

4th

Biological Engineering Society Conference - 2022



VENUE: BOSE INSTITUTE, SALT LAKE, SECTOR V, KOLKATA

**THEME: SMART AND SUSTAINABLE BIOPROCESSING
THROUGH GENE & PROCESS SCALE COLLABORATION**



JOINTLY ORGANIZED IN HYBRID MODE BY



**Department of Biotechnology, IIT Kharagpur
and**

Bose Institute

On behalf of the

Biological Engineering Society, India (BESI)



Sponsors: Reliance, Biorad, Olympus.....Many more to join !!



Objectives

The new millennium ushered in a new era of hope and aspirations for the civilized society to respond to the current scientific and technological challenges faced by the humanity. Among such challenges as stated by the United Nations in their 17 UN-Sustainable Development Goals, serving humanity through the development of cutting edge scientific and technological solutions to the emerging issues of healthcare including Covid'19 pandemic, global warming driven climate change and related energy-environment-&-water nexus based crises, is the key to survival and sustenance. In order to achieve a sustainable ecosystem, the new paradigm of bio-process engineering, genetic & metabolic engineering, protein engineering, systems and synthetic biology can immensely contribute in delivering targeted solutions to the above-mentioned challenges. Development and optimization of processes for new generation healthcare biomolecules, nutraceuticals & functional foods, biofuels and value-added bio-commodities, while cleansing environment through carbon capture, waste remediation and valorization would be the key to sustainable growth and progress of human society and would require participation from all the verticals of modern biotechnology. Thus BESCON'2022 is aimed at providing such a platform to the Biological Scientists, Engineers and Technologists to join their hands and minds in adding and creating new values to the existing know-how of Biotechnology.

In order to discuss these ideas for addressing and meeting some of the UN's Sustainable Development Goals, BESCON 2022 is going to be organized at Bose Institute in Salt Lake, Kolkata by the Department of Biotechnology, Indian Institute of Technology Kharagpur and Bose Institute on behalf of the Biological Engineering Society, which is a registered scientific forum constituted in 2016 for the advancement of biological engineering and allied disciplines covering Blue-Green-Red-&-White Biotechnology.

BESCON-22 will feature plenary/keynote/invited talks, oral & poster presentations in the areas of Bioprocess Engineering, Genome & Metabolic Engineering, Systems & Synthetic Biology, Protein Engineering, Biomaterials & Biomedical Engineering, Biorefineries for Biofuels & Biorenewables, Sustainable Development,. It will be a platform to share and show-case one's research findings among the peers in the field from industry and academia. It will also be a good networking platform for the academics, company professionals and research students to interact and discuss on prospective collaborations, networking and idea translation.

Thrust Areas

1. **Genome and Metabolic Engineering (GME)**
2. **Bioprocess and Biochemical Engineering (BBE)**
3. **Protein/Enzyme Engineering (PEE)**
4. **Biorefineries for Biofuels and Biorenewables (BBR)**
5. **Systems and Synthetic Biology (SSB)**
6. **Sustainable Development Goals (SDG) for Health-Energy-Environment-Water Nexus**
7. **Environmental and Marine Biotechnology (EMB)**
8. **Biomaterials and Biomedical Engineering (BBM)**
9. **Blue, Green, Red & White Biotechnology (Industry Conclave)**

About the Biological Engineering Society

Biological Engineering Society is a scientific forum constituted for the advancement of Biological Engineering and allied disciplines including Bioprocess Engineering & Technology, Biochemical Engineering, Genome & Metabolic Engineering, Protein Engineering, Systems & Synthetic Biology, Biomedical & Tissue Engineering for overall Sustainable Development through Blue, Green, Red & White Biotechnology. The Society was founded and registered in the year 2016. The vision of this society is the holistic advancement of scientific knowledge and research in relation to Biological Engineering in all its basic and applied aspects so as to develop professional skills for industrial scale operation.

About IIT Kharagpur & the Department of Biotechnology, IIT Kharagpur

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.

