



BIOINSPIRED SOLUTIONS FOR **NATURAL & BUILT ENVIRONMENT: SCIENCE, SOCIETY & WELLBEING** -- 0 0---

भारत सरकार शिक्षा मंत्रालय Government of India Ministry of Education भारतीय प्रौद्योगिकी संस्थान खड़गपुर Indian Institute of Technology Kharagpur





Workshop Coordinator



Ramkrishna Sen Professor and Former Head, Department of Biotechnology, ndian Institute of Technology Kharagpur

Instructions for Registration

'Bioinspired solutions for natural and built environment: Science, society and wellbeing' organized and hosted by the Department of Biotechnology, IIT Kharagpur in collaboration with the Department of Civil and Mechanical Engineering, Curtin University.

Instructions for participants:

- 1. Sign up, log in to https://erp.iitkgp.ac.in/CEP/courses.htm
- 2. Click on the "self sponsored" tab on the left and search for this course.
- 3. Click on "Apply Now" button. For more details visit: http://bbdl.iitkgp.ac.in/sparc-Indo-AUS.html
- 4. From the drop-down box, select "SPONSORED CANDIDATE" for applicant category and course/registration fee type.
- There is NO REGISTRATION / PROGRAM FEE for attending the workshop.
- However, the participants will have to make their own travel arrangements.
- Accommodation request needs to be sent to: sparc.bbdl@gmail.com (latest by February 20, 2023). Accommodation may be provided on payment basis (as per availability).
- The maximum number of participants will be 50 (Fifty) on first-come-first-serve basis. The list of selected participants will be notified to their personal e-mail address.

* Participation in one of the Indo-US (24th Feb 2023), Indo-AUS (25th Feb 2023), Indo-CAN (26th Feb 2023) workshops will grant the access to attend other two events also.

Key Resource Persons



Prof. Abhijit Mukherjee

School of Civil and Mechanical

Engineering, Curtin University,

Perth, Australia



Dr. Navdeep K. Dhami School of Civil and Mechanical Engineering, Curtin University, Perth, Australia



Dr. Santanu Dasgupta Senior Vice President, Reliance Technology Group, Reliance Industries Limited, India



Mr. Ramananda Adhikari Deputy General Manager, Hindustan Copper Limited, Kolkata





Prof. Devendra N. Singh Department of Civil Engineering, Indian Institute of Technology Bombay, Mumbai, India



Prof. Brajadulal Chattopadhyay Department of Physics, Jadavpur University, Kolkata, India





Indo-AUS Interdisciplinary Workshop

Venue: Gargi Auditorium (Vikramshila Complex), IIT Kharagpur



Call for Participation

Last date of registration: February 22, 2023

Organized in HYBRID MODE

In Collaboration With Department of Biotechnology, IIT Kharagpur

Department of Civil and Mechanical Engineering, Curtin University

Workshop Outline

Biocement as biomaterial has gained This workshop will bring together Indian increasing importance at the forefront of and Australian speakers to define a bird's interdisciplinary research. Undoubtedly, the eye view of biocementation technology, advance of microbial induced calcite identify grand challenges and applications precipitation (MICP) and construction for biocement development, and to biotechnology will have great impact on the network for increasing communication science and society alike. Beyond existing capabilities, a robust effort to understand biocementation will need to include efforts to to address a wide range of applications discover and catalog unique biomaterials and include biomaterials that have self-healing the organisms that make them, new methods properties, ones that can be made into to characterize materials, and novel methods to biosynthesize sufficient quantities of systems, and those that can be deployed biocementitious materials.

across broad scientific disciplines. The types of biomaterials that will be discussed hierarchical structures using biological and constructed in resource-poor environments by tailored organisms.

Scheme for Promotion of Academic and Research Collaboration (SPARC) is a Ministry of Human Resource Development (MHRD), Gol initiative to improve research ecosystem in India. It supports national premier educational institutions by facilitating academic and research collaborations between Indian institutions and the best and selected institutions across the world's 28 nations. The collaborative educational networks will work on common issue of national or international relevance. It encourages international faculty, for Indian institution visits and short- / long-term stavs to teach courses and conduct workshops for the benefit of Indian researchers and students.

