delft, Delft, The Netherlands)

10.00 – 10.30: Keynote: Observations of Tellurium Biogeochemical Cycling and detection of Natural Tellurium Nanoparticles

Owen P. Missen (Museums Victoria, Victoria, Australia)

Part III. Production and application of chalcogen nanoparticles

10.30 – 10.50: Green synthesis of nanoparticles coated nanofabrics with antimicrobial potential

Maghimaa Mathanmohun (Muthayammal College of Arts and Science, Rasipuram, India)

10.50 – 11.10: Biogenic tellurium nanoparticles synthesis using *Penicillium citrinum* in batch system and their characterization

Ajay Kumar Chhantyal (Indian Institute of Technology, Guwahati, India)

11.10 – 11.30: Removal and recovery of critical raw materials (gallium and germanium) by adsorption onto selenium and tellurium nanoparticles

Sudeshna Saikia (University of Galway, Galway, Ireland)

11.30 – 11.50: Two stage anaerobic digestion of distillery spent wash: Impact of FeCl₃ additives in the form of salts and its nanoparticles on sulphates reduction, methane yield and microbial diversity

Sameena Begum (CSIR-Indian Institute of Chemical Technology, Hyderabad, India)

Lunch Break 11.50 – 13.00

Part IV. Chalcogen based environmental technologies

Chair person: Mohanakrishnan Logan (University of Galway, Galway, Ireland)

13.00 – 13.30: Keynote: Modeling selenium in municipal wastewater treatment

Joshua P. Boltz (Woodard & Curran, Portland, USA)

13.30 – 13.50: Sulfate removal during sugarcane vinasse dark fermentation at mesophilic and thermophilic conditions: Which is the best approach?

Lucas T. Fuess (University of Galway, Galway, Ireland and University of São Paulo, São Paulo, Brazil)

13.50 – 14.10: A sulphate-reducing bioreactor for treating acidic industrial wastewater

Dimitra-Artemis Strongyli (National Technical University of Athens, Athens, Greece)

14.10 – 14.30: Role of sulfur oxidizing bacteria in the bioconversion of aqueous sulfide to elemental sulfur and sulfates

Bhavya Karumanchi (CSIR-Indian Institute of Chemical Technology, Hyderabad, India)

14.30 – 14.50: Comparison of the performance of agricultural waste derived biochar and wood charcoal for H₂S removal in a small-scale decentralized conventional gravity system in the Maldives

Ali Mishal (IHE Delft Institute for Water Education, Delft, The Netherlands)

14.50 – 15.20: Keynote: Research frontiers in chalcogen science and technology

Piet Lens (University of Galway, Galway, Ireland)

15.20: End of Conference

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 (IETS BIO³). 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 University of 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.

SCIENTIFIC COMMITTEE

Piet Lens, University of Galway (Chair)
Kannan Pakshirajan, IIT Guwahati (Co-chair)
Francesco Di Capua, University of Basilicata, 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, University of Galway, Ireland
Artin Hatzikioseyan, National Technical University, Greece
Stefano Papirio, University of Naples Federico II, Italy
Eldon Rene, IHE Delft, The Netherlands
Mohanakrishnan Logan, University of 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

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