About Bose Institute

Sir Jagadish Chandra Bose (1858-1937), the father of modern science in the Indian subcontinent, founded Bose Institute. Acharya J C Bose dedicated the Institute to the service of the nation on his 60th birthday (November 30th, 1917), while delivering his famous speech "The voice of life". Rabindranath Tagore who was then visiting USA, composed the soul-stirring "Matri mondiro punya angono" for the occasion. This song is the anthem of the Institute. The Institute was founded as "not merely a laboratory but a temple", with its principal aims being the advancement of science and diffusion of knowledge. The institute has conducted path-breaking research in the fields of plant sciences, structural biology, molecular biology, biomedical sciences and biotechnology. 3

Advisory Committee

Dr. Purnendu Ghosh, Former-Professor, IIT-D & Executive Director, BISR Jaipur
Dr. P. K. Ghosh, Ex-Adviser, DBT, GoI & Ex-President-Biotech, Cadila Pharma
Dr. K. B. Ramachandran, Ex-Professor & -Head, Dept of Biotechnology, IIT-M
Dr. Pinaki Bhattacharya, Ex-Professor, JU & Head, Dept. of Chemical Eng, HIT
Dr. Amulya Panda, Ex-Director, NII & Associate Director, Panacea Biotech, New Delhi
Dr. Debabrata Das, Former-Professor & Head, Dept of Biotechnology, IIT-Kgp
Dr. Uttam Chand Banerjee, Ex-Professor & Head, NIPER, Chandigarh
Dr. S. Venkata Mohan, Senior Principal Scientist, CSIR-IICT, Hyderabad
Dr. Guhan Jayaraman, Professor & Head, Department of Biotechnology, IIT-M
Dr. Anand Bachhawat, Professor, Dept. of Biological Sciences, IISER Mohali
Dr. James Gomes, Professor & Former Head, Kusuma School of Bioscience, IIT-D
Dr. Chiranjib Bhattacharjee, Professor & Pro-Vice-Chancellor, Jadavpur University
Dr. K. V. Venkatesh, Professor & Core Faculty, Department of Chemical Eng., IIT-B
Dr. Suparna Mukherjee, Ex-Head, Department of Environmental Sci & Eng., IIT-B
Dr. Nihar Ranjan Jana, Professor & Head, Department of Biotechnology, IIT-Kgp
Dr. Amit Kumar Das, Professor & Ex-Head, Dept. of Biotechnology, IIT-Kgp
Dr. Sudip Kumar Ghosh, Professor & Ex- Head, Dept. of Biotechnology, IIT-Kgp
Dr. Jayanta Mukhopadhyay, Professor, Department of Chemistry, Bose Institute
Dr. Mahitosh Mandal, Professor, School of Medical Science & Technology, IIT-Kgp
Dr. Sanjoy Ghosh, Professor, Department of Bioscience & Bioengineering, IIT-R
Dr. V. Venkata Dasu, Professor & Ex-Head, Department of Biosci. & Bioeng., IIT-G
Dr. S. Meenakshisundaram, Professor & Dean (Tech), Anna University, Chennai
Dr. Parimal Karmakar, Professor & Ex-Head, Dept. of Life Science & Biotechnology, JU
Dr. Ranjana Chowdhury, Professor & Former-Head, Dept. of Chemical Eng., JU
Dr. Joydeep Mukherjee, Professor & Ex-Head, School of Environmental Studies, JU

Scientific-cum-Technical Committee

Dr. Bijan Choudhury, Professor, Department of Bioscience & Bioengineering, IIT-R
Dr. Kannan Pakshirajan, Professor & Ex-Head, Dept. of Biosci. & Bioeng., IIT-G
Dr. Kaustubha Mohanty, Professor & Head, Department of Chemical Eng., IIT-G
Dr. Prabirkumar Saha, Professor & Ex-Head, Department of Chemical Eng., IIT-G
Dr. Sanjukta Patra, Professor, Department of Bioscience & Bioeng., IIT-G
Dr. Smita Srivastava, Professor, Department of Biotechnology, IIT-M
Dr. Punyasloke Bhadury, Professor, Dept of Biological Sciences, IISER Kolkata
Dr. Supratim Datta, Professor, Department of Biological Sciences, IISER Kolkata
Dr. Rachit Agarwal, Assistant Professor, BSSE, Indian Institute of Science Bengaluru

Organizing Committee

Patrons:

