



## Important dates

**Registration opening date:** Jan 15, 2025

**Registration closing date:** March 01, 2025

**Workshop date:** March 3<sup>rd</sup> - 7<sup>th</sup>, 2025



## Program venue



## Host details

**Dr. Amit Ghosh**  
Associate Professor  
School of Energy Science &  
Engineering  
Indian Institute of Technology Kharagpur,  
Kharagpur 721302, West Bengal, INDIA

Phone

E-mail

+91-3222-260804  
+91-8918462398

[amitghosh@iitkgp.ac.in](mailto:amitghosh@iitkgp.ac.in)



## About the workshop

Under the Scheme for Promotion of Academic and Research Collaboration (SPARC) program of Ministry of Human Resources and Development, Government of India; IIT Kharagpur, International Department of Biomedical Engineering, University of Michigan, Ann Arbor, USA and Arizona State University, USA have joined hands for the workshop on 'Emerging Trends of AI in Systems Biology'. In this workshop, Indian and American project partners aims to cover state-of-the-art research challenges & breakthrough technologies behind the current trends in the field of Biotechnology. The objective is to cover the recent research efforts across the globe by involving lectures delivered by distinguished academicians & researchers from India & USA.



## Target audience

Academicians, research scholars, UG, PG students, faculty members / professionals & industry personnel working in the concerned / allied discipline.

### Registration URL:

<https://erp.iitkgp.ac.in/CEP/courses.htm>

to apply ONLINE.



The maximum number of participants will be 100 (Fifty) on first-come-first-serve basis. The list of selected participants will be notified to their personal e-mail address.



## Registration Fee

There is **NO REGISTRATION / PROGRAM FEE** for attending the workshop.

# INDO-US SPARC WORKSHOP



**March 3<sup>rd</sup> – 7<sup>th</sup>, 2025**



Scheme for Promotion of Academic and Research Collaboration

Sponsored by

Scheme for Promotion of Academic and Research Collaboration (SPARC), MHRD, GoI



Organized by

School of Energy Science and Engineering  
IIT Kharagpur

In collaboration with



University of Michigan,  
Ann Arbor, USA



Arizona State  
University, USA



## About SPARC

Scheme for Promotion of Academic and Research Collaboration (SPARC) is a Ministry of Human Resource Development (MHRD), Govt 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 stays to teach courses and conduct workshops for the benefit of Indian researchers and students in the selected research area.



## About IIT Kharagpur

Indian Institute of Technology Kharagpur (IIT KGP), the first and largest of 26 members IIT family was established in the year 1951 at Hiji detention camp at Kharagpur in West Bengal, India. This is probably one of the very few Institutions in the World which started its journey in a prison house. Since its inception in May 1951, this Institute has been transformed into a breeding ground for the dissemination of knowledge in the field of engineering and technology to reach the frame of a world class Institute. The Institute takes pride in its relentless effort to provide the best platform for both education as well as research in the areas of science and technology, infrastructure designs, entrepreneurship, law, management, and medical science and technology. The campus is lush green, calm and quiet and free from urban noise and pollution, an ideal temple for education and research. The campus is imaginatively laid out with a beautiful lake, green parks, huge playgrounds, big auditoriums, students' hostels, residential zones for faculty and staff members, health centre, cultural-cum-social and recreational zones for campus community. The Institute campus has all elements to fall in love at first sight.



## Key resource persons



**Dr. Sriram Chandrasekaran**  
Associate Professor,  
Department of Biomedical Engineering,  
University of Michigan, Ann Arbor , USA



**Dr. Arul Mozhy Varman**  
Assistant Professor  
Department of Chemical Engineering  
School of Matter, Energy, and Transport  
Arizona State University, USA



**Dr. Ranjit Prasad Bahadur**  
Professor,  
Department of Bioscience and  
Biotechnology,  
Indian Institute of Technology Kharagpur



**Dr. Pralay Mitra**  
Associate Professor,  
Department of Computer Science  
and Engineering,  
Indian Institute of Technology Kharagpur



**Riddiman Dhar**  
Assistant Professor,  
Department of Bioscience and  
Biotechnology,  
Indian Institute of Technology Kharagpur



## Organizing team

### Workshop Coordinator



**Amit Ghosh**  
Associate Professor,  
School Energy Science & Engineering,  
Indian Institute of Technology Kharagpur

### Workshop Co-coordinator



**Mahitosh Mandal**  
Professor,  
School of Medical Science and Technology,  
Indian Institute of Technology Kharagpur



## Workshop outline

Artificial Intelligence (AI) is revolutionizing systems biology by analysis of complex biological data. Emerging trends in systems biology include the use of machine learning, deep learning and other computational approaches for predictive modelling, and analysing omics datasets. AI enables researchers to simulate cellular processes, decode intricate metabolic interactions and accelerate drug discovery. By bridging computational algorithms with biological insights, AI is transforming systems biology into a data-driven approach, fostering breakthroughs into personalized medicine and synthetic biology.

This five-day workshop will bring together Indian and USA speakers to define a bird's eye view on the intersection of AI and systems biology, exploring cutting-edge technologies in disease modelling, personalized medicine, and drug discovery. Discussions will focus on collaborative efforts, addressing research gaps, and developing actionable solutions for global health challenges.

### Talk content

- Advances in AI for Biological Research
- Systems Biology in Human Diseases
- Genome-scale Metabolic Models
- Predictive Modelling of Disease Mechanisms
- Disease-specific Biomarker Identification
- AI in Drug Discovery and Precision Medicine
- Unveiling Drug-Pathogen Dynamics
- Harnessing ML for Global Health Resilience