In order to facilitate fundamental and socially relevant research in India, lot of emphasis is being laid to strengthen collaboration between Indian Research groups with Top research groups in the world, so that Indian scientists and students can interact with the finest minds in the world. With this objective in mind, MHRD (Ministry of Human Resource Development, Government of India) in 2015 launched GIAN (Global Initiative of Academic Networks), under which an International academician can visit an Indian Institute for two weeks to offer a course. The response was overwhelming, as apart from the course the Indian students and academicians got a chance to interact with the International Faculty. In the meantime, DST (Department of Science & Technology, Government of India) came up with another unique program in 2017, VAJRA (Visiting Advanced Joint Research), under which an International Scientist of Repute can spend longer duration in the country. However, it was realized that maximum benefit of a collaboration can be harvested only when the Indian Research group, particularly the students can be physically exposed to the world class research facilities and equipment available with Top international groups in their respective Institutes. As of now, such travel opportunities are limited, as there are no formal programs that generously support student visit for longer periods.

Key Topics

About IIT Kharagpur & Department of Biotechnology, **IIT Kharagpur**

- Biocementation
- Bioinspired materials
- Self-healing concrete
- Sustainability
- Biomineralization

The Indian Institute of Technology Kharagpur (IIT Kharagpur or IITKgp) is the First IIT that was established by the Government of India in 1951. It is recognized as an Institute of National Importance and recently, as the Institute of Eminence by the Government of India. The Institute was established with a mandate to produce world class engineers and scientists after our independence in 1947. Among all the IITs, IITKgp has the largest campus, largest number of Academic Units and the highest student enrolment. IIT Kharagpur launched M.Tech. program in Biotechnology & Biochemical Engineering way back in 1986. Wide appreciation of the program in the country and abroad led to introduction of an UG program in Biotechnology & Biochemical Engineering in 1994. Subsequently, the Department of Biotechnology was established in 1999 to run the UG and PG programs independently. Presently, the Department is running 4-Year B. Tech, 5-Year dual degree (B. Tech & M.Tech), 2-Year M.Tech and Ph.D programs in Biotechnology & Biochemical Eng. Currently there are about 250 UG & DD, 40 PG, 105 doctoral students and 15 PDFs working in two major thrust areas namely, healthcare biotechnology and bio-energy. The faculty members are engaged in translational R&D in the cutting-edge areas.

The major outcome of the SPARC initiative will be strong research collaboration between Indian Research groups with top research group in the leading Universities of the world, in areas that are at the cutting edge of science or with direct social relevance to the mankind, specifically India. The strong joint research should lead to tangible result that should include large number of high-quality research publications, solution to key national and international problems, development of niche courses, high quality text books and research monographs, imbibing of best practices from top international academicians and researchers, strong bilateral co-operation, and improved world reputation and ranking of Indian Institutions.



About SPARC

Organizing Committee

Patrons:

Prof. Virendra Kumar Tewari Director, IIT Kharagpur

Prof. Amit Patra Deputy Director, IIT Kharagpur

Convener:

Prof. Ramkrishna Sen Professor. Department of Biotechnology, IIT-Kgp

Local Organizing Committee Members:

Dr. B. C. Meikap

Professor and Head. Department of Chemical Engineering, IIT-Kgp Dr. M. K. Maiti

Professor. Department of Biotechnology, IIT-Kgp

Dr. Adinpunya Mitra Professor, Department of Agricultural & Food Eng., IIT-Kgp

Dr. M. M. Ghangrekar

Professor, Department of Civil Engineering, IIT-Kgp Dr. Sonali Sengupta

Associate Professor, Dept. of Chemical Engineering, IIT-Kgp

Dr. Nikhil Kumar Singha

Professor, Rubber Technology Center, IIT-Kgp

Dr. Damodar Maity

Professor, Department of Civil Engineering, IIT-Kgp

Dr. Brajesh Dubey

Professor, Department of Civil Engineering, IIT-Kgp

Dr. Debasis Sarkar

Associate Professor, Dept. of Chemical Engineering, IIT-Kgp

+91-3222-282248 +91-3222-283752



+91-77618 27842 +91-8910 907258



rksen@bt.iitkgp.ac.in sparc.bbdl@gmail.com

About Place and Climate

Kharagpur is about 130 km south-

west of Kolkata and is well connected by rail and road with important metros like Delhi. Mumbai, Chennai, Bangalore and Kolkata and also with other important cities of India. It is known that Kharagpur Railway station has the world's thirdlongest railway platform. The distance from Kolkata airport (an International airport) to Kharagpur is about 130 km and is travelled in about 2.5 hours by car. The institute is about 10-15 minutes' drive (5 km) from Kharagpur railway station. The climate at Kharagpur during late February is pleasant. Temperature varies from 24-30 °C.

Objective of the Workshop

The main objective of Bioinspired solutions for natural and built environment: Science, society and well being is to bring the UG, PG students, research scholars, faculty members / professionals & industry personnel, scientists and technologists working in life science and algal biotechnology under one umbrella to discuss recent advances and innovative technologies in the above mentioned area.