Prof. Virendra Kumar Tewari, Director, IIT Kharagpur

Prof. Uday Bandyopadhyay, Director, Bose Institute

Prof. Amit Patra, Deputy Director, IIT Kharagpur

Prof. Tapan Kumar Dutta, Dean (R&D), Bose Institute

Convener & Joint-Conveners:

Dr. Ramkrishna Sen, Professor & Former Head, Dept. of Biotechnology, IIT-Kgp

Dr. Srimonti Sarkar, Professor, Dept. of Biochemistry & Dean (SA), Bose Institute

Dr. Agneyo Ganguly, Assistant Professor, Dept. of Biotechnology, IIT-Kgp

Dr. Riddhiman Dhar, Assistant Professor, Dept. of Biotechnology, IIT-Kgp

Joint-Treasurers:

Dr. Anindya Sundar Ghosh, Professor, Department of Biotechnology, IIT-Kgp

Dr. Somdeb Bose Dasgupta, Assistant Professor, Dept. of Biotechnology, IIT-Kgp

Local Organizing Committee Members:

Dr. Mrinal Kumar Maiti, Professor. Department of Biotechnology, IIT-Kgp

Dr. Pinaki Sar, Professor. Department of Biotechnology, IIT-Kgp

Dr. Ranjit P. Bahadur, Professor. Department of Biotechnology, IIT-Kgp

Dr. Wriddhiman Ghosh, Associate Professor, Dept of Microbiology, Bose Institute

Dr. Debasis Sarkar, Associate Professor, Dept of Chemical Engineering, IIT-Kgp

Dr. Abhrajyoti Ghosh, Associate Professor, Dept. of Biochemistry, Bose Institute

Dr. Sangram Bagh, Associate Professor, Saha Institute of Nuclear Physics, Kolkata

Dr. Amit Ghosh, Assistant Professor, School of Energy Science & Engg, IIT-Kgp

Dr. Soumya De, Assistant Professor, School of Bioscience, IIT-Kgp

Dr. Dibyendu Samanta, Assistant Professor, School of Bioscience, IIT-Kgp

Dr. Ritobrata Goswami, Assistant Professor, School of Bioscience, IIT-Kgp

Dr. Smarajit Polley, Assistant Professor, Dept. of Biophysics, Bose Institute

Dr. Abhijit Das, Assistant Professor, School of Bioscience, IIT-Kgp

Dr. Arindam Mandal, Assistant Professor, School of Bioscience, IIT-Kgp



About Kolkata

The City of Joy, Kolkata, formerly Calcutta, capital of West Bengal state, and former capital (1772-1911) of British India, is centred on the east bank of the Hooghly River. Kolkata is known for its literary, artistic and revolutionary heritage; it was the birthplace of modern Indian literary and artistic thoughts. Kolkata serves as the crossroads of many cultures, cuisines and festivals and thus it earned itself to be coined as the “Cultural Capital of India”. Kolkata is the dominant urban centre of Eastern India. Surrounded by colonial architecture this large and vibrant Indian city exhibits a great joie de vivre that is demonstrated in a penchant for art and culture and a high level of intellectual vitality and political awareness. Crowds throng to Kolkata’s book fairs, art exhibitions, and concerts. Kolkata is well connected to rest of India via the Netaji Subhash Chandra Bose International Airport (CCU) and by direct train services.

Tourist/Historical attractions in Kolkata

Kolkata has many buildings adorned with Indo-Islamic and Indo-Saracenic architectural motifs. Several well-maintained major buildings from the colonial period have been declared "heritage structures"; others are in various stages of decay. Established in 1814 as the Nation's oldest museum, the Indian Museum houses large collections that showcase Indian natural history and Indian art. Marble Palace is a classic example of an European mansion that was built in the city. The Victoria Memorial, has a museum documenting the city's history. The National Library of India is the leading public library in the country, while Science City is the largest science centre in the Indian subcontinent. World renowned R&D institutions like Bose Institute, Saha Institute of Nuclear Physics, CSIR-Indian Institute of Chemical Biology, Indian Association for Cultivation of Science are also here in this city of joy.





