



Engineering Minerals for Climate Change Mitigation, Food Security and Environmental Protection

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ABSTRACT

Climate change and future global food security are the two most pressing issues facing humanity, as represented by the United Nations' (UN) Sustainable Development Goals (SDGs): 'Climate Action' and 'Zero Hunger'. The above issues are further aggravated by widespread pollution of our soil and water environments with a wide range of natural and anthropogenic contaminants, calling for additional SDGs: 'Clean Water and Sanitation' and 'Life on Land'.

Despite many resources being channeled toward the development of technologies for tackling the climate change issue, currently we are far behind from reaching our internationally agreed goals. The 2017 UN Environment Program Emissions Gap Report confirmed no scenarios are available that can keep warming below the aspirational 1.5°C Paris target by 2100 without deployment of carbon dioxide removal (CDR) strategies. Similarly, contaminants in agricultural soils and drinking water are steadily increasing throughout the globe due to either the prohibitive cost of remediation or lack of a technology to clean them up.

This seminar aims to highlight how the global natural mineral resources could be utilized to meet the overarching aim of achieving climate change mitigation and food security while simultaneously improving the environmental health. Firstly, the seminar will discuss the scope of amending soils with crushed silicate minerals, a process known as land-based enhanced weathering, which is recognized by the UN as a new CDR strategy with additional co-benefits for agriculture and soils including increasing crop yields and protecting the crop plants from pests and diseases. Secondly, the seminar will shed some lights on the recent advancement of cross-disciplinary research in clay science aiming to develop efficient technologies for cleaning up environmental contaminants. The widespread availability of useable natural and also artificial mineral resources all over the world makes applications of the above mentioned technologies feasible at large scale helping us to combat climate change and food security issues, and improve the environmental quality.

Date: 20 December 2018 (Thursday)

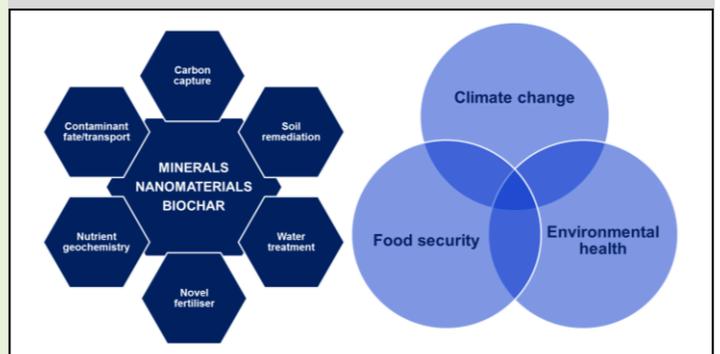
Time: 11:00 a.m. – 12:00 noon

Venue: Room Z405, 4/F, Block Z,
The Hong Kong Polytechnic University,
181 Chatham Road South,
Hung Hom, Kowloon

SPEAKER'S BIOGRAPHY

Dr Binoy Sarkar is a Research Associate at The University of Sheffield, UK, and an Honorary Adjunct Research Fellow at University of South Australia, Australia. His research encompasses the drawdown of atmospheric CO₂ for agricultural and environmental sustainability, and remediation of contaminated soil and water using natural mineral-based engineered materials. He has led successful outcomes of diverse research projects in highly multicultural environments in Australia, UK, USA and Republic of Korea.

Dr Sarkar is an awardee of the Endeavour Research Fellowship, Desai-Biswas Gold Medal and Geof Proudfoot Award. He has served as Guest and Associate Editors of Journal of Hazardous Materials, Applied Clay Science, Clays and Clay Minerals, and Journal of Soils and Sediments, and edited two scholarly books on soil amendments for sustainability, and modified clay and zeolite nanocomposite materials.



*** All Interested Are Welcome ***

For further information, please contact Dr. Dan Tsang at Tel. 2766-6072.

Free admission. Certificates of attendance will be provided to registered participants if they attend the whole lecture.