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Centre for Water Research and Department of Civil and Environmental Engineering

Contaminants of Emerging Concern in Mine Water: Treatment Challenges in Cold Climate

By

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Date: Tuesday, 11 June, 2019

Time: 2.00 pm to 3.00 pm

**Venue: EA #06-02,
Faculty of Engineering,
National University of
Singapore**



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by 10th June 2019 or when all seats taken

Abstract

Mining industry produces large waste impoundments and uses critical resources, such as water and energy. The three main priorities of responsible mine water management include: 1) development of sustainable treatment technologies with limited energy consumption; 2) control of the residual salinity, after treatment; and 3) safe handling of sludge, after the recovery of value-added elements. In the Canadian context, the high flow rates and contamination, remoteness, and cold climate are additional challenges. Newer concerns are contaminants of emerging concern (CECs), with evolutive behavior due to metastable species, changes related to mine life cycle and mixing processes. Treatment of CECs requires adaptation to site conditions (cold climate and on-site availability of materials), as transportation accounts to up to 50% of total costs. New research in mine water treatment includes: 1) maximizing the use of on-site available materials, following thermal and physicochemical modification procedures; 2) developing specific advanced oxidation processes, with low or no additional residual salinity creation; 3) implementing biological processes mainly used in municipal wastewater, with final degradation of several CECs; 4) improving the knowledge on the influence of salinity on the efficiency of conventional and emerging treatment technologies to remove well-known contaminants and CECs. The presentation will discuss case studies dealing with challenges in mine water treatment on mine sites operating in cold climate.

Speaker Biography

Carmen M. Neculita (left) is Full Professor and Canada Research Chair in Treatment of Contaminated Mine Water (2011-2021), at RIME, UQAT. Previously, she was Assistant Professor for 3 years at KAIST, South Korea. She also has 10 years of engineering practice, in mining industry and public sector. Her research focuses on mine water treatment, environmental biogeochemistry and mine sites rehabilitation. Prof. Neculita has advised to completion over 20 graduate students and published over 50 journal papers.



Lucie Coudert (right) is Assistant Professor and Canada Research Chair in Mine Waste Repurposing (2019-2024), at RIME, UQAT. Previously, she was Researcher for 4 years at INRS, Canada. Her research focuses on mineral processing, waste valorization and clean technologies for urban, industrial and agricultural wastewater treatment. Dr. Coudert participated to the advising to completion of 12 graduate students and published more than 28 journal papers.

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*****Seats are limited. Please register early. All are welcome and admission is free*****

Location Map