Registration Details: Visit www.bescon2022.iitkgp.ac.in

Registration Types	Important Dates
EARLY BIRD	Available on or before October 11, 2022
STANDARD / REGULAR	From October 12, 2022 up-to October 31, 2022

Registration Fees (INR)

Registration[#] Categories & Fees (Non-Refundable and Without Accommodation*)

All the fees are inclusive of GST

CATEGORY	On /Before OCT 11, 2022		From OCT 12, 2022		SPOT Registration
	ONLINE [§]	OFFLINE	ONLINE [§]	OFFLINE	OFFLINE
Students (Except IIT-Kgp & BI-K)	INR 2000	INR 4000	INR 2500	INR 5000	INR 8000
Students (IIT-Kgp & BI-K)	INR 1500	INR 3500	INR 2000	INR 4500	INR 5000
Faculty/Scientist	INR 2500	INR 6500	INR 3000	INR 7500	INR 12000
Industry	INR 3000	INR 9000	INR 3500	INR 12000	INR 15000
Accompanying person	NA	INR 4000	NA	INR 6000	INR 10000

#1. Registration for participation OFFLINE (with/without abstract submission) covers access to all conference sessions, exhibition area, tea/coffee breaks, conference lunch and dinner.

*2. Limited number of accommodations may be arranged for general participants by the organizers - on prior request (on or before October 11, 2022). Transportation to & from the conference venue needs to be arranged by the participants themselves.

§3. ONLINE participation is available only without abstract submission. **IF THE NUMBER OF ONLINE REGISTRATIONS DO NOT EXCEED 50, BESCON22 WILL BE HELD IN OFFLINE MODE ONLY.**

Contact details: IIT Kharagpur & Bose Institute

Dr. Ramkrishna Sen, *Professor & Former-Head, Department of Biotechnology, IIT Kharagpur and Convener - Administration & Outreach*

Phone: +91-3222-283752 (Office); E-mail: rksen@iitkgp.ac.in

Dr. Srimonti Sarkar, *Professor, Department of Biochemistry & Dean (Students Affairs), Bose Institute and Joint Convener - Coordination & Management*

Phone: +91-33-25693224 (Office); E-mail: srimontisarkar@gmail.com

Dr. Agneyo Ganguly, *Assistant Professor, Department of Biotechnology, IIT Kharagpur and Joint Convener - Coordination & Management*

Phone: +91-3222-282896 (Office); E-mail: agnevo@iitkgp.ac.in

Dr. Riddhiman Dhar, *Assistant Professor, Department of Biotechnology, IIT Kharagpur and Joint Convener - Technical & Hospitality*

Phone: +91-3222-304562 (Office); E-mail: riddhiman.dhar@iitkgp.ac.in



Instructions for Registration

4th Biological Engineering Society Conference (BESCON-2022)
jointly organized by the Department of Biotechnology, IIT
Kharagpur and Bose Institute on behalf of the Biological
Engineering Society, India (BESI)
(Abstracts to be submitted online)

- Instructions for **OFFLINE** participants **with abstract submission**:
 1. Sign up, log in (<https://erp.iitkgp.ac.in/CEP/courses.htm>) & click on the conference tab on the left and select BESCON 2022 Conference.
 2. Submit abstract in the prescribed format.
 3. Once your abstract is accepted please pay the registration fee by clicking on “Apply Now”.

- Instructions for **ONLINE/OFFLINE** participants **without abstract submission**:
 - ❖ Pay the registration fee in the CEP-STC account mentioned in the conference website (www.bescon2022.iitkgp.ac.in) and during payment of fee, **please type “BT/204” or “BESCON 2022” in the remarks.**

 - One registration with abstract corresponds to one presentation (Oral/Poster).

 - For further information please click on www.bescon2022.iitkgp.ac.in

 - For any conference related queries, please reach us at bescon2022@gmail.com



Registration Form

4th Biological Engineering Society Conference (BESCON-2022) jointly organized by the Department of Biotechnology, IIT Kharagpur and Bose Institute on behalf of the Biological Engineering Society, India (BESI)

(To be submitted online)

Name: _____

Age: _____ Gender: M/F _____

Present Position: _____

Affiliation: _____

Institute Roll Number/Employee Code: _____

Address for correspondence: _____

E-Mail: _____

Phone/Mobile: _____

Payment Reference Number: _____

Area(s) of interest: _____

Accommodation required*: Yes/No _____

Accompanying Person(s): _____

Title of the Abstract: _____

* This option will be available till Aug 31, 2022.

Signature of the Applicant