MICROBIAL CARBONATES IN TIME AND SPACE

Overview

The rise in global temperatures has adversely affected the biotic world, including microbial life, and perhaps we are at the boundary of a sixth mass extinction. Microbes are important entities which have the capacity to tolerate stress if subjected to adverse condition like salinity and temperature. The methods they have adopted to sustain themselves during environmental changes have guided their evolution and diversity over very long time-scales. These have contributed to metabolic developments that have strongly influenced geochemical transformations in Earth surface environments, which are well documented in the microbial carbonates produced through geological time scales, starting from 3.5 billion years ago. This course will offer discussion and viewpoints on different facets of microbial carbonate precipitation including genesis, micro and mega morphological changes and biogeochemical variability. As products of bacteria and other microbes, microbial carbonates are found in fossils and sedimentary archives. They are the only macroscopic organic structures produced during the first two billion years of life on Earth, and they remain abundant in a wide range of environments today, from deep sea vents and tropical coral reefs, to lakes and hot springs. Realization of their abundance and significance on Earth, and possible presence on Mars, has led a surge in recent research. The course examines microbial carbonate diversity, processes of formation, changes through time, and geologic importance, and it assesses current challenges and emerging research questions.

Course participants will learn these topics through lectures and hands-on experiments. Also, case studies and assignments will be shared to stimulate research motivation of participants.

Modules	**A: Microbial Carbonates – overview, classification, and calcification process, fabric development, distribution in time and space etc.: November 19 – 23.** **B: Geochemistry of microbial carbonates – overview, case studies, analytical techniques and lab sessions: November 24, 25.** **Number of participants for the course will be limited to fifty.**
You Should Attend If…	▪ Executives, engineers and researchers from manufacturing, service and government organizations including R&D laboratories ▪ Student students at all levels (BTech/MSc/MTech/PhD) or Faculty from reputed academic institutions and technical institutions
Fees	The participation fees for taking the course is as follows: **Participants from abroad: US $500** **Industry/ Research Organizations: Rs. 30,000/-** **Academic Institutions: Rs. 10,000/-** **Student: Rs. 2,000/-** **Additional 18% GST** The above fee include all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hr free internet facility. The participants will be provided with accommodation on payment basis.

The Faculty

Prof. Robert Riding is Research Professor at the Dept. Earth & Planetary Sciences, University of Tennessee, Knoxville, USA. His research investigates how algal and bacterial carbonates reflect long-term changes in major factors such as Climate, Sea-level, Seawater chemistry, and Atmospheric composition.

Prof. Prosenjit Ghosh is Associate Professor in the Centre for Earth Sciences at Indian Institute of Science, Bangalore. His research interest is isotope geochemistry of light elements (H, C, N, and O) in carbonate and associated rocks, as applied to the origin and evolution of geological environment; Atmospheric and Environmental chemistry; Paleoclimate; Earth System Processes; Geobiology, Paleontology.

Course Co-ordinator

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http://iisc.online/shortterm/